

The Rhetorical Ecology of an Urban Wetland Complex

A Dissertation

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Dedication

To land and environmental justice in the Hackensack Meadowlands, which bear so much and for so many of us. The Meadowlands is located on the homelands of the Munsee tribe of the Lenni-Lenape people (within a group of lands referred as Lenapehoking on Turtle Island). The settler colonialism that allowed me to live and work in Lenapehoking is a lived historical experience that continues in the present.

Abstract

The Hackensack Meadowlands, a feature of the Hackensack-Passaic Watershed, is a thirty square-mile urban and estuarine wetland in northeastern New Jersey on the outskirts of New York City. As urban wetlands have become a priority in the field of environmental management, this dissertation traces the rhetorical ecology of one such contested site (the Meadowlands), highlighting the role of public and professional texts as agents of both knowledge production and landscape change. To that end, I offer two analyses in this dissertation. The first is a genre analysis of technical descriptions derived from a reading of a large collection of texts, including analytical reports, field guides, natural resource inventories, primary scientific literature, and public-facing narratives. The second is an examination of the rhetorical conditions that precipitated the proposed listing of the Lower Hackensack River to the United States Environmental Protection Agency's (US EPA's) National Priorities List. The methods used in this study are grounded in writing studies scholarship (with a dual focus on technical communication and rhetoric), but this work also engages fields as diverse as human geography, literary studies, the environmental humanities, studies of science and technology, environmental planning, and environmental sociology. In the conclusion of the dissertation, I reflect on associated questions of land justice and environmental justice efforts in upstream/downstream relationships and explore the theoretical, practical, and pedagogical implications for technical communication and public writing in the environmental sector.

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Introduction

In this introduction, I describe the place I am writing from, and about: the Hackensack Meadowlands, also known as the New Jersey Meadowlands. This reflection and site description is situated within a particular cultural context: the emergence of watershed thinking in North American environmental science and policy. The introduction then presents the overarching argument of the dissertation and its significance, its overall methodology and rationale as a case study, and the contribution of this dissertation to the scholarly fields it engages. Finally, the introduction provides a preview for the remaining chapters.

0.1 HUC 02030103: The Hackensack-Passaic

The stories of this dissertation are told, for the most part, with the Euro-American place names that were taught to me. However, I want to begin this document with a land acknowledgement—one that will develop in complexity and reflexivity over the course of the dissertation itself.

I live, work, and write on Munsee Lenape land. The watershed I am in can be defined in broad terms by two big rivers: the Hackensack and the Passaic. The name Hackensack is Dutch in origin, but it is a name with closer ties to the Munsee original, which I have rendered here as Achkinkeshacky. The river is also called the Achinigeuhach, Ackingsah-sack, or Ahkin'kèshaki in Lenape, which means “place where the ground is sharp or rough” (*Hackensack*, 2021).

The Hackensack-Passaic is a hydrologic area of the Lower Hudson-Long Island drainage basin, itself contained within the Mid-Atlantic region of the United States.

These lands are classified by the United States Geological Survey (USGS) by HUCs, or hydrologic unit codes: sequences of numbers that are organized hierarchically. The smaller the number, the larger the region; the larger the number, the smaller the region. The Mid-Atlantic’s HUC is 02; the Lower Hudson-Long Island subregion’s HUC is 0203; and the Hackensack-Passaic, contained within the basin that is the Lower Hudson half (020301), is called HUC 02030103 (Figure 1).

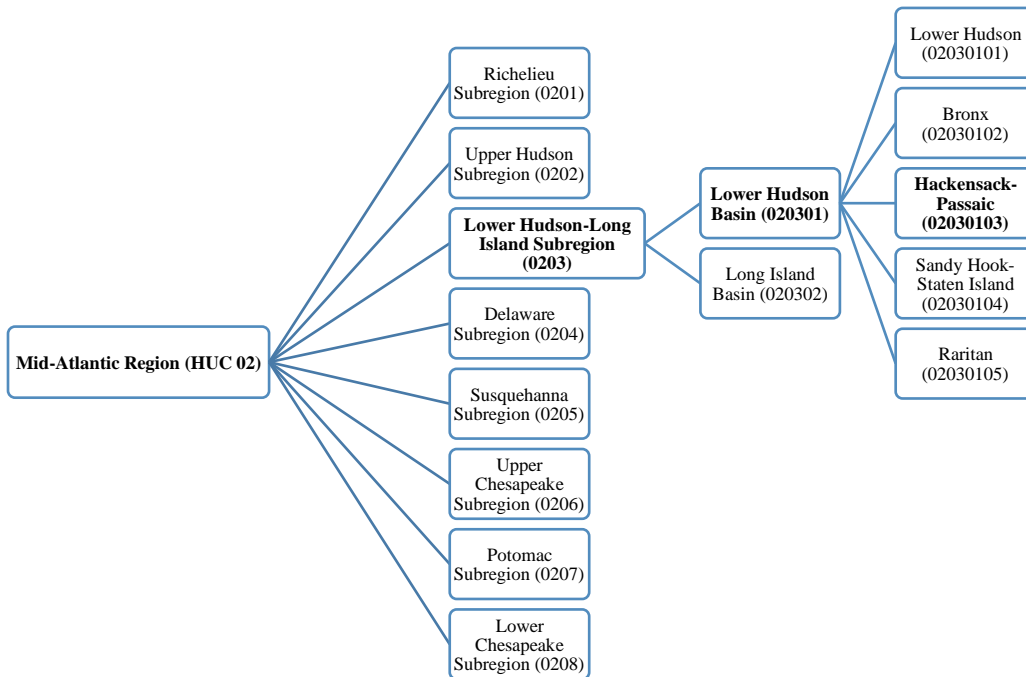


Figure 1. A hierarchy chart of Mid-Atlantic hydrologic unit codes (HUCs).

Within HUC 02030103 are some lands that are in the state of New York—in Rockland and Orange Counties—and others that are in the state of New Jersey: Bergen, Essex, Hudson, Morris, Passaic, Somerset, Sussex, and Union Counties (Figure 2). This watershed also forms a part of the New York-New Jersey Harbor Estuary, or the Hudson-Raritan Estuary.

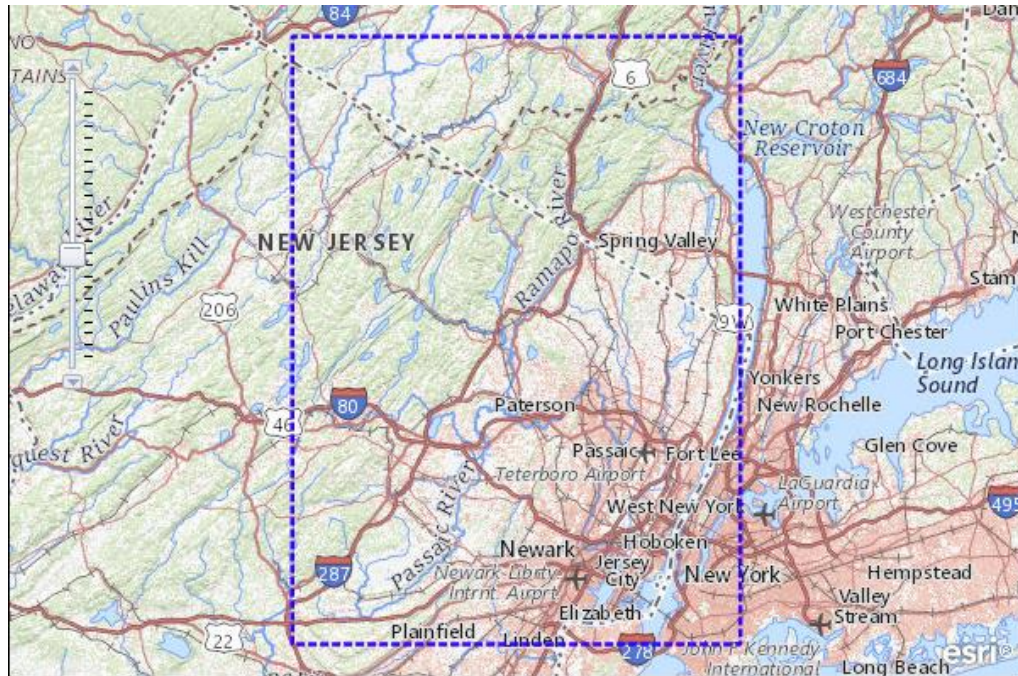


Figure 2. Map of the Hackensack-Passaic Watershed. Reprinted from USGS National Hydrography Dataset Best Resolution (NHD) for Hydrologic Unit (HU) 8-02030103, In *ScienceBase.gov*, 2017, Retrieved October 12, 2020, from <https://www.sciencebase.gov/catalog/item/5a3a5139e4b0d05ee8b593bb>. Copyright 2017 by U.S. Geological Survey.

I was born in a Morristown, New Jersey hospital not far from the Whippany River, which flows to the Rockaway River, which flows to the Passaic, and the Passaic and Hackensack Rivers empty together into the Newark Bay. Today, I live in a town called Secaucus, which is wrapped almost entirely along its western and northern edges by the Hackensack. If I stand on my porch, I can look past a small parking lot and across the Meadowlands Parkway, and there on the horizon is a great stretch of that river, between and alongside the New Jersey Turnpike. I can see it shimmering in the light of the sun, guarded by expansive stands of billowing *Phragmites* (common reed).

It is here that the story of this dissertation is centered: the Hackensack Meadowlands, also called the New Jersey Meadowlands. The Meadowlands, which make up a portion of the New York-New Jersey Harbor Estuary, are a wetland region within my watershed and the largest remaining urban wetland complex in the northeastern

United States. Figure 3 displays a map of the area that has been named as the Hackensack Meadowlands District, or New Jersey Meadowlands Commission District as it appears on the map (“NJMC District”). These boundaries are, of course, approximations (Kiviat & MacDonald, 2004).



Figure 3. Map of the New Jersey Meadowlands Commission (NJMC) District. I have added a small yellow star to show you where I live. Reprinted from “Biodiversity Patterns and Conservation in the Hackensack Meadowlands, New Jersey,” by E. Kiviat & K. MacDonald, 2004, *Urban Habitats*, 2(1), 52. Copyright New Jersey Meadowlands Commission.

To assemble the small description I have provided in this introduction, I consulted a relatively diverse mix of source materials. I pulled up maps—I glanced over reference materials—I scaled up and down USGS databases—I looked at place names recorded by the Lenape Talking Dictionary—I read the appendix of a hazard mitigation plan written

five years ago, as well as a rapid watershed assessment profile of HUC 02030103 authored by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS)—I stepped outside on my balcony—I summoned my powers of recall and experiential reflection—and I wrote, stitching together the pieces and fragments I lift from layers of memory, my own and that of others.

Since the 1960s, research in writing studies has sought after a better understanding of the complexities of writing—what it is, what it does, and how it gets accomplished. Especially since the new materialist turn in the humanities at large, scholars have repeatedly observed and described texts as, themselves, actants and mediators in dense networks of activity (Downs, 2016). Though references to “ecology” and “networks” are typically evoked as metaphors in composition theory, these concepts have had a special resonance with me and intimated meanings beyond the figurative alone. After all, as an environmental writer and communicator, I think of texts not just as mirrors or representations of the world, but as, themselves, *participants* in acts of world-making: *enactments* of complex relations in and of ourselves and other beings. Texts also get their meaning from other texts and from hosts of other agents in the worlds they occupy, which makes such a perspective potentially dizzying in its array.

Also since the 1960s, the lower Hackensack has been a turbid hypoxic dead zone.¹ It, like its twin the Passaic, has seen some recovery with the passing of the Clean Water Act and other environmental laws, as proclaimed in reports of auspicious sightings like seals (Baldwin, 2018) and bald eagles (Aberback, 2021). However, continued threats

¹ Turbidity is the measure of the relative clarity of a liquid and an important marker of water quality; the higher the turbidity, the cloudier the fluid, and vice versa. Hypoxia, a lack of dissolved oxygen, renders the area a “dead zone.” Together, high turbidity and hypoxia are signs that life can’t flourish in that aquatic ecosystem; only the most pollutant-tolerant species can usually survive.

to the health of this urban ecosystem have far from subsided. Berry's Creek (sometimes rendered as Berrys Creek or Berry Creek), a tributary of the Hackensack, still contains methyl mercury concentrations that are among the highest ever measured in a freshwater ecosystem (U.S. Department of Commerce et al., 2014). Today, the Meadowlands are especially imperiled by heavy industrialization, saltwater incursion, and a lack of space for landward retreat in the face of accelerated sea level rise (SLR).

On Friday, July 23rd, 2021, Governor Phil Murphy (D-NJ) and the New Jersey Department of Environmental Protection (NJDEP) announced their support for designating the entire lower Hackensack River, an area of about twenty-three miles including all of the Hackensack Meadowlands, as a federal Superfund site.² The announcement comes after decades of environmental abuse and unregulated dumping in the estuary region. The Hackensack Riverkeeper had petitioned the EPA to consider this listing in 2015. Following a year-long study of the water and sediments that was prompted by that petition, the United States Environmental Protection Agency (EPA) announced in January 2016 that the Hackensack River met all criteria for listing on the National Priorities List. "This would be the first time that a New Jersey river itself would be proposed for Superfund listing," as reported in an official press release of the NJDEP, marking "a critical step toward remediation of river sediments contaminated with mercury, polycyclic aromatic hydrocarbons, and other pollutants from past industrial practices" (Hajna & Shinske, 2021, n.p.).

² In 1980, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) created the Superfund program, which is administered by the United States Environmental Protection Agency (EPA). The program supports the investigation and clean-up of contaminated sites, with about 40,000 current federal Superfund sites, 1,600 of which are on the National Priorities List (NPL).

How do rhetorical events like these come to be? This part of the world sits on the outskirts of New York City, whose skyline looms large to the east of me. As such, perhaps, journalistic descriptions of the problems in this area get their fair share of superlatives: “most toxic,” “most densely populated,” “most developed,” or “most polluted,” to name a few. But the story told here is an iteration of one told many times over; it is a locality connected to a thousand others, in no small part by its shared experience as imperiled, resilient, and ultimately precarious, both making and awaiting an uncertain future with the steady, rising tide of land development, industrial use, and the effects of climate change.

To understand my first question, I asked a necessary second: How have the Hackensack Meadowlands been (rhetorically) made? To respond, we need to examine the *rhetorical ecology* of this region: the tangled web of semiotic and material things that give rise to the composite quasi-object (Latour, 1993) of the Meadowlands.

0.2 Watershed thinking in North American environmental practice

In North American hydrological use, a watershed is a drainage basin: any area of land where precipitation collects and drains to a common body of water, such as a lake, river, or bay. As shown by the example in the beginning of this introduction, watersheds exist at different geographic scales and are connected hierarchically, like nesting dolls. In “Watershed as Common-Place: Communicating for Conservation at the Watershed Scale,” rhetorician Caroline Gottschalk Druschke (2013) recounts the history of the watershed as a concept in U.S. government-sponsored conservation. John Wesley Powell, the second director of the U.S. Geology Survey (1881-1894), proposed the term in 1878—“championing the watershed, what he referred to as a ‘hydrographic basin,’

because of its explicit ability to illuminate the physical hydrological processes and its implicit ability to recommend a form of communal social organization based on those physical processes” (Druschke, 2013, p. 82). This approach, a holistic one for managing water resources in terms of quantity and quality, was revolutionary for the time—especially because it usurped existing land laws, political boundaries, and General Land Office surveys (Stegner, 1992, p. 227, as cited in Druschke, 2013, p. 83). Powell’s proposal for watershed-based property division was dismissed at the time it was presented, even as the U.S. Inland Waterways Commission also proposed to Congress in 1908 that “river systems should be treated as an integrated system” (Mika, 2019, p. 5). Watershed thinking was not revitalized until much later in the twentieth century by poet and environmentalist Gary Snyder in *A Place in Space: Ethics, Aesthetics, and Watersheds* (1995). Influenced by Powell, Snyder expressly argued for a way of community life that was based on, and inspired by, watersheds—a “naturalized communitarianism” (Druschke, 2013, pp. 83-84). This movement parallels the rise in bioregionalism at the time, which I will explain in more detail in the first chapter of this dissertation.

Today, there is a clear focus on watershed-based management by local, state, and federal conservation agencies, and in grassroots and non-profit organizing as well. The Yuba Watershed Institute, co-founded by Snyder in 1990, has since served as a model for government-funded watershed-based conservation efforts across North America (Druschke, 2013, p. 84), spurring the creation of local watershed councils and programs in the 1990s especially—coinciding with the advent of geographic information systems (GIS) applications better equipped to chart and categorize land-based data (Lim &

Sasaki, 2016, p. 228). In 1996, the National Research Council (NRC) formed the Committee on Watershed Management, requested by federal agencies to study “the opportunities and constraints associated with watershed-scale management and provide water resource managers and planners with ideas to improve the implementation of watershed management activities” (National Research Council, 1999, pp. 13–14). In the same year, the EPA’s Office of Water adopted a *Watershed Approach Framework* that, like local efforts of its kind, puts emphasis on nonpoint source pollution (as defined in section 502 of the Clean Water Act)—litter, agricultural runoff, road salt, or excess sediment, to name a few examples. Because these kinds of pollutions are pervasive and cannot be traced back to single industrial sources like pipes or containers (unlike point source pollution), efforts against nonpoint source pollution rely on the efforts of grassroots public engagement. Although the approach of watershed-based management was historically top-down, it has since become “a more bottom-up process that values local participation” as a result (Western Water Policy Review Advisory Commission, 1998, as cited in Mika, 2019, p. 1).

Into the twenty-first century, environmental professionals have made urban watershed management a priority. This is, in large part, a response to increased regulation: the EPA requires urban localities to implement specific minimum control measures to prevent or reduce pollution in receiving waterbodies (Mika, 2019, p. 1). This requirement itself is a response to increased concerns about urbanization in general: the development of land into residential, commercial, and industrial properties, causing “profound changes to natural watershed conditions by altering the terrain, modifying the vegetation and soil characteristics, and introducing pavement, buildings, drainage, and

flood control infrastructure” with such reported impacts as “increased frequency of flooding and peak flow volumes, decreased base flow, increased sediment loadings, changes in stream morphology, increased organic and inorganic loadings, increased stream temperature, and loss of aquatic/riparian habitat” (*Urbanization and Watershed Conditions*, n.d.). In urban watersheds, the stream network no longer follows its natural path; the surface drainage flows through gutters and channels into storm water inlets, engineered for the purpose of draining excess runoff from paved streets, roofs, sidewalks, and parking lots, while subsurface drainage is directed by storm sewer pipes (Lim & Sasaki, 2016, p. 233). Urbanization is considered to be “one of the dominant forms of land use change in terms of increasing surface runoff, impervious cover, and non-point source (NPS) pollution,” and has therefore been a focus area in the field (Lim & Sasaki, 2016). Because urbanization also impacts people from different socioeconomic and demographic backgrounds in dissimilar ways, urban watershed management is deeply entwined with issues of social and environmental justice (“Urbanization, Gentrification, and Environmental Justice,” 2018).

0.3 The Hackensack Meadowlands: “The marshlands of New Jersey”

Consider the vision of the Hackensack Meadowlands rendered in “Windjammers of the Hackensack,” penned by the poet Owen Terry in the 1920s:

Oh, the marshlands of New Jersey

Oh, the broad moors near the sea

Where the salt winds off the ocean

Wander far and fast and free!

*Oh, the tides in winding channels
Hidden in the meadow grass
Where the hulls unseen, ghost vessels,
Gliding schooners seaward pass.
And the nodding and the lispings
Of the zephyr-haunted sedge,
And the mallow's flaming petals
On the sluggish ditch's edge.
And the meadowlark, sky-scaler,
Mounting up on tiny wings,
Flooding upper space with music
Largesse, free, but fit for kings.
And the fleecy clouds of cloudland,
Browsing o'er their sunny leas,
And the flitting of their shadows,
Playing with the vagron breeze.
Oh, the brave life of the marshes,
Jersey's moorland green and wide,
And the brotherhood that crowns it,
Blowing wind and flowing tide! (Terry, 1922, as cited in Quinn, 1997, p. 5)*

This ode to the Meadowlands first appeared in Frances A. Johnson Westervelt's (1923) *History of Bergen County, New Jersey, 1630-1923*, later reprinted in full in the

1997 field guide *Fields of Sun and Grass: An Artist's Journal of the New Jersey Meadowlands* (Quinn, 1997). According to Eugene K. Bird, a contributor to Westervelt's history who provides the contextualizing commentary for the poem, "wind-jammer" was a derogatory term for sailing vessels and the people aboard them "by those who claim the greater dignity of association with steam craft" (1923, p. 168). In his view, though, a modest ship like the periauger could be "a picturesque object when seen across the meadows as it moved upon the water with only mast and sail in view" (p. 169). Terry's poem envisions a calm and aesthetic landscape—a rare paean to the marshes, as wetlands generally had far fewer cultural champions at that time than they do today (Vileisis, 1997, p. 2). The poem's vision of "meadow grass," "zephyr-haunted sedge[s]," "sunny leas," and "moorland, green and wide" evokes in literary form much of the same imagery as the paintings and illustrations of George Inness, Jasper Francis Cropsey, and Martin Johnson Heade, artists of the famed Hudson River School (Figures 4, 5, and 6).



Figure 4. George Inness Sr. (1859). *Hackensack Meadows, Sunset*. [oil on canvas]. New York Public Library, New York, USA.



Figure 5. Martin Johnson Heade. (1874). *Jersey Marshes*. [oil on canvas]. Thyssen-Bornemisza National Museum, Madrid, Spain.



Figure 6. Jasper Francis Cropsey. (1890). *Hackensack Meadows*. [watercolor]. The Metropolitan Museum of Art, New York, USA.

This version of New Jersey—especially this given area—seems almost unimaginable today; for one thing, much of the waters once occupied by “wind-jammers” are not navigable today. For another, consider the very different take that EPA acting

Regional Administrator Walter Mugdan provides in 2021, almost 100 years after the writing of Owen's poem:

Our preliminary review of the sampling data suggests the Hackensack River suffers from widespread sediment contamination and environmental degradation. The Hackensack River is surrounded by river communities that are disproportionately affected by environmental burdens and addressing environmental justice issues is a priority for EPA. The State of New Jersey's official support marks a significant step in EPA's process of formal listing on the National Priorities List. (Israel, 2021, n.p.)

In most accounts of the Meadowlands—outnumbering the picturesque aesthetic conjured by Terry or the Hudson River School painters—Michel Foucault's (1986) concept of *heterotopia* seems like the more common theme (Sendner, 2016, p. 10). In contrast to the ideas of utopia (the “good place”) and dystopia (the “bad place”), Foucault (1986) proposed the term heterotopia as the “other” place, “outside of all places....a sort of mixed, joint experience...a sort of simultaneously mythic and real contestation of the space” (p. 24). Heterotopias are deviant and “capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible” (highlighting their fragmented, postmodern character) (p. 25). In her thesis in architecture, Karen Sendner (2016) invokes a series of images in the modern-day Meadowlands that would lend themselves well to this Foucauldian view: abandoned restaurants and crumbling houses, graffiti on the sides of buildings, broken glass windows (p. 11). In traditional American environmental discourse generally, wetlands *are* the heterotopia, the shadowy antithesis of the imagined *good* place: the American farmland (A. Wilson, 2005). Unlike the

bucolic farm, which is orderly and productive, the *wetland* is unruly, strange, and misfit, teeming not with useful life like crops and livestock but with the unpleasant and the accursed, especially mosquitos.

“A great deal has been said about reclaiming the meadow swamps that separate Newark from Jersey City,” wrote a journalist for *The New York Times* in 1932, reflecting on the grand opening of the Diagonal Overpass—but “the day is no doubt coming when the mosquito-infested jungle of rank vegetation will only be a memory of the oldest inhabitants of Secaucus and Kearny” (“Jersey Meadows Viaduct,” 1932, p. 14). Even as late as 1967, *The New York Times* once again depicts the Meadowlands as “thousands of acres of outwardly mean and inhospitable land,” the “ugly land” that will be redeemed by its surprising turn to “the most valuable undeveloped real estate in the United States” (Waggoner, 1967, p. 56). It is no wonder, then, that cultural depictions of the area are steeped in grunge and strangeness, tangled up as the “other.” It seems never to have quite shaken the associations of all that’s hideous or desolate—the backdrop of the criminal and the seedy, the shadowy industrial wasteland of derelict warehouses (*Broadway Danny Rose*), and the wild place where one will surely, inevitably wind up at the end of a dark and strange psychedelic journey, cast out from the ordinary world of life in the city (*Being John Malkovich*) (Figure 7).

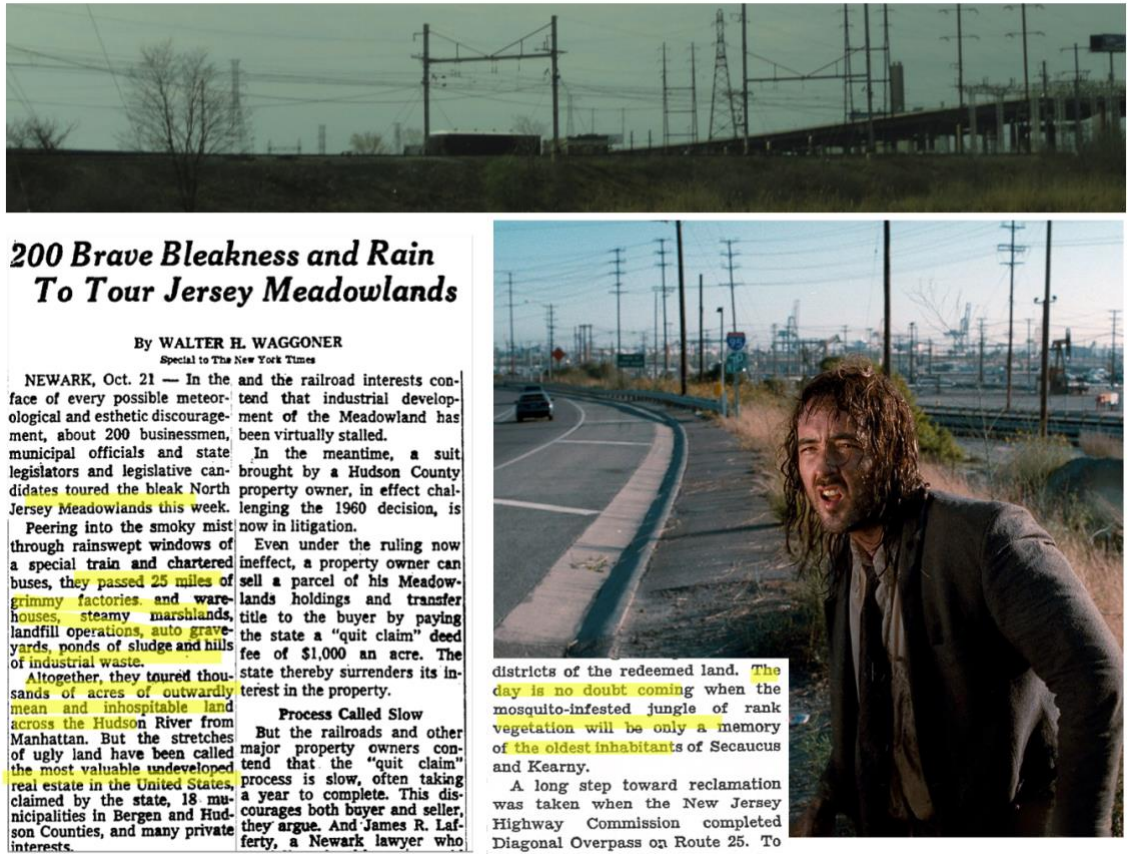


Figure 7. The Meadowlands as heterotopia (a collage created by the author).

Top: A scene from the episode “Meadowlands” in season one of *The Sopranos*. Retrieved April 26, 2022 from <https://sopranosautopsy.com/season-1-3/meadowlands-1-04/>. Copyright [1999] HBO Entertainment.

Bottom left: A screenshot of the article “200 brave bleakness and rain to tour Jersey Meadowlands” in *The New York Times*

Bottom center: A screenshot of the article “Jersey Meadows viaduct” in *The New York Times*

Bottom right: A scene from the movie *Being John Malkovich*, in which the disoriented, mud-splattered character Craig Schwartz has just been spit out into a ditch by the Turnpike. Retrieved April 26, 2022 from <https://www.microsoft.com/en-us/p/being-john-malkovich/8d6kgwzl62wd>. Copyright [1999] USA Films.

In “real life,” the Meadowlands have had to recover from decades and even centuries of environmental abuse, especially in the form of unregulated dumping. By the end of the twentieth century and into the twenty-first, the region has had to transform in the eyes of the public from being a useless wasteland to that of an environmental refuge, bearing aesthetic, scientific, and communal significance—one that would be worthy of protection.

As this short narrative has introduced in brief, the Hackensack Meadowlands is an archetypal example of sociotechnical and ecological complexity. From a planning and zoning perspective, it is today regulated by the New Jersey Sports and Exposition Authority (NJSEA), the curiously named state agency that now functions as an environmental and regulatory body through its absorption of the former New Jersey Meadowlands Commission (NJMC) in 2015. In this capacity, the NJSEA oversees the 30.4-square-mile area with a stated purpose “to provide for the orderly development of the region, to provide facilities for the sanitary disposal of solid waste, and to protect the delicate balance of nature” (New Jersey Sports and Exposition Authority, n.d.), in addition to the duties aligned with its original purpose: owning and operating the Meadowlands Sports Complex since 1971.³

The NJSEA views the Meadowlands as a District that currently interlaces with 14 municipalities, 10 of which are in Bergen County (the most populous county in New Jersey) and 4 of which are in Hudson County (the fastest-growing county in New Jersey according to the 2020 census, in addition to the being the geographically smallest and most densely populated): Jersey City, Kearny, North Bergen, and Secaucus. According to the most recent Municipal Map provided by the Meadowlands Environmental Research Institute (MERI)⁴ in 2019, the officially designated Meadowlands are bordered by a

³ In the twentieth century, after many failed projects of “land reclamation” and the relative end of the region’s agricultural era, there were three major drivers of development in the region: the construction of the New Jersey Turnpike, the creation of over fifty landfills on the landscape, and the building of the Meadowlands Sports Complex, including a racetrack, arenas, and now a large mall and entertainment center called American Dream. The sports complex was built in a special effort to attract professional sports franchises to the Meadowlands, which was an unbelievable ambition at that time (Kennedy, 1977), and is today synonymous with the term “Meadowlands” itself in American football discourse.

⁴ The Meadowlands Environmental Research Institute (MERI) is the scientific branch of the NJSEA, responsible for providing “the knowledge and predictive understanding necessary to sustain and conserve the Hackensack Meadowlands Estuary” (Meadowlands Environmental Research Institute, n.d.). In late 2021, MERI merged with NJSEA’s Natural Resources Management Department to become the newly

highway (Route 46) on the north, highways (Routes 1 and 9) and freight lines on the east, Port Authority of New York and New Jersey's Trans-Hudson (PATH) commuter rail lines and the Pulaski Skyway on the south, and another highway (Route 17) and railroad lines (the Pascack Valley line and the Kingsland line) on the west. Both the eastern and western spurs of the New Jersey Turnpike (I-95) cut through the Meadowlands, running alongside Kearny Marsh to the south of the region (as seen in *The Sopranos*), splitting out to hug Secaucus in the middle, and converging again in the northern part of the region near the Overpeck Creek Tide Gate. Whereas Figure 3 provided a simplified graphic of the Meadowlands District (which was also called the NJMC District in the past) that shows its relative position at the New York/New Jersey border, the interactive 2019 Municipal Map (Meadowlands Environmental Research Institute, 2019) displays a much more detailed view of the District, including tide gates, landfills (all of which are now defunct), and marshes, which are classified according to their restoration status in the Meadowlands Environmental Site Investigation Compilation (MESIC) Report (U.S. Army Corps of Engineers, 2004).

Before the arrival of Dutch colonists, the Meadowlands—a feature of the lower Hackensack River estuary at large—was a predominantly freshwater system, forested by Atlantic white cedars. Dutch farmers cleared the cedar forests and used dikes to drain the land, creating “meadows” of salt hay for harvesting—replaced, over time, by invasive common reed. The American motion picture industry, which was once at home in New Jersey before it moved to Hollywood, would later use the backdrop of the Meadowlands

minted Meadowlands Research & Restoration Institute (MRRI). At the time of this writing, the change is not yet reflected on MERI's website. I will continue to refer to the organization as MERI throughout the dissertation because that is how I knew them when I worked with them as an intern and when I sought out their archives for this study.

as stand-ins for prairie scenes (Sullivan, 1998, p. 19). Over time, human modifications to the hydrology of the region, including the addition of drainage canals, dredging in the Hackensack River, and the construction of the upstream Oradell Dam (which functionally separated the Hackensack River into a freshwater upper section and the brackish lower section below the dam, where the Meadowlands is) increased the level of saltwater incursion in the region.

The unpublished report *A Tragedy or Comedy of the Commons: A Tale of Two Marshes*, stored in MERI's archives, gives an even more detailed historical context for the Meadowlands seen today. In the report, Beth Ravit (2004) compares the Delaware Bay marshes to those of the Hackensack Meadowlands, which “bear no similarity to either their pre-European state or to each other” (p. 10), by contrasting the different cultures of the colonists in each area. Apart from the variations in topography that determine the differences between the two marsh areas, Ravit points to the cultural differences that determined land use priorities for each region: one was adjacent to New York City (the Meadowlands) and the other was closer to Philadelphia (the Delaware Bay marshes); one was more oriented toward Puritan culture, brought by colonists from New England colonies (the former), while the other was more oriented toward Quaker culture, differences that were even more pronounced by the historic split between East Jersey and West Jersey.⁵ Practices of communal salt hay farming and marsh maintenance flourished

⁵ The environmental historian Ann Vileisis (1997) also elaborates on the vilification of wetlands in Puritan culture: the contrast between the morally admirable and pious hilltop, conducive to the “city on a hill” vision, and the dark, dismal lowlands—that shadowy antithesis to the pastoral landscape, which “violated their norms of orderliness and presented an incomprehensible, chaotic landscape” (p. 33). Hillary Eklund (2022) makes a similar observation in her literary history of early modern wetlands, “where wetlands often appear [in western literary history] as nature’s mistakes, landscapes that time forgot, or rotten blemishes on the face of the earth” as they defy the traditional “classificatory order...[of] distinction between land and water” and the “teleological and anthropocentric” leanings of the early moderns (that nature must have a productive purpose and be conducive to human progress) (pp. 102-103).

in the Delaware Bay marshes, and today, thousands of acres of salt marsh in this area are owned by private conservancies and the State of New Jersey. In contrast to the rural and agrarian economy that flourished in (what is now) South Jersey, North Jersey was marked by a boom in urban development, spurred by their proximity to the markets of New York City. New Jersey was one of the first states to industrialize, fueled by coal and canals in the 1800s. Historically, patterns of land ownership in the Hackensack Meadowlands were different from those of the Delaware Bay marshes. The Secaucus (Sekakus) Patent of 1667 had “divided the Meadowlands property into long narrow strips that ran from the Hackensack River edge to the uplands of the Palisades” (Hartman et al., 2003, as cited in Ravit, 2004, p. 12). Those long strips were able to capture a diversity of possible land uses within them supportive of crops, not just the single use that marked the salt hay farming economy in the south; by the early 1800s, landowners in northern New Jersey were quite wealthy, bolstered by the rise in the perceived value of their land. Today, though, we see the ramifications of haphazard zoning in the area; these, coupled with the natural resistance of wetlands’ soggy terrain to development (Vileisis, 1997, p. 222), gave rise to the patterns of “industrial wasteland” in the area.

Although appreciation for the scientific and ecological value of wetlands has come a long way from the past, wetland ecosystems in heavily urbanized coastal areas, like the Meadowlands, need also to be able to thrive and persist under conditions of accelerated sea level rise. In a geography where space for landward retreat for the marshlands is limited and the marshlands would become inundated with increased saltwater, this ecosystem would no longer be able to sustain the same life or provide necessary ecological services. The rate of increase in the marshlands’ surface elevation,

however, is not enough to keep up with the predicted rise in sea level each year (Artigas et al., 2021). To increase the capacity of these wetlands to sequester carbon in its plant communities and its soil, restoration in the form of increased native vegetation in this area would be a vital approach moving forward (Fallon & Ford, 2019). After all, the human-caused channelization of the lower Hackensack and its tributaries has made the estuary to look more like a lake than a traditional tidal wetland today (Figure 8), and these combined “bathtub” conditions (a metaphor which will be revisited in Chapter 4 especially) are perilous for the continued ecological health of the region.



Figure 8. A view of the Hackensack Meadowlands from Mill Creek Marsh, a nature preserve in Secaucus, New Jersey. During the low tide, as seen in the photograph, the stumps of the Atlantic white cedar trees are revealed—which have endured even after many years of submersion in water. Image provided by the author.

The July 2021 announcement of the NJDEP to move forward with the Superfund designation, then, has been long in the making. The development is a positive one, in that it will mobilize the federal resources necessary for the long and continued work of

remediation. The rhetorical event aligns expectedly with the current priority in watershed ecology and management: that of urban wetlands.

0.4 Overview of the dissertation

This dissertation exists in the context of the watershed movement I described in section 0.2—the watershed “consciousness” in North American environmentalism and environmental practice (Parsons, 1985), and the case-in-point of the Hackensack Meadowlands, an urban wetland complex and feature of the lower Hackensack-Passaic River Watershed. The project is a culmination of my interdisciplinary education in rhetoric, writing and English studies, scientific and technical communication (STC)⁶, environmental studies, natural resources science and management (NRSM), and social studies of science (SST). Throughout my studies, I have sustained an overarching interest in the relationships between and among humans, texts, and the world(s) we inhabit. As a rhetorician, I focus especially on the relational and pragmatic aspects of written communication, especially those which entangle matters of social, environmental concern.

As such, I turned to a local site for this research. The Hackensack Meadowlands is a thirty square-mile urban wetland that fit the scope of what I could identify as a “place”; I found that the “Hackensack-Passaic watershed” was too large in scope to discuss with enough specificity, even with its 8-digit HUC classification. The more I learned about the

⁶ I will also use the acronyms TC for technical communication and TPC for technical and professional communication variously. While these are mostly synonyms, each one has slight variations in typical usage and associated meaning. Generally, I will use “scientific communication” to refer to a subset of communication activities involving scientific subject matter, “technical communication” to refer to a broader category of communication involving specialized subject matter in applied settings, and “professional communication” to refer to all formal communication activities, including both internal and external audience involvement, and usually in the context of a workplace or organizational setting.

Meadowlands—so often characterized as strange, marginalized, liminal, vitiated—the more curious I became about how this place had come into being. This dissertation pursues that question not just geologically, hydrologically, industrially, or even politically, but rhetorically.

Urban wetlands make rich sites for rhetorical analysis; they are amalgamations of human and non-human elements in built and natural environments without clear demarcations between the two (Platt, 2006). While there is existing scholarship about the coinage and circulation of “watershed” as a social construct, which I have already discussed in brief, I am interested in how *a* place is made, in a rhetorical sense—how it is written, essentially, into being. This dissertation, then, explores in depth the idea that places, and *this* place, are storied—and, significantly so, by the work of mundane technical communication artifacts, like the ones I’ve cited to create the site description in this very introduction. Like Druschke’s (2013), *this* study is concerned with the “the relationship between rhetorical change and landscape change”—but it is centered on specific rhetorical practices, especially that of technical description as it occurs in the gray literature. As I will go on to explain further in my analysis, the texts that contain, forward, and substantiate (give form to) the rhetorical genre tend to be ordinary, temporary, mundane—but these very texts, especially in the aggregate, are not just *representations* of the world, but in a meaningful sense, *makers* of the very worlds they describe. Seemingly separate *formal* genres like technical reports, journalistic essays, field guides, didactic texts, and scientific studies are linked together in the rhetorical ecology of the Meadowlands by way of a *rhetorical* genre (technical description) that travels—and in an important sense, implicit arguments *about* the Meadowlands that

travel along with them, making cases for what the Meadowlands are, and what they are not. I examine these effects at work with the case-in-point of the Hackensack Meadowlands, which—due in no small part to its status as imperiled—also highlights the power of (otherwise seemingly objective) descriptions themselves in how places are *argued for*: their perceived worth and value in the midst of ongoing transformations like land development and climate change. I have found in this case that the technical description genre gives rise not just to a single wetland, but to “multiple wetlands” (Mol, 2003; Herndl et al., 2018; Kessler, 2020), and that there are both epistemic and ontological consequences to the genre as a result. However, even as these dimensions are at odds with one another, they are simultaneous; gray literature, journalism, creative nonfiction, didactic texts, and scientific studies about the Meadowlands all exist in the same rhetorical ecology because certain technical descriptions and arguments “travel” between layers and bind them together.⁷ A close examination of historical arguments about the Meadowlands with this definitional focus provides a compelling case-in-point about paradigmatic shifts in Euro-American attitudes toward wetlands generally, but it also helps us understand why the Meadowlands now is what it is: fraught and contested by way of multiple and often competing objectives, and strangely both “recovered” and “imperiled.”

While this dissertation does aim to contribute to the field of writing studies by examining a misunderstood genre in a new light, it also participates in a greater effort within the environmental humanities; after all, *how we conceive of places* informs *how we act with/in them*. And, by better understanding the genres that inform our beliefs about

⁷ This view, therefore, challenges the spheres model used by Goodnight (2012), as explained more fully in Chapter 3.

what places are, we can better understand the discursive and material means available to facilitate meaningful stakeholder dialogue and engagement, including that which will be necessary in the actions for the Meadowlands prescribed by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

In the work that follows, **Chapters 1 and 2** survey the relevant scholarly literature, providing the context for my own inquiry. Together, these chapters introduce the interdisciplinary theories and frameworks that guide this conversation: first, in terms of *place studies* and human geography, and second, in terms of *environmental writing* as a subset of rhetoric, writing studies, and technical communication fields. **Chapter 3** traces the use of technical description across a large collection of public and professional texts about the Meadowlands; in doing so, it offers insight about the technical description genre itself and its connections to environmental policy, especially regarding the use of reference points. **Chapter 4** provides a close reading of two primary texts—the petition of the Hackensack Riverkeeper to the EPA, and the EPA’s own National Priorities List (NPL) site narrative and accompanying hazard ranking system (HRS) documentation—arguing that these events are outgrowths of the repeated use of technical description that preceded them. The **conclusion** of this dissertation offers a reflection on the now-vanished downstream Newark Meadows (the former southernmost portion of the Meadowlands) compared to the famous upstream site of the Great Swamp National Wildlife Refuge, the first federal wilderness area in the U.S. It then discusses the potential takeaways and implications of this dissertation (as a whole) for writing theory and practice. It summarizes key insights of the project, identifies its limitations, and provides suggestions for future research.

Appendix A bears a reflection on my ethic and commitments as a researcher, which informed my writing and use of source materials. Appendix B contains a full bibliography of the primary sources consulted in this work. Appendix C displays the letter of Captain Bill Sheehan to the EPA in full (“Petition for Preliminary Assessment for Hackensack River”), as it was too lengthy to include in the main text of the dissertation. Finally, Appendix D compiles sample course materials that have been informed by the dissertation research, with examples derived from both first-year writing and advanced writing (particularly, Technical and Professional Writing).

0.4.1 A note about the study design

This dissertation is framed as a rhetorical case study. Case study is a research strategy that takes an in-depth look at a specific empirical case, providing “a rich description of an event or of a small group of people or objects” (MacNealy, 1999, p. 195). It is an approach to research that is sometimes conflated with the ideas of ethnography and qualitative inquiry (e.g., Stake, 1995)—but a case study could involve mixed methods of data collection, both quantitative and qualitative in nature (Yin, 2002, p. 17). Case study is a design that honors “the particularity and complexity of a single case, coming to understand its activity within important circumstances” (Stake, 1995, p. xi). A “case” is usually defined (or understood) as a “bounded system,” (Smith, 1979, as cited in Stake, 1995, p. 2) meaning that there are boundaries to the object of analysis and there is at least some sense of internal, integrated working parts to comprise that system. At the same time, within a case study, the population (or, perhaps, other object to examine) “must not only be specified, but justified” (Gerring, 2007, p. 83). Similarly, as MacNealy (1999) argues, case studies ought to be more than just retrospective or

anecdotal reports of a procedure or event; they require preplanning and forethought in their design, where data is collected along the way rather than recalled from memory at the end of a project (p. 196).

Case studies are sometimes dismissed in social science as weak because the data is considered too local. However, scholarly arguments in favor of case study (in the right circumstances) are compelling. Case studies are particularly well chosen when they are designed for “how” questions, the kinds of questions that “require extensive and ‘in-depth’ description of some social phenomenon” (Yin, 2002, p. 4)—especially those that cannot be produced by way of experimental design and cannot be directly manipulated by the researcher. Case study researchers have responded at great length to questions of generalization and generalizability (e.g., Gerring, 2007, p. 79 on part/whole relationships; Yin, 2000, p. 10 on statistical generalization measuring frequencies, vs. analytic generalization which expands and strengthens theory; Stake, 1995, pp. 7-8 on petite generalizations within cases vs. grand generalization across cases). With clear research questions generated at the onset, then, a case study can be carried out as a flexible design that allows for on-the-ground, iterative processes (Eisenhardt, 1989).

By Stake’s (1995) classification, the current case under my examination (⊕) blends aspects of both intrinsic and instrumental case study (p. 45). I am using ⊕ not only to arrive at insights about the case itself (and I was motivated by intrinsic interest in the site), but to arrive at an in-depth understanding of broader concepts in rhetorical studies like technical description and genre (and to test the utility of these concepts in a real situation). My purposes here also align with Flyvbjerg’s (2006), in that I see the relationship between case study and theory in the same way; I believe that ⊕ could be

among a constellation of cases that extend and update knowledge in the field of writing studies, especially regarding the role of public and professional writing in the environmental sector.

Pragmatically, what has proven difficult for a rhetorical case study was the difficulty in establishing clear boundaries—finding the discernible beginnings and endings or agreeing with the record about what those boundaries are. Because I focused on publicly available texts, I did not have too many issues of access. However, because of my lack of training in computational methods for analyzing large datasets (such as the large corpus of texts that make up the storied Meadowlands), I was limited to first-person selection and personal reading of texts.

This said, Jenell Johnson's (2016) *American Lobotomy: A Rhetorical History* serves as a major methodological model for my own study. In the monograph, Johnson examines a wide variety of representations over the years about the surgical procedure of lobotomy, offering a rhetorical history that traces the morphing of lobotomy from "miracle cure" in 1935 to barbarous malpractice in subsequent decades. Just as Johnson uses a situated case study to argue that "medicine accumulates meaning as it circulates in public culture," I too am analyzing a situated and local case to better understand the relationship between text and place. *American Lobotomy* is a rhetorical history, as is this dissertation. Johnson (2016) writes that a rhetorical perspective emphasizes "symbols in all their messy earthly contingency: images framed by history; language bound by culture and convention; signs with unstable referents; narratives written, spoken, repeated, translated, and understood by someone, somewhere, sometime" (p. 12). With inspiration from Judy Z. Segal's (2005) *Health and the Rhetoric of Medicine*, Johnson (2016)

focuses on *kairos* rather than *chronos*; whereas *chronos* refers to a quantitative perspective on time, *kairos* refers to the qualitative perspective on time, and particularly the conditions that make a moment the “right” time for something to be, or come into being, which allow us to understand the fitness of a text to its moment and “history not only as a diachronic procession through time but also as a synchronic collection for discursive elements at a particular moment” (Miller, 1992, p. 310, as cited in Johnson, 2016, p. 74).

Whereas a conventional historian would be primarily motivated to find and construct accurate accounts of what happened, a rhetorical historian is not primarily concerned with truth in the journalistic sense; *all* accounts of reality have meaning and consequence to the rhetorical historian (Turner, 2003, p. 5, as cited in Johnson, 2016, p. 12), and “the rhetorical historian’s role is that of untangler rather than unmasker” (p. 13). This distinction also helps to explain some difference between my dissertation and another one in the discipline of history, titled *Finding Nature in an Industrial Swamp: A Case Study of New Jersey’s Hackensack Meadowlands* (Hendry, 2017). Hendry’s account, which is substantial, is focused on the Meadowlands as a case of “Americans’ willingness to embrace humanized landscapes within their understandings of nature” and on explaining *why* 8,400 acres of wetlands have survived, starting in 1968. While I too am fascinated with that same apparent shift, I am looking at the rhetorical conditions that precipitate shifts overall and at the persistent legacies of *multiple* wetland stories, crisscrossing and bleeding into one another rather than ever going away completely. Although I read primary texts in chronological order so that I could understand developments, movements, and shifts over time, I, like Johnson (2016), tried to

understand particular artifacts for their performative and effective qualities, not their essential or formal qualities, and I looked primarily for “moments of intertextual resonance—the movement, echoing, and inevitable refractions of terms, concepts, and discursive fragments” (p. 17) rather than strict retellings of existing (documented) histories. Much like the process of obtaining core samples from sediments in a water body, which can then be observed in the lab through pollen analysis to reveal layers of vegetative history in an area, I sought to work backwards, tracing out a *rhetorical* stratigraphic sequence that might underlie the current event I have highlighted in this introduction: the proposed listing of the Lower Hackensack River as a Superfund site.

With that, I will begin by surveying the scholarly literature with which this dissertation is in conversation.

Chapter 1 — Theories and Frameworks: Space and Place

This chapter provides a definition for the concept of place by surveying relevant themes from the literature in human and cultural geography, especially concerning the transformation from space to place, in order to understand how the Meadowlands itself transformed from “space” to “place” in Euro-American discourse. It also traces the rise of place-based conservation and the even more recent shift in environmental management away from a species focus to a landscape focus, and it connects the literature in environmental planning to that of urban and regional planning (centered on the concept of place-making). These considerations are relevant to a study of an urban wetland region because of its current and heavily “planned,” regulated characteristics, even as the wetlands themselves often resist anthropogenic planning efforts.

1.1 Core themes in human geography

What is the difference between place and space? What are the material implications for the real and perceived distinctions between the two, especially for activities like conservation or urban and regional placemaking?

Place studies is an interdisciplinary project of the environmental humanities and/or urban studies, involving geography, urban and regional planning, architecture, philosophy, history, literature, communication studies, and education. Through various humanistic and social scientific perspectives, natural, built, social, and cultural environments are studied for their intersections with human identities, communities, and experiences (Case, 2017). Geographer Yi-Fu Tuan is one of the main theorists in this

realm of inquiry, whose foundational works include *Topophilia: A Study of Environmental Perception, Attitudes, and Values* (1974) and *Space and Place: The Perspective of Experience* (1977). “What begins as undifferentiated space becomes place as we get to know it better and endow it with value,” writes Tuan (1977, p. 6), setting the foundation for discussions of place as “meaningful space.” Human geographer Tim Cresswell (2004) defines place by notions of ownership, a particular kind of relationship between people and location that can be taken both literally and figuratively—“place,” then, is deeply understood to mean privacy and belonging (pp. 1-18). In this lens, space is the physical, neutral reality from which places are then constructed, forged through the deliberation of rituals and other social processes. Cresswell, in his citations of human geographers John Agnew and Yi-Fu Tuan (pp. 7-8), describes more fully a place as ‘a meaningful location’—a concept distinct from, but related to, the notions of space and landscape, and one whose scope is very particular—not too large, not too small either. It is this idea of a ‘place,’ realized through the lens of human culture, that informs our sense of attachment or devotion to a physical environment, as Cresswell ultimately puts it—that old, historic building on Main Street, those mountains along the country, that very first dorm room where one might have lived in one’s college days.

Place features prominently as a theme in environmental creative nonfiction (Case, 2017), and works of literature endure in popular imagination for their representation of place-based features and identities. A number of texts in the American literary canon, for example, are celebrated for their very power as cultural artifacts of place: Henry David Thoreau’s *Walden*, Mark Twain’s *Life on the Mississippi*, or John Steinbeck’s *The*

Grapes of Wrath, to name a few.⁸ It is within my education in English literature that I first encountered place studies, used as a lens for the interpretation of urban and environmental literature. This education began with a discussion of the North American bioregionalist movement.

The Planet Drum Foundation, a community activist and ecological association in San Francisco, CA, is cited as the first promulgators for the bioregion concept in the 1970s: a “geographical province of marked ecological and often cultural unity, its subdivisions, at least ideally, often delimited by watersheds (water divides) of major streams” (Parsons, 1985, p. 2). Bioregionalism calls for a shift away from national and political boundaries of governance and instead toward smaller-scale cultural organization aligned with ecological features, such that residents would be more in tune with local environments and serve as better stewards of local watersheds and economies. The term is imbued with particular values of nature-based stewardship and localism:

The term bioregion refers to both a geographical terrain and to a “terrain of consciousness”—to a place and the ideas that have developed about how to live in that place. A bioregion can be determined initially by use of climatology, physiography, animal and plant geography, natural history, and other descriptive natural sciences, [but] the final boundaries are best described by people who have lived within it. Bioregionalism and bioregional perspective involve learning to live-in-place, a kind of

⁸ It should not be overlooked that the American “literary canon,” much like the broader Western canon in which it exists, has predominantly and historically favored white, male, upper and middle-class authors. Although attempts to diversify canons in the humanities have increased over the years, critical questions have gone further to challenge the very existence and utility of canons at all (A. Gross, 2020). This concern is related to later arguments I wish to make about authority and authorship in written descriptions.

spiritual identification with a particular kind of country and its wild nature
[that is] the basis for the kind of land care the world so definitely needs.

(Berg, 1976, p. 2, as cited in Parsons, 1985, p. 2)

The paradigm circulated well in the “spiritually motivated, back-to-the-land, do-it-yourself group only marginally derivative of the communitarian counterculture tradition of the 1960s” (Parsons, 1985, p. 2) that usually took a left-leaning, ecologically concerned, but anti-globalist and decentralized political approach. Kirkpatrick Sale’s (1985) *Dwellers in the Land: The Bioregional Vision* is a popular example of this kind of ideology in writing, although it was dismissed in a *Journal of Architectural and Planning Research* review as a book that “suffers from the flaws of a movement manifesto: thematic grandeur, paucity of documentation, inflated rhetoric, and utopian conjecture. There is little here to convince the skeptical reader that bioregionalism is more than an idiosyncratic vision” (Hayes, 1987, p. 254). Wallace Stegner (2002), along a similar conceptual vein in the memoir *Where the Bluebird Sings to the Lemonade Springs*, cites Wendell Berry at the very onset of the chapter “The Sense of Place”⁹—“If you don’t know where you are...you don’t know who you are,” he writes, scorning the tendency of modern American homes to be mobile and thus dangerously unattached to a stabilizing place to call home, for “[m]igratoriness has its dangers, unless it is the traditional, seasonal, social migratoriness of shepherd tribes, or of the academic tribes” (pp. 199, 200). Edward Casey defines place-memory as “the stabilizing persistence of place as a container of experiences that contributes so powerfully to its intrinsic memorability”

⁹ Additionally, Stegner (2002) puts Wendell Berry in the category of “an honorable tradition, one that even in America includes great names: Thoreau, Burroughs, Frost, Faulkner, Steinbeck—lovers of known earth, known weathers, and known neighbors both human and nonhuman... a ‘placed’ person” (p. 199).

(Cresswell, 2004, p. 86). For example, the Little Bighorn Battlefield in Montana is an area defined in a sense by its association with the famous Battle of the Little Bighorn; one's experience in this land is tied at least discursively with that battle of the past, with visual reminders and even re-enactments on those untouched grounds. Timothy Cresswell defines "place" in terms of memory, attachment, and communal identities that have been forged through shared narratives and collective purposes. This social process includes an understanding of locale and the "local," knowledge of the particulars, and often, contentious politics or competing claims to the space.

Over the past few decades, the bioregionalist vision (to use Sale's phraseology) has been complicated by critical geographers (e.g., Doreen Massey, Mary Pat Brady) who are less inclined to see places as coherent, stable entities with fixed meaning in relation to fixed landscapes, but as transient, fragmentary, heterogeneous assemblages that necessarily vary by subjectivity and positionality. After all, how well does such the bioregionalist vision pan out when knowledge of a place is rendered inaccessible? This could be the case not just for urban dwellers generally speaking, whose lived experiences do not typically involve "birdsongs and waterfalls and animal droppings" or "what kind of soil is best for celery, and where blueberries thrive" (Sale, 1985, p. 44), but for all roving, uprooted people who have been removed from, or who have chosen to leave, their ancestral "places of origin"—for migrants, for segregates, for the interned and incarcerated, for displaced individuals—for any person who must forge their own sense of place, rather than nostalgically and romantically inherit that knowledge. Doreen Massey writes in particular about those who move across unbounded space, like wartime refugees and migrant workers, but who are not granted much agency in the creation of

places due to the historical and often oppressive social forces at work behind their movement (Cresswell, 2004, p. 65). As a nation, the United States has a troubled history with the separation of people from the knowledge their “ancestral places” through im/migration and forced removal, the type of movement of people which has defined and enabled the world of global trade that exists today. The establishment of place is still possible “where the succession of meetings, the accumulation of weavings and encounters build up a history” (Massey, 1994, p. 139), but “history, ballads, yarns, legends, or monuments”—what Stegner identifies as so central to the formation of place, where “fictions serve as well as facts” (2002, p. 202)—are not always available to create the sense of place that bioregionalists argue are so central to identity formation.

Doreen Massey claims, primarily through the retracing of the geologic history of the mountain of Skiddaw, that “places” cannot be understood as fixed and immutable geographic locations. Rather, she claims that places are “simply a coming together of trajectories” (1994, p. 141), the intersections of time and space and the events that occur as a result of those meetings. She writes,

Immigrant rocks: the rocks of Skiddaw are immigrant rocks, just passing through here, like my sister and me only rather more slowly, and changing all the while. Places as heterogeneous associations. If we can’t go ‘back’ home, in the sense that it will have moved on from where we left it, then no more, and in the same sense, can we, on a weekend in the country, go back to nature. It too is moving on. (1994, p. 137)

Toward a similar end, Edward W. Soja (2010) examines how interactive, regional, national, and global territories are created and defined in uneven ways in the

essay “On the Production of Unjust Geographies.” Certainly, this requires a detailed and nuanced analysis of the social and political forces that have shaped our understanding of places generally—especially rising urban places, where collective struggles have unfolded with the clashing of cultures and rights to resources have been contended. Soja uses detailed case studies to illustrate cases of spatial discrimination and injustice: Paris, for example, in the case of “banns” and their use to determine the social norms of the city, or the practice of gerrymandering in the US (e.g. Massachusetts) to influence election outcomes based on arbitrarily created voting districts, or the contemporary struggle for Palestinian peace and unity in the face of Israeli occupation, and the creation of “unusually fertile and ideologically charged” borderlands. Even a region that feels private and personal is, as Soja claims, “commodified and commercialized into parcels of valued land that are owned by individuals, corporations...or by the state” (p. 44). Ultimately, he calls for a New Regionalism to restore the welfare regionalism initiatives that have been lost with the shift of priorities towards city marketing and attraction of tourists. This New Regionalism would focus on bringing back democratic principles to cities, alongside environmental justice, and in keeping with the ideas of progressive regional planners and community development activists.

Ursula K. Heise (2008) summarizes these movements, these “environmentalist visions of the planet,” in *Sense of Place and Sense of Planet: The Environmental Imagination of the Global*. Heise refers to a philosophical and sociological concept called “the ethics of proximity”—the formation of a moral code on the basis of one’s most immediate and nearby concerns. When faced with global issues or concerns, dissolution of responsibility occurs, and people focus their energy and efforts more deeply towards

their particular, local place or circumstance. Heise identifies this strain of thought in American environmental writing, more so than in other regional manifestations of environmentalist culture, relying significantly on place-based rhetoric in, for example, Wendell Berry's work and in the bioregionalism of the 1960s and '70s. Heise critiques the political implications of the ethics of proximity, as in the case of Arne Naess's new world order of bioregions (doing away with the sociopolitical structures that had otherwise laid claim to national identities), particularly since the commitment to small natural regions does not always complement the desire to serve small communities. Ultimately, she claims that "[d]enying that a global perspective might yield useful insights and solutions implies either that one deprives oneself of a fair number of ecological insights, as well as an understanding of present political and economic realities, or that one is forced to make a large number of exceptions" (p. 38). Eco-cosmopolitanism is a movement, according to Heise, which does not lament the loss of local knowledge with the dawn of deterritorialization—rather, it capitalizes on its ability to introduce a broad diversity of influences, a network of forces, and how ecology is truly all about the connections formed in and among the planet, holistically imagined. It encourages thinkers to go beyond the confines of "locale," acknowledge "the varieties of environmentalism," and encircle both human and nonhuman elements in planetary community.

This portion of the literature review has served to explain the social and political concepts that undergird the identification of a "place," as I will apply to the case of the Meadowlands, and to address the question of how the political history of a place bears on the contemporary social exchanges and behaviors that occur within it. In Euro-American

culture, the Meadowlands transformed from an empty “space” in need of cultivation and refinement (or else it had better have some utility, such as that of a dumping ground) to a cultural and ecological “place” in its own right, made so by many simultaneous (and not always cooperative) endeavors: the spread of *Phragmites*, the development of urban legend and folklore to reify its “weird” and eerie nature, its location relative to New York City and the New Jersey Turnpike, the building of family-oriented entertainment centers, snowy egrets, toxic pollution, and William Carlos Williams, to name just a few. (As I will discuss in the upcoming analysis chapters, however, the public/commons dimension persists for the Meadowlands across this space/place divide, with ambivalent consequences.)

1.2 The rise of place-based conservation

Nature is often envisioned as an ideal external place, the antithesis of “culture,” “artifice,” and “civilization.” Phrases like “going out into nature,” “getting back to nature,” and particularly “the human place in nature” abound, especially within the contemporary public discourse of concern for and about the environment. And to say that somewhere is a “place,” as I’ve just explicated, is to ascribe it a special meaning, a history, and a context; places are more than just empty stages on which the action unfolds. Places shape and inform our experiences in powerful ways, known or unknown.

Environmental advocates have relied on place-based rhetoric to summon an emotional, even spiritual response from their audiences on behalf of the cause. This is usually strategic. Ideally, after all, planners or developers question the placement of a toxic incinerator in a neighborhood if they even recognize that place *as* a neighborhood—

if they were to go out and walk its streets, learn its history, spend time with its land or people, or perhaps even hail from that place themselves.¹⁰

For the goals of conservation specifically, Daniel R. Williams, William P. Stewart, and Linda E. Kruger (2013) trace the rise of a place-based approach to those activities. “Place” has emerged as a more holistic framework for conservation research and practice because it integrates conservation efforts “across all species and resources” (p. 2), invites a stronger participatory and inclusive dimension to environmental decision-making processes (p. 3), and adds a significant human role in making and using the landscape, which is otherwise often absent from scientific analyses (p. 9), as amplified by the shift away from a species-driven approach to conservation to collaborative, landscape-scale models of governance (p. 11). As Williams et al. argue,

Negotiating a shared sense of place that incorporates both natural and social history enables managers to seek common ground without locking people into discordant utilitarian, environmentalist, or preservationist positions. That is, it may be possible to build a level of consensus around a shared sense of place because it naturally leads to a discussion of desired future conditions in both ecological and human terms. (2013, p. 9)

The focus on place contrasts with the “deeply institutionalized” multiple-use management philosophy that predominated over most the twentieth century (Williams, Stewart & Kruger, 2013, p. 8). Utilitarian conservationism, dating to the early 1900s and the rise of new institutional protections for American public lands, relies on measurable quantitative data “in order to be independent from the whims of public values,” and

¹⁰ As further discussion in this dissertation will underscore, however, there are significant racial and class-based disparities in the usual outcomes of those kinds of conflicts or dilemmas.

“independent of the federal appropriations process by relying on revenue from sales of natural resources for administrative funding” (p. 8). The utilitarian approach was not questioned until land management agencies were pressured to consider a wider range of public values beyond market-based commodity value, starting in the 1950s, and the concept of ecosystem management gained traction in the 1980s and early 1990s (p. 8). In a post-utilitarian conservation management scheme, then, choices must be considered in terms of their effects on the meanings and relationships in and of specific places.

However, *with* a focus on place can come “an implied normative or prescriptive quality to define actions and behaviors deemed appropriate to the place,” called the “normative landscape” (Gieryn, 2000, as cited in Williams et al., 2013, p. 6). For example, Julia Bennett (2018) describes a bifurcation of opinions in the place-based controversy of Bickerton Hill in North West England, where the Joint Nature Conservation Committee (a part of the Department for Environment, Food, and Rural Affairs) and the Friends of Bickerton Hill contest the nature of the heath that had been maintained or existed there for at least 3,000 years. In the eyes of policy, the trees growing there out of “benign neglect” are weeds and a nuisance which threaten the characteristics of a lowland heath (a type of habitat, albeit, created by humans), but to environmentalists like the Friends of Bickerton Hill, their felling constitutes an affront to nature and to the particular kind of “place” that trees create. Regardless of the anthropocentric concerns on both sides — that is, the policy-oriented official position that the site is historic and must be preserved, vs. the sense of the local people that the trees give this space its sense of place — “what

ultimately becomes of this site will depend, as with Callon's (1986) scallops, on what the plants, animals, and soil do here," as Bennett argues (2018, p. 167).¹¹

This discussion has parallels with the rise of "watershed thinking" I described in the introduction of this dissertation, and underscores once again the importance of human beliefs and behaviors in shaping environmental systems. The field of natural resource science and management is both socio- and technical; given the power of discourse and belief in environmental action or non-action, it is no wonder that environmental "practice" and environmental "theory" intertwine. However, the field's ties to colonialist enterprises has been increasingly recognized and grappled with. As Eve Tuck and K. Wayne Yang write in the influential commentary "Decolonization Is Not a Metaphor" (2012), in external colonialism (or exogenous or exploitation colonization), which relies on extractive logics and practices, "all things Native become recast as 'natural resources'—bodies and earth for war, bodies and earth for chattel" (2012, p. 4). Although there have been significant strides to heal those divisions and to respect rather than disregard Indigenous knowledge, there remains a core tension in this field—especially given that the loudest voices in environmental decision-making processes have been predominantly white. This is a theme that I will continue to explore and develop throughout the dissertation.

¹¹ This reference points to the actor-network theory (ANT) approach that Bennett (2018) uses in her analysis of this particular conflict. ANT is a material-semiotic method that can helpfully cut through the kinds of binaries that prevail in environmental discussions, like human/non-human, nature/culture, or social/material. However, this will be explained more fully in a later part of this dissertation.

1.3 Placemaking in urban and regional planning

In urban and regional planning, placemaking is the term that has been used consistently since the 1990s to describe the collective and collaborative interventions that reimagine and reinvent public spaces: “More than just promoting better urban design, placemaking facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution” (Project for Public Spaces, 2007, n.p.). Because place identity is political, as I have described in this chapter, placemaking as a process is political as well. Some agents of placemaking are small-scale: individuals writing chalk on sidewalks, painting murals on walls, or planting small gardens. Other activities that shape public spaces are institutionally or governmentally sponsored or sanctioned, such as design and construction of larger areas (e.g., parks) and businesses (e.g., urban farms). In general, the approach is rooted in a community-first and environmentally conscious ideology, citing the historical influence of writers like Jane Jacobs and William H. Whyte in the 1950s and ‘60s (2007) and New Urbanists in the 1990s (Carriere & Schalliol, 2021, p. 5). As documented in the history *The City Creative: The Rise of Urban Placemaking in Contemporary America*, placemaking emerged as “certain actors, including individuals, not-for-profit organizations, and municipalities, used the practice to address the intense upheaval ushered in by the recession. In very real ways, then, we see how creative placemaking emerged as a strategy to address the crises—and how the practice can provide a new way to think about political economy” (Carriere & Schalliol, 2021, p. 4). Placemaking is linked to economic vitality, livability and the availability of affordable quality housing, public health, and environmental sustainability.

In my own interpretation, placemaking seems to represent a mix between the older and perhaps more nostalgic bioregionalism—which prioritizes local and non-anthropogenic characteristics like topography and native plant and animal life—with the more contemporary belief in places as socially *made*, too—and that meanings can change over time, or from person to person. While placemaking in the planning literature is represented as an approach to public design, I have included it in this discussion because I also see it as a deeply rhetorical activity. Whereas the Meadowlands are not always *intentionally* designed in the same way that a town square or even a greenway might be, they are human-made, through-and-through. Before human influence, the Meadowlands were not meadows at all but a forest, after all; not brackish, but freshwater; and today, any “hills” that appear on the Meadowlands landscape, apart from geologic anomalies like the volcanic neck Snake Hill, were created from garbage mounds. The Meadowlands are quintessential post-naturalism but ecologically imperiled nonetheless—inviting troubling questions about human presence on this coastal floodplain, even as development in the area is heavily regulated.

Architect magazine (Jacobs, 2021) published a commentary on the American Dream mall, which it sees as failed: “Today, American Dream stands as a cautionary tale. This is a story about development for development’s sake, about a project that tried to be visionary, but that only serves to valorize late-20th-century ideas, especially ones that celebrate the convenience of the automobile. The complex’s propitious name, once alive with possibility, is now just a sad irony” (n.p.). The mall’s origins date back to June 2002, when the NJSEA solicited proposals for the plot adjacent to the existing Sports Complex. 750 acres of wetlands were destroyed at that time in order to produce the

football stadium, racetrack, arena, and parking spaces. The author of the article, Karrie Jacobs, ponders what could have been; one of the proposals the NJSEA received was for a town, centered around a town center. However, the Giants opposed that proposal because it would have infringed on the ability of visiting fans to tailgate. “While it’s not surprising that Eckstut’s vision [of this town-centered concept] didn’t win out—New Jersey is uniquely resistant to anything conspicuously urbane—it’s a shame. American Dream feels like an overstuffed concept that’s missed its moment. On my visit, I found myself looking out from the highest level of the parking deck, mesmerized by the scale of MetLife stadium and the lifeless parking lot that surrounds it. I can almost imagine a whole different version of the Meadowlands, one that features Eckstut’s city, or something like it—a Meadowlands where tailgating doesn’t dictate the design of public space and someone has given serious thought to what the phrase ‘American dream’ should mean” (n.p.). This controversy is just one example of the competing values of the Meadowlands, evidenced in planning tensions around the fraught, contested space.

1.4 Conclusion

As I will go on to illustrate in the following chapters, writing and communication activities are necessarily involved in the shaping of places and their associated perceptions. With that, I will discuss core tenets in the field of environmental communication, with special emphasis on environmental considerations for rhetoric and composition (centering on writing pedagogy and the classroom) and the public or workplace practices of scientific, technical, and professional writing.

Chapter 2 — Theories and Frameworks: Rhetoric, Writing, and Ecology

This next chapter of the literature review discusses the rhetorical and sociological theories that guide my perspective about place-based writing and briefly surveys previous articulations and applications of these theories, especially in environmental and scientific studies. I then connect these frameworks to compatible post-process movements in writing studies and to the study of public and professional writing in the environmental sector, focusing on scientific and technical communication. In general, this chapter serves to explain the framework for my choice of texts about the Meadowlands to study and the ecocritical, posthumanist interpretive lens applied to that reading.

2.1 Ecological rhetoric and rhetoric of science

First, I will briefly synopsise the rhetorical theory and definition of rhetoric that guides this study.

In a commentary addressed to the scientific readers of *Frontiers in Ecology and the Environment*, two scholars—one from the field of writing and rhetoric, and the other allied with communication and journalism—argue eponymously that “rhetoric matters for ecology”—in fact, that this ancient discipline represents “a useful—and underutilized—path forward” (Druschke & McGreavy, 2016, p. 46). Scientists, as Druschke and McGreavy (2016) argue, can draw on the resources of rhetoric to make their research more accessible and amenable to non-scientific audiences (like public stakeholders and policy makers), to improve their academic writing and reach broader impacts, and even to facilitate interdisciplinary and cross-institutional work. To make this claim, Druschke and

McGreavy (2016) highlight the very similarities and connections between rhetoric and ecology, upholding rhetoric, in the end, as viable and even essential for the cause of sustainability “through improved understanding, cooperation, and science and policy actions” (p. 46). In their definition, rhetoric is “multifaceted, featuring multiple dimensions that include the strategic (persuading audiences), relational (connecting individuals), and material (affecting and being affected by the biophysical world)”; “any time we pay attention to the consequences of our language choices for policy, practice, or shifts in perspective....we are engaging in the study and practice of rhetoric” (p. 46).

This commentary is a favorite of mine for theorizing and engaging in communication as context-embedded, as situated, and as ecological. This awareness is not “new”—these themes can be arguably found in ancient rhetoric, even if some extrapolation or reinterpretation is necessary. In modern theory especially, the purview of rhetoric is rather all-consuming, though definitions generally emphasize the functional and strategic uses of communication to change the way people think, believe, feel, and act (Smith, 2008, p. 115). Because “persuasion” has been coupled with the complicated or problematic goals of either intellectual conviction or deceitful manipulation, however, “persuasion” is often refashioned or replaced in modern theory with talk of energy, effects, function, and movement. In his introduction to Aristotle’s *Rhetoric*, for instance, George Kennedy (2006) writes that “[r]hetoric, in the most general sense, can be regarded as a form of mental or emotional energy imparted to a communication to affect a situation in the interest of the speaker” (p. 7). Wayne Booth (2004), similarly, has described rhetoric as “effective communication that encompasses the entire range of resources that human beings share for producing effects on one another: effects ethical,

practical, emotional and intellectual” (p. xi).¹² Foundational to the field has been Lloyd Bitzer’s (1968) concept of the rhetorical situation, comprised of an exigence, an audience, and the set of constraints (p. 6)—collectively, then, the context in which speakers or writers create rhetorical discourse, which “calls that discourse into existence” (pp. 1, 2). Jenny Rice (Edbauer, 2005) posits “rhetorical ecology” as a more robust alternative to the more fixedly-imagined rhetorical situation, however, building off of analyses that have accounted for “a plurality of exigences and complex relations between the audience and a rhetorician’s interest” and critiques that have destabilized the supposedly discrete elements of audience, exigence, and constraints altogether (pp. 6, 7). “Rather than primarily speaking of rhetoric through the terministic lens of conglomerated elements, I look towards a framework of *affective ecologies* that recontextualized rhetorics in their temporal, historical, and lived fluxes,” she writes (p. 9, emphasis in the original). With the case-in-point of Austin, Texas—the intentional choice of describing a place, given that the Latin etymology of the word “situation” evokes location, site, and place—she goes on to offer a networked, rather than fixed, analysis of events (in this case, a public campaign to “Keep Austin Weird” in response to overdevelopment in the city); the city, then, is understood as “an amalgam of processes, or as circulation of encounters and actions” rather than a neat container for distinct elements, or a mere

¹² Both of these definitions, however, could be challenged by other rhetoricians in two separate ways. Kennedy’s definition still envisions a rather unidirectional mode of communication: sender to receiver. The rhetorical perspective, as it has been developed today, has broadened considerably from its former preoccupation with the singular rhetor. As I describe in the main text of this essay, Rice (Edbauer, 2005) especially puts forth a view of rhetoric that sees communication as dynamic and reciprocal, with the potential to be shaped by multiple agents, and wherein the “audience” is not merely the passive recipient of the speaker’s expressly intended message. Booth’s definition, while more symbiotic than Kennedy’s in its conception of effects “on one another,” only names “human beings” as purveyors of rhetorical intent or resonance. As I will discuss later in the essay, rhetoric has been very much theorized—in fact, exclusively so, for centuries—on humanistic grounds. Some rhetoricians have even been so bold as to challenge the anthropocentrism of rhetoric, as they have in the humanities at large.

backdrop for the events that unfolded (p. 12). Such a perspective takes into account that “places” are not fixed sites, but points of ever-changing encounter, involving affect, experiences, cultures, histories, moods, and discourses, all embodied—and, importantly, that agency is not located singularly in “the rhetor,” but distributed and ecological, in an open rather than closed network. Read this way, rhetorical processes are more like viruses that expand and mutate through new exposures (and Edbauer specifically invokes here Deleuze and Guattari’s description of the “becoming” of evolutionary processes, a sharing and emerging that happens in-between species) (p. 13).

All of these perspectives rather permanently trouble the transmission model of communication: the view of a tidy correspondence between the signified and the signifier, an uninterrupted and unidirectional sending and receiving of messages from point A to point B.¹³ Druschke and McGreavy (2016) make this same observation in their critique of current, or non-rhetorical, models of science communication: that they rely on a deficit understanding of the audience, and that communication is only something to consider at the end of the research process (p. 47). Rather, a rhetorical-ecological perspective in particular accounts for not just a one-to-many dynamic of communication (i.e., the genius rhetor addressing the uninformed, uneducated masses): it attends to a dense and ever-changing network of relations, involving a host of potential beings, environments, events, texts, structures, and dispositions that meet at particular confluences of space and time, all of which are located at (or, using Rice’s terms, *distributed across*) multiple scales of action and agency.

¹³ And, as Bitzer (1968) himself recognized, this way of thinking is a departure from (or, perhaps, an addition to) that of the Classical theorists, who dwelt more on the formulas and devices of rhetorical creation, with not as robust an understanding of the influence of factors external to the rhetor (p. 2).

In sync with these intellectual movements, then, came the rise of a “rhetoric of” science. Changing beliefs about the nature of science and technology, after all, play no small part in this story. In many ways, the reinvigoration of rhetoric in twentieth-century Europe and the United States could be seen as a response to the events of World Wars I and II. Having witnessed grave atrocities on a global scale, Western humanists began to question faith in bureaucratic or institutionalized expertise, and the controlling narrative (*mythos*) of expedient scientific and technological progress.¹⁴ In response to the rapid proliferation of STEM fields, spurred by the purposes of warfare, humanist critics sought to reject the philosophy of objectivism and the image of (male) lone genius, hero scientist in favor of a constructivist epistemology (Ceccarelli, 2017; Simons, 1990, pp. 1–2).¹⁵ This movement was inspired in large part by Thomas Kuhn’s (1962) *Structure of Scientific Revolutions*; though not explicitly a work of “rhetoric,” Kuhn does mention the need to analyze “techniques of persuasive argumentation,” to “discover how scientific revolutions are effected” (1962, p. 94), and that was perhaps enough of a prompt for rhetorical analysis to emerge. Rhetoricians, whose work some saw as “newly revived” with Perelman and Olbrechts-Tyteca’s (1971) *New Rhetoric*, had the opportunity here to interpret, analyze, and deconstruct all kinds of texts, not simply public address, as they’d been confined in the past. Major theoretical works and case studies came out over the course of those few decades, like those of Alan Gross, John Angus Campbell, and

¹⁴ This was the exigence for many of the works of the famous rhetorician Kenneth Burke. The epigram of *A Grammar of Motives* (1945), the first in a trilogy on motives, is *ad bellum purificandum*—which can be translated “toward the purification of war.” Burke, even for his views of strife as an essential condition of human existence (1950, p. 23), saw persuasion as the peaceful alternative to force brutality and coercion; see Thames (2012).

¹⁵ Steven Katz’s (1992) “Ethic of Expediency” picks up on the themes of distrust in cold objectivism, or Cartesianism, that has pervaded Western logic for centuries and reached a horrifying peak in World War II.

Lawrence Prelli—and many of which concerned themselves with the discourse of Enlightenment-era science as well as the nineteenth and twentieth centuries.

Today, scholarship in the rhetoric of science varies in its methods, approaches, and objects of analysis. Some works apply Aristotelian concepts like *ethos*, *pathos*, and *logos* to analyze texts (such as medical pamphlets, environmental impact statements, or the use of charts and graphs in a presentation); some draw more liberally from conceptual models like philosophy of language, linguistics, or psychoanalysis, while others rely on the work of modern rhetoricians like Kenneth Burke; some are concerned with the specialized communication among insiders in a field; others are concerned with the manner in which scientists of one field communicate with scientists of another, with outsider disciplinarians altogether, and with various public audiences; and still others examine the host of conditions that mark certain utterances as scientific claims: contexts, audiences, metaphors and other literary devices, language and grammar, and argumentation practices, to name a few (Fahnestock, 2013, p. 3). In this field, and in modern rhetoric generally, some engage in social scientific methods (e.g., interview, survey, even controlled experiment), while others conduct research more familiar to the humanities, such as rhetorical criticism (akin to literary criticism). While most research examines qualitative data, finally, some rhetoricians do collect and analyze quantitative data. Overall, work in the rhetoric of science represents the effort to push rhetoric to its farthest boundaries, and in some ways could be the emblematic project of Big Rhetoric (as it sometimes called)—that is, the view of rhetoric which sees everything communicative as within its domain, even science, which does not present itself as rhetoric (Gaonkar, 1997).

On the aggregate, these various projects exist on an ideological spectrum that ranges in how radically each one considers the actual role of rhetoric (Ornatowski, 2007). While science is a representation of the world and therefore constitutive of *strategies* of representation, to some, the idea of a “rhetoric of science” is only tolerable if rhetoric will be used to refine the *a priori* “message,” “information,” “knowledge,” or “content” in a Platonic fashion to improve the delivery of rational arguments (wherein rhetoric is only equivalent to style or ornamentation). On the other end of the spectrum, however, are the anti-foundationalist rhetorics of science, the proponents of which see science *as* “fundamentally rhetorical at its core” and as a representational practice which has been privileged and institutionally empowered (2007, n.p.); this is the rhetoric-epistemic view.

Over the course of the later twentieth century, studies in the rhetoric of science seem to have splintered into several subsets: environmental rhetoric, for one instance, and rhetoric of health and medicine (RHM), for another.¹⁶ The journal *Project on Rhetoric of Inquiry (POROI): An Interdisciplinary Journal of Rhetorical Analysis and Invention* at the University of Iowa serves as a major hub for rhetorical studies concerned with scientific and technological knowledge production. While RHM does have a (new) dedicated scholarly publication of its own (*Rhetoric of Health & Medicine* at the University of Central Florida), “environmental rhetoric” does not have its own journal, to my knowledge; rhetorical analyses of environmental concern with an overall focus on mass media can be found in *Environmental Communication*, the official journal of the

¹⁶ To be clear, however, engagement with environmental discourse also has histories of practice independent of the framework of rhetorics of science or inquiry—for example, ecocriticism, a method of literary analysis, or ecocultural studies, for another. The same is true of medical rhetoric—*cf.*, medical humanities.

International Environmental Communication Association (IECA), as well as in general rhetoric, composition, and technical communication journals.

The rhetorical perspective, at the very least, prompts us to ask good questions, even the simplest of which can have profound interventional and inventive power: Who is the (real or intended) audience [of this text]? What is the purpose of this text? How does the text get its credibility? How is this text produced, circulated, and received? In what settings would this text be used? On what kind(s) of evidence does the text rely? What social, cultural, and material forces are at work? What habitual contours in this discourse community amplify, or preclude, certain voices? What sort of effects (ethical, practical, intellectual, emotional) does this text aim to achieve? Who, or what, bears the consequences of this communicative act? What strategies have been used, or could be used? What relations are made, or dismantled? What does this text¹⁷ not simply say, but do?

To be sure, the idea of “rhetoric” may still be weighed down by its humanistic, Eurocentric, and masculinist history. The rhetorical perspective also has some fraught implications in the tensions between normative or prescriptive analysis versus descriptive scholarly engagement.¹⁸ While I do not see rhetoric as a panacea and understand these objections, I still hold to a belief in it as a meaningful lens through which to view power

¹⁷ With these questions, as in my dissertation study itself, I am privileging “texts” with the understanding of texts as primarily written and visual. However, it is well established in the broader field of rhetoric—even within “rhetoric and composition,” but most especially in “rhetoric” generally—that written or spoken texts are not the only objects of analysis in rhetorical studies, and that texts (traditionally understood) are not the only agents of rhetorical power. Rhetorical analysis can, and does, include nonverbal modes outside of the linguistic types of symbolic communication: sounds, images, gestures, objects, bodies.

¹⁸ On the one hand, the normative tradition from which Greco-Roman rhetoric emerged—rhetoric as *ars bene dicendi*, or the “art of speaking well”—has been criticized for its rigidity and lack of nuance. On the other hand, however, the purely descriptive stance is not inherently better, in that it runs the risk of simply reifying or reproducing the very norms it seeks to “describe” (Longo, 2000).

and movement at work in the world: strategic, relational, and material. If the problems that plague us now are indeed wicked, then we may benefit from recuperating the kinds of perspectives that value complexity, and from ways of thinking that emphasize our embeddedness in, and our deep inextricability with, a material world. Our fate, then, is just as tied to the fate of other beings, even if we have ideologically, as Burke (1989) observed, “separated [ourselves] from [our] natural condition by instruments of [our] own making” (p. 67). It is a perspective that teaches us our inextricability from the other.¹⁹ An arhetorical perspective might resort exclusively to technocratic means of problem-solving. An arhetorical perspective would ignore, crucially, the power of discursive constructs; it would treat “writings,” for instance, not as real, material, and cumulative things themselves, but perhaps—at best—as mere floating and abstract exercises of the individual mind with no consequence, no resonant effect. By contrast, a rhetorical perspective would attend to the effects of texts enacted both locally (i.e., even at the sentence level) and globally, for our planet has been “literally shaped by our discourses” (Tillery, 2017, p. 77); it should bring humanistic and ecological concerns to bear on every conversation, and attend to questions of not just if stakeholders are involved, but how and why they are involved, throughout the process.

¹⁹ In *Per Amica Silentia Lunae* (1918), William Butler Yeats wrote, “Out of the quarrel with others we make rhetoric; out of the quarrel with ourselves we make poetry.” The division is simplistic, for sure, and rhetorical analysis need not be premised on eristic or even agonistic exchange. The quote does, however, evoke rhetoric’s attunement to the “other,” as Burke’s characterization of rhetoric as “addressed” also calls to mind.

2.2 Place and writing studies

When I first read travel writer Rebecca Solnit's (2008) "The Most Radical Thing You Can Do," a feature piece published in the environmental literary magazine *Orion*, the year was 2019. I had just moved back to my native New Jersey from Minnesota, where I'd spent the last three years prior taking my courses in graduate school.

Solnit quotes the bioregionalist poet Gary Snyder: "The most radical thing you can do is stay home." The essay repeats that familiar localist refrain: "We are going to have to stay home a lot more in the future. For us that's about giving things up. ... Will the world reorganize for the better?... Will we stay home and grow more of our own food with dignity, humanity, a little sweat off our own brows, and far fewer container ships and refrigerated trucks zooming across the planet?" (2008, n.p.). The imperative to do so is framed as urgent in light of climate change (a twenty-first century touch, perhaps), but the message had some dissonance for me, nonetheless. Stay at home, I wondered? It hadn't mattered that I'd just returned to my own "roots," anyway. I thought of countless people in mobility for a number of worthy reasons—school, work, trade, family, personal fulfillment and leisure, even. Is our world not so irreversibly and indelibly globalized? Has it not always been?

But then, some short months later, the global pandemic of COVID-19 hit. In mid-2021, the pandemic is the context in which I am still writing today. Having just lived through over a year of mandatory stay-at-home orders—having just, a few hours ago, gotten off the phone with my in-laws in India, who are living through yet another lockdown during a grave national resurgence of the virus—it is impossible not to see

Solnit's and Snyder's argument in a new way: "The most radical thing you can do is stay home."

Environmentalists have offered grand speculations on the repercussions and benefits of "staying home" during the COVID-19 pandemic: photos of parks reclaimed by wildlife, and smog-free skies in cityscapes, have abounded. As I sit at my home computer—and so do all my online writing students, in the "places" where they find themselves—I wonder again: does "place" still matter for writing studies? What does it mean for pedagogy, especially in an era of online teaching and learning? What does it mean for the practice of environmental writing?

With such themes and questions in mind in this section, I will provide a brief history of ecomposition (and the lesser-known variant of geocomposition), a once-trendy turn in the field of writing studies that has since waned in scholarly interest (although I will also present some arguments for its continued relevance, though nuanced).

In American rhetoric and composition, Richard Coe's (1975) "Eco-Logic for the Composition" may be the first scholarly article to have borrowed principles from the emergent science of ecology for writing instruction. Resisting the tendencies of composition textbooks to break down wholes into parts, which cannot sufficiently address the "complex phenomena which are increasingly relevant to contemporary realities," Coe called attention to "eco-logic... a logic designed for complex wholes, [and] any logic which considers wholes as wholes, not by analyzing them into their component parts" (p. 232). While the bulk of his essay is a consideration of the contextual nature of writing, Coe hinted at direct connections to ecology as a science:

“Those of our students who will become scientists,” he writes, “could well use a verbal rhetoric which emphasized systemic interrelations instead of analytic separations. The same is true for citizens who will have to discuss ecological problems, the complexities of living in mass society, or even the question of which traditions to retain and which to revise as the world changes” (1975, p. 237). In another early work in this vein, “The Ecology of Writing,” Marilyn Cooper (1986) posited a post-process alternative to the dominant and apparently revolutionary paradigm: the process theory of writing, newly on the rise at the time of her writing. Challenging the notion of the solitary writer assumed in a purely cognitive model of writing, Cooper instead proposed “an ecological model of writing, whose foundational tenet is that writing is an activity through which a person is continually engaged with a variety of socially constituted systems” (1986, p. 367). Unlike other contextual models for writing, like Burke’s dramatisic pentad, an ecological model for writing takes into account the mutually constitutive, interdependent, and real factors involved in composition—essentially, then, the “dynamic interlocking systems which structure the social activity of writing”—and the understanding that writing is changed by the world, and changes the world, in turn (p. 368).

In the early 2000s, the term *ecomposition* appeared in the title of Sidney Dobrin and Christian Weisser’s (2001) research anthology. The editors describe the term as “an area of study which, at its core, places ecological thinking and composition in dialogue with one another to both consider the ecological properties of written discourse and the ways in which ecologies, environments, locations, places, and natures are discursively affected” (2001, p. 2). Writing and ecology experienced something of a renaissance during this period of composition scholarship, as represented by the array of

contributions to this anthology. Ecocomposition shares many of the same concerns as its disciplinary cousin, ecocriticism, though ecocomposition is concerned with the *production* of texts and with literacy while ecocriticism, a type of earth-centered literary approach, investigates the *representation* of nature in (usually creative) texts (Dobrin & Weisser, 2002, p. 140). Following the publication of that anthology, the field saw several new contributions in this vein, all emphasizing place-based writing (Keller & Weisser, 2007; Powell, 2014) and the rise of a derivative term, geocomposition (Reynolds, 2004; Rivers, 2016).

Notions of place have been sufficiently troubled, as I described in the previous chapter—especially for the potential connotations of “place” as static, unchanging, anti-global, reactionary, or fortress-like in its nativism (Cresswell, 2004). Moreover, ten years after the publication of *Ecocomposition*, co-editor Sidney Dobrin turned around to declare that ecocomposition “has (already) failed as an intellectual enterprise. It has failed to produce any substantial theory regarding the ecological facets of writing or even the relationships between writing and any ecological or environmental ‘crisis’” (2011, p. 125). Since the 2010s, scholarly interest in ecology, for rhetoric and composition, seems to have slowed down considerably. New metaphors like “network” and “infrastructures” seem to have risen in its stead, which align well with both the digital focus of writing as well as the human-made, intention-driven aspects of writing activities (DeVoss et al., 2014; Read et al., 2021).

However, I find some potential in multimodality as a viable life for a post-process, ecological theory of writing, especially as it is defined in Shipka’s (2011) *Toward a Composition Made Whole*. As writing studies begins to envision the

multimodal capacity of composition, and likewise seeks to engage multimodal strategies for the teaching of writing, context has emerged as an important lens for thinking about multimodality and its situated uses. I see an early example of this in Marilyn Cooper's (1986) "The Ecology of Writing." At the time of Cooper's writing, process was the new revolution in writing pedagogy. She challenged, however, the notion of the solitary writer assumed in a purely cognitive model of writing (which dominated the thinking on process) and proposed "an ecological model of writing, whose foundational tenet is that writing is an activity through which a person is continually engaged with a variety of socially constituted systems" (p. 367).

Beyond the social, however, there are a host of cultural, pragmatic, institutional, and material realities that shape the concept and activity of writing. Although multimodal writing assignments and their assessment have much to do with intention and intentionality, post-process theories of writing recognize that none of those choices exist in a vacuum.

In his own situated study of multimodality and multilingualism, Steven Fraiberg (2014) lays out several of the complexity and activity theories that have been brought to bear on composition. These theories, which borrow heavily from insights in the social sciences, imagine a less-bounded approach to the composing process: complex ecologies that map "wider historical, social, cultural, national, and global factors," the "tying and untying" of discursive practices described by knotworking, the remediation of semiotic meaning in media and modes, and actor-network theory, which blurs the divisions between objects and people, and has been taken further to describe the interrelatedness of structure and agency" (pp. 501-2). Though we may hope to neatly separate and isolate

such elements for the sake of ease in teaching them, for instance, composing—which is so inseparably system-bound—often resists such logic.

Applying these ideas to the specific situation of college composition, Danielle DeVoss, Ellen Cushman, and Jeffrey Grabill (2014) argue for a focus on infrastructure and the behind-the-scenes institutional, material, and political arrangements that are often invisible until they are disrupted, calling for the need to “pay...attention to the when of new-media composing” (p. 405). Like Fraiberg, DeVoss et al. draw on inspiration from systems thinking, especially from Yrjö Engeström.

Finally, drawing on the work of Wysocki, Cooper, and others, Jody Shipka (2011) offers a discussion of what she terms mediated action, a framework described most fully in *Towards a Composition Made Whole*. Shipka calls attention to the situated and distributed “technologies” that enable writers to write, “turning on lights, arranging themselves at desks, on chairs, on beds, and so on,” as well as the seemingly irrelevant activities that take place during the composing process: “drinking coffee, eating, smoking, listening to music, pacing and talking to themselves, doing laundry and so on” (p. 10). Although Shipka’s assignments and activities often look surprising (e.g., the writing of an essay on ballet slippers, a dance performance of an argument), the framework of language in tandem with other, non-discursive representational systems positions “writing...as one stream within the broader flow of activity...highlighting the role other texts, people, activities, semiotic resources, institutions, memories, and motives play in the composers’ overall production processes” (p. 15). Products, then, should always be related to the nuanced and various processes that informed them, and Shipka (like other multimodal compositionists) emphasizes choice and agency for her students.

However, “mediated action cannot be adequately interpreted if we assume it is organized around a single, neatly identifiable goal”; multiple purposes are always at work in the composing process (pp. 44-5), and so a single controlling narrative, either before, during, or after composing, may often mask this recursive complexity.

Although this dissertation did not focus on the composing processes of the texts in its examination (“how” each one was written), I argue that this body of theory is still relevant in order to establish the overall postprocess theory of composition that influences how I see the texts. In other words, I do not see any of the texts as immaterial abstractions that result from a linear and purely cognitive process of brainstorming, then drafting, then editing, then publishing. These theories help me to balance “text” and “context,” navigating freely between meaning enacted at the sentence level (“small-w writing”) and meaning created socially, culturally, and materially/technology across communication types (“big-W Writing”).

2.3 Scientific and technical communication

Now that I have outlined the broader topic of rhetoric and then explored the narrower place/composition connection, I want to turn my focus to scientific and technical communication (as a practice and concept) in the environmental sector, given that the majority of my primary texts are scientific or technical in nature. What are the goals, objects, and methods of technical communication (TC)? Are the tools, techniques, processes, and methods of TC well-equipped to address present environmental concerns? How has TC historically engaged with environmental issues? After all, as Killingsworth (2005, pp. xv–xvii) writes, the relationship between technical communication and environmental writing is a well-established one; technical reports were required by

environmental law to be accessible to the public in the late 1960s, and this was one of the early milestones for the entire profession of technical communication. Rhetoric has traditionally applied to technical communication to highlight questions of persuasion and receptivity, author, audience, purpose (Smith, 2008). To reiterate an important theme from the earlier discussion, however, I am employing a theory of rhetoric that is not just strategic (and thereby persuasion-oriented in the Greco-Roman sense), but also relational and material²⁰ (Druschke & McGreavy, 2016).

2.3.1 *Technical communication: A history and overview*

As Jo Allen (1990) has argued, attempts to define TC are often either too broad—such that any communication at all is technical—or too narrow, such that it only encompasses those who communicate *about* technology or *with* current technology, and “technology” imagined narrowly here as only the digital or electronic. This attempt at a definition, I hope, strikes the balance between concreteness and inclusivity.

The Society for Technical Communication (STC), a major professional association in the field, defines TC in three ways: as 1) an applied practice—the communication of specialized topics in scientific, technical, and business fields, as 2) community *by using* technology, which I will define here broadly, and as 3) communication needed for solving problems and completing tasks: communication *as*

²⁰ This particular dimension, while resonant for all rhetoricians, deserves a particular emphasis in environmental rhetoric. In some ways, it resolves the ideological tension that Ornatowski (2007) illustrated in his review of rhetoric of science scholarship; if rhetoric is a material practice, then we escape the monolithic thinking that rhetoric is either just an abstraction of the mind or rhetoric is only social construction.

technology²¹ (Society for Technical Communication, n.d.). In general, this means that the technical communicator must manage information in ways that allow their readers to take action and accomplish objectives (Johnson-Sheehan, 2017, p. 12).

As Robert Connors (2004) noted in his 1982 history of technical writing instruction, technical discourse certainly predates the formalization of the field; “[f]or as long as men [sic] have used tools and have needed to communicate with each other about them, technical discourse has existed” (2004, p. 4).²² However, much of the work we define today as TC emerged in the wake of the American Civil War and the Second Industrial Revolution. Until the 1950s, in fact, technical writing was virtually synonymous with engineering writing (Connors, 2004, p. 7). As college education became more widely available with the establishment of land-grant agricultural and mechanical colleges in the later nineteenth century, schools and colleges of engineering were created to meet the “growing technical needs of postwar America” (Connors, 2004, p. 5). The discipline “came of age” particularly in World War II, “the first truly technological war,” (Connors, 2004, pp. 11–12), where writers began to specialize in technical communication; this was seen as a move toward greater efficiency, wherein

²¹ For a discussion of technology as a concept, see Clark (2009). After contrasting science and technology, Clark attempts to define a “rhetoric of technology,” which would examine the processes of creating useful objects and materials, their quotidian and practical characteristics, and the financial, legal, corporate, public, and technical aspects of their development and use (i.e., technology transfer and diffusion). Indeed, if we take technology to mean “a collection of techniques, skills, methods, and processes used to accomplish certain objectives,” then characterizing TC as *technology*, and not just the mere companion of technology, highlights its nature as both product and process, as both material and relational.

²² There are some fascinating studies of premodern or very early modern instances of technical communication, which I cannot explore fully within the scope of this dissertation, such as Doody et al’s (2012) summary of technical writing in ancient Greece and Rome, Rauch’s (2012) interpretation of the European mystic St. Hildegard von Bingen as a medieval technical writer, Zappen’s (1989) analysis of Francis Bacon, to name just a very few. Longo’s (2000) *Spurious Coin* is also comprehensive in this regard, in that it traces a cultural history of technical writing.

engineers “were considered to be the high-priced workers who were better used in developing the technology that would improve general living conditions and stabilize democracy, [while] lower-priced writers could take care of communicating these technical developments” (Longo, 2000, p. 123).

Today, as technological development has become more complex in a self-processed Information Age, so too has technical communication, and it is practiced in a greater variety of fields (though still inclusive of manufacturing and engineering), such as information technology and design; biology; health, environmental, and animal sciences; business, finance, and project management; human resources and industrial relations; legal discourse and public policy; and insurance.²³ Scholars and practitioners can look to Carolyn Rude’s (2009) “Mapping the Research Questions in Technical Communication,” published in the *Journal of Business and Technical Communication*, for some guiding orientation in this diverse field. Through a study of 109 books dedicated to the subject since 1990, Rude arrives at a central question that concerns technical communicators at large: “How do texts (print, digital, multimedia; visual, verbal) and related communication practices mediate knowledge, values, and action in a variety of social and professional contexts?” (2009, p. 176). This question manifests variously works that undertake disciplinary questions and seek to shape the field’s identity, pedagogical questions concerned with courses and curricula, questions of effective and ethical practice of TC in the world, and questions of TC in regards to social change, understanding texts as agents of knowledge making, action, and change (2009, p. 176).

²³ I compiled this list in part by thinking about the subplans in the technical writing and communication (TWC) undergraduate major at the University of Minnesota, Twin Cities, and the disciplinary backgrounds of students in my own technical writing classes.

To address these questions, most research conducted in the field is empirical and employs such diverse methods as ethnographies, textual analyses, historical research, surveys and questionnaires, and experiments. In fact, most inquiries in our field are designed as case studies, which further underscores our understanding of writing as empirical, social, and linked to sites of practice (2009, pp. 191–192).

Whereas the teaching of technical writing at colleges and universities was, in its early days, seen as low-status grunt work for the English graduate students and faculty who hadn't achieved "greater" things (like teaching a literature seminar) (Connors, 2004), TC has since been reconnected pedagogically with its more kindred spirit in the ancient art of rhetoric, a pragmatic field concerned with the *effects* and functional aspects of communication.²⁴ While rhetorical analysis can certainly be employed to analyze a variety of discourses, not just the technical, it is through this lens that the reader-centered and team-oriented dimensions of TC are most salient. TC, where it is adapted to present-day circumstances, capabilities, and expectations, will also exhibit traits of mobility, interactivity, and adaptability; it will be composed with attention to visual aesthetics and both readability and accessibility; and it will be shaped by a host of ethical, legal, and political issues that play out on both local and global orders (Johnson-Sheehan, 2017). Texts themselves, after all, exist in complicated activity systems, and communicators are concerned with not just writing in the traditional sense, but with interactions, research, translation and localization, review, visual design and production, and circulation (Rude,

²⁴ The University of Minnesota, the state's only land-grant institution, is an archetypal case-in-point. Technical writing courses were housed in the Department of Rhetoric, located at the university's agricultural campus in Saint Paul. It has since been re-categorized within the College of Liberal Arts, however, in a newly named Department of Writing Studies, but the ideas of "rhetoric" and "[scientific and] technical communication" have been preserved together programmatically.

2009, p. 181). Because a rhetorical sensibility encourages communicators to think critically and flexibly about higher-order questions of audience, purpose, and context, then, TC is often taught and analyzed from *a rhetorical perspective*. In fact, before the 1980s (and the attendant “social turn” in scholarly theory), technical texts were not seen as *mediators* of information, but as neutral conduits or *transmitters*; the aspirant goals of technical writing were *accuracy and clarity* (Rude, 2009, p. 182), with the best of it “so clear that it is invisible” (Longo, 2000, p. ix). Only since this time, then, have theorists paid attention to the powerful ways that technical discourses shape and organize the very activities of modern life, enacted through apparatuses we now see as ordinary and mundane (Longo, 2000), and this perspective has no small relationship to the way that rhetorical theory has evolved.²⁵

2.3.2 *Environmental communication and intersections with TC*

Before I go on to connect technical communication with environmental communication, it is important to set a cultural context for environmental communication itself—recalling some of the broader themes in the environmental humanities that were discussed in Chapter 1. After all, the question of whether or not TC can attend to environmental concerns depends on what’s meant by just that (“environmental concerns”) since “environment” captures a broad net of social, scientific, and technological issues that have multiplied in meaning and articulation over time.

²⁵ Besides rhetoric, TC also shares disciplinary connections with writing studies and composition, speech communication and communication studies, psychology, education, computer science and human-computer interaction, and ergonomics, to name a few (Rude, 2009, p. 175). In fact, these fields sometimes share the same objects of analysis; while disciplinary perspectives or research objectives will vary across these domains, they can be juxtaposed easily in productive conversation.

In American culture, there have been various turns in what we might loosely call environmentalism.²⁶ In the 1800s, Americans began shifting away from colonial attitudes (i.e., wilderness is hideous and desolate) with the aesthetic, literary, and cultural movements of Romanticism and Transcendentalism, coupled with a growing association of American national identity with wilderness, which we have come to define legally as areas “where the earth and its community of life are untrammelled by man [sic], where man himself is a visitor who does not remain” (per the Wilderness Act of 1964). In this era, conversations were mostly framed as a debate between wilderness preservation and natural resource conservation, personified by the figures of John Muir and Gifford Pinchot. It is also from this era that we have, even still, largely equated our use of the word “environment” with “natural environment,” and by this we mean “biomes unoccupied by humans” (Pezzullo & Cox, 2017, pp. 55–58).²⁷ Later, toward the 1960s and ‘70s, a public health and ecology movement emerged, which began to trouble the perception that humans were distinct from nature; as it became clear, at this time, human health was, in fact, linked integrally to environmental health (Pezzullo & Cox, 2017, pp. 59–61). As the concept of “ecology” formalized, underscoring social embeddedness in a material world and broad networks of interconnectedness (including built environments and other anthropogenic artifacts), the public health and ecology movement also extended

²⁶ In the retelling of this story, I hope not to replicate a view of history unduly linear or progressive, or to suggest that successive turns have replaced or supplanted the concerns that preceded them. My understanding is that these turns simply illustrate new emphases as they have emerged or evolved with time, especially as new information comes to light and new voices are heard in academic and professional circles.

²⁷ To be sure, the later rise of new materialism and related perspectives have since troubled the nature/culture, human/nature binaries in Western thought and scholarship. This distinction, of course, was already blurred in the worldviews that originated prior to the Enlightenment (but are still held and developed today), including those that are Eastern and Indigenous.

in the '80s to include environmental justice—a point to which I will return. Today, “third wave environmentalism” has been marked indelibly by greater attention to climate change and a new²⁸ concept, “sustainability.” As sustainable development became a global priority, previously disparate movements to challenge “environmentally dangerous and inequitable practices” throughout Africa, Asia, Australia, Europe, and North and South America could connect (2017, p. 66). In spite of some efforts to move toward climate justice, however, some ecologists and earth scientists have now asserted that rates of loss of biodiversity and habitat depletion have become so severe, and so irreversible, that we have entered a new epoch called the Anthropocene. We now understand the problem to exist on a global order, and as such, efforts to make environmental progress are often driven by market mechanisms, and innovation in business and technology (Krupp, 2018).

TC practice in the environmental sectors has roughly corresponded to these various turns, or waves. In their history of conservation writing, which they treat as an umbrella term for “a range of writing about ecology, biology, the outdoors, and environmental policies and ethics,” Johnson-Sheehan and Morgan (2008) start with the precursors of the writings of naturalists and natural historians, as well as the mid-nineteenth century Romantic and Transcendentalist writers and artists (e.g., Audubon, Emerson, Thoreau). Following the more expressly polemical texts of George Perkins Marsh’s (1868/1885) *The Earth as Modified by Human Action* and the various works of John Burroughs and John Muir, they trace the rise of conservation clubs, a distinct

²⁸ Only new to modern life in the West, that is, for there are older models of care for Earth, nonhuman life, and (important for the concept of sustainability in particular) future generations, for example, in many indigenous cultures (Pezzullo & Cox, 2017, p. 53).

conservation movement in the late nineteenth/early twentieth century, and significant acts, which “created a new demand for conservation writing” in the form of natural histories and technical descriptions to document sites and artifacts (in the wake of the Antiquities Act of 1906), as well as the reports, websites, pamphlets, and presentations created by soil and water conservation districts (following the 1935 Soil Conservation Act) and the extension services housed at land-grant universities (beginning with the Smith-Lever Act in 1914) (2008, p. 14). With the passing of more explicitly *environmental* laws following the public health and ecology movements of the 1960s and ‘70s came the emergence of “an activist variety of conservation writing written by government employees” (i.e., grants and EISs), as well as the appellate briefs and motions, predictive analyses, legal opinions, friend of the court briefs, and legal letters that were created in the newly distinct realm of environmental law (2008, p. 16). Today, then, a number of technical genres carry out activities in the environmental sector, including natural histories, feature articles and essays, analytical reports, technical description, EISs, grants, brochures, handouts (such as FAQ sheets), and websites, newsletters, natural resource inventories (NRIs), environmental management plans (EMPs), and environmental management systems (EMSs), including those that conform to International Standards Organization (ISO) 14000 certification, Total Quality Environmental Management (TQEM), the American Chemistry Council’s Responsible Care initiative, or Coalition for Environmentally Responsible Economies (CERES) principles²⁹ (Coppola & Karis, 2000, p. xiii; Johnson-Sheehan & Morgan, 2008, pp. 18–21; Krehbiel & Erikson, 2001).

²⁹ These are self-regulating environmental management systems, meaning that they go beyond compliance with environmental laws and regulations (Krehbiel & Erikson, 2001). Their major advantages include

As these insights to history and practice have shown us, the “environment” we experience and affect is largely a product of how we have come to talk about the world. While it would be hubris to suggest that humans are the only influencers of life on earth, Cantrill and Oravec (1996) have gone so far as to say that “the planet is a captive of our language community; the environment, beyond its physical presence, is a social creation” (as cited in Tillery, 2017, p. 76) — and, indeed, since the reach and magnitude of anthropogenic change warrants serious examination, we must interrogate our own beliefs. If discourse is fundamental to human behaviors, as rhetoricians have said, is TC well poised to address the magnitude and complexity of environmental issues in this the Anthropocene?

In the past, technical communication scholars have focused on environmental discourse in three major ways (with overlap): *genre studies* (involving a variety of forms, understood through the lens of genre and discourse analysis), *case studies* (of specific locations and contexts, and often those that integrate models of public participation), and *rhetorical analyses* (using ancient or contemporary rhetorical theory to understand some aspect or application of environmental discourse) (Tillery, 2017, pp. 7–12). These studies have taken interest in documents (e.g., reports, statements, regulatory discourse), public involvement in planning efforts (e.g., canals for dredging, expansion of railways, choosing a site for a mine or for nuclear waste), grassroots community activism and citizen action (with focus on the use of databases, multimedia, and online forums), sites of informal education (e.g., parks and museums), deliberative politics, interdisciplinary

binding codes of practices, systemic consistency, a dialogic basis with stakeholders, and performance measurement, which facilitates trade between markets that have different environmental laws, standards, and practices.

and interorganizational dialogue, risk communication (medical, occupational, environmental), and theoretical intersections with (rhetoric of) science. While I cannot provide a sufficient literature review of all these works within the scope of this dissertation, I see Nancy Coppola and Bill Karis' (2000) edited collection, *Technical Communication, Deliberative Rhetoric, and Environmental Discourse: Connections and Directions*, as a helpful landmark that prefigures these three major categories of scholarship.³⁰

Critically, though, where has environmental justice figured in these works? In the conclusion of this dissertation, I will return again to the question of environmental justice, and whether (or how) it can be enacted in TC thought and practice. The question has been taken up by technical communication scholars Donnie Sackey (2018) and Diana L. Cárdenas and Cristina Kirklighter (2014), and is of particular significance in a densely populated urban watershed marked by upstream/downstream disparity.

2.4 Social studies of science

Finally, I want to broaden back out again to a brief selection of literature review from the rhetoric and social studies of science (SST) nexus. In particular, I will focus on the subject of actor-network theory (ANT), which has relevance to an era of intellectual

³⁰ The introduction to this anthology also makes note of earlier work in this subfield. Over the course of the 1990s, in the Society for Technical Communication, membership in the special interest group for environmental, safety, and health communication quadrupled. The ATTW Bibliography officially added the category of Environment and Risk Communication in 1994, expanded to Health Communication in 1995 because of the relationship between environment and human health. The first book-length study appeared in 1992 (Killingsworth and Palmer's *Ecospeak: Rhetoric and Environmental Politics in America*), and others followed: Cantrill and Oravec (1996), Herndl and Brown (1996), Myerson and Rydin (1996), Muir and Veenendall (1996), and Waddell (1998). A number of other book-length studies and edited compilations also emerged during this period. Most of these scholarly efforts have been centered on environmental regulations and textual analyses of complicated documents like environmental impact statements.

posthumanism and “impending ecocide” (Herndl et al., 2018, p. 61) and is deeply influential in the way I see texts as objects—how they work and function in the world.

In 1979, following the emergence of sociology of scientific knowledge (SSK), philosopher and sociologist Bruno Latour rose to fame with the book that he and fellow sociologist Steve Woolgar co-authored, *Laboratory Life: The Construction of Scientific Facts* (de Vrieze, 2017). A prototype of ANT can be found in this anthropological study of a biochemical laboratory, but the method was more fully developed by the late 1980s with Latour’s *Science in Action: How to Follow Scientists and Engineers through Society* (1987), a commitment to observing science “in action” or “in the making.” These works, inspired by earlier ethnomethodological approaches, present a constructivist approach to science through the lens of qualitative, empirical case study. ANT, as such, shows signs of influence from both French poststructuralism and English-language science and technology studies (Müller, 2017). Because these perspectives challenge the perception of scientific objectivity, however, and the ideology of logical positivism, ideas such as ANT provoked heated responses from scientists in the 1990s (i.e., the “science wars”), who dismissed the work of postmodern “science critics” like Latour as “leftist anti-intellectuals” (e.g., P. R. Gross & Levitt, 1997)

Latour (1999) argues that the empirical study of the practice of scientists is an exercise in realism, unlike philosophical realism (p. 24). For example, in one case study, Latour follows a botanist, two pedologists, and a geomorphologist on their field expedition to the forest/savanna ecotone in Boa Vista, Brazil. He situates their activities in a vast network spanning space and time: the works of predecessor scientists and cartographers, orbiting satellites, printers, funding requests, earthworms, the restaurant

where they sit to work, and their use of references, such as maps and Munsell color code charts—inscriptions, the “two-dimensional, superposable, combinable” tools (p. 29) which help their users navigate and remember, and thus “master the world” (p. 65, 29). Emphasizing the etymology of the word “reference” in *referre*, “to bring back,” he calls the scientists’ practice of “transporting” data from the forest to community of other scientists, without having to transport the whole forest, that of “circulating reference.” Blurring the traditionally “distinct ontological domains” of language and nature which had puzzled philosophers for centuries, circulating reference is a metonymic practice—or perhaps more accurately, a series of transformations (p. 56): from the raw forest, to the tagged trees, to the satellite pictures, to the plant and soil samples in bags or a pedocomparator that are extracted from their local contexts and juxtaposed elsewhere for viewing (p. 51). The notes in a logbook, the specimens of plants and lumps of earth, will all serve as references for the report that results from these activities. While it is a process of abstraction to depict a whole, vibrant, living forest as a flat, labelled diagram that goes into a scientific report, we are trading off resemblance for mobility while attempting to retain a constant meaning (pp. 58, 61). An observer can move both up and down “chains of transformation” (p. 69) that vary in length; these chains can also potentially spread out infinitely. Each iteration “takes the place of” what came before it, though inseparable from the transformations, and a thing “can remain more durable and be transported faster and more quickly if it continues to undergo transformations at each stage of this long cascade” (p. 58); unlike the philosophical tradition that has perceived a gap between the realms of representation and reality that needs to be travelled via correspondence, Latour sees phenomena, such as an interdisciplinary scientific

expedition, as constructed “in successive layers render[ing] it more and more real within a network traced by the displacements (in both sense) of researchers, samples, graphics, specimens, maps, reports, and funding requests” (p. 76). Latour goes on to emphasize that we do not live in “a society gazing out at a natural world in a natural world that includes society as one of its components” (p. 174) but rather in a collective of humans and nonhumans folded in to each other (p. 176) by erasing the subject-object division completely (pp. 194, 214). In doing so, “our intent is not to throw everything into the same pot, to efface the distinct features of the various parts within the collective. We want analytical clarity, too but following different lines than the one drawn for the polemical tug of war between objects and subjects” (p. 193).

Eight years later, Latour formalized the “theory” of ANT in *Reassembling the Social: An Introduction to Actor-Network-Theory* (2007), which offers more of a heuristic approach for his readers than do his previous descriptions. Latour relies on a restored meaning of the word “social” to interweave not just the actors and activities traditionally deemed as “human” but considering, rather, the entirety of semiotic and material entities that shape, and are shaped, by the network that constitutes their very existence—again, challenging the nature/culture dichotomy, which is a mere construction of modernity. Rather than using the word “social” as an essential property of only certain kinds of assemblies, Latour sees “the task of tracing associations” as observing “what is already assembled together” (p. 1) and “a movement, a displacement, a transformation, a translation, an enrollment” (pp. 64-5). He wants to articulate a “sociology of associations,” then, rather than a “sociology of the social.” First, the ANT-inspired researcher “deploys” a controversy (any situation in which something is not obvious); the

researcher chooses to explore a source of uncertainty, five of which are named by Latour as 1) group formation and dismantling, 2) agencies and modes of action (which are always multiple: p. 50), 3) the durability and substance of connections, often forged by nonhumans (usually overlooked by sociologists, in Latour's view), 4) matters of fact vs. matters of concern, and 5) "about the study itself," the very making of the report of the study (p. 122). Next, after exploring some of the tensions in this approach with a fictitious dialogue between a student and a professor and the genuine difficulties of "tracing the social," Latour goes on to suggest three moves for the researcher:

We will first relocate the global so as to break down the automatism that leads from interaction to 'Context' ; we will then redistribute the local so as to understand why interaction is such an abstraction [since the local never occurs in one place only]; and finally, we will connect the sites revealed by the two former moves, highlighting the various vehicles that make up the definition of the social understood as association (p. 172).

Throughout this process, the researcher keeps a sensitivity to ambiguity (pp. 243-5) and to surprises along the way, such as the sudden mutation of an intermediary into a mediator (e.g., the microphone breaks during a lecture, p. 202).

In summary, then, ANT is a method of inquiry that...

- Was developed by Latour and other sociologists of knowledge, who rejected positivist and modernist claims that science has privileged access to truth and that scientific studies are definitive and permanent.
- Comprises actors (or actants) and networks, wherein actors are both human and nonhuman, living and nonliving—"not the source of an action but the moving target of a

vast array of entities swarming toward it” (2007, p. 46)—and the networks are the traceable, temporarily stable relations that occur among sets of actors, including translation, intersement, articulation, localization, and enrollment. This has the effect of decentering human intentionality and agency.

- Is not really a theory, despite its name, but more of a method, a “way” of looking at situations. It is like Grounded Theory with its shared focus on empiricism and inductive reasoning. The researcher is not supposed to impose theories or explanations a priori, such as those from social sciences (economics, sociology, psychology); they take, rather, a descriptive rather than explanatory approach toward the objects of inquiry, leading heuristically to theoretical claims. The researcher is asked, essentially, to adopt a listening disposition, such that the actors can more likely speak for themselves (2007, p. 142). It has thus been called a toolkit, analytical methodology, or “sensitivity” (Law, 2004, p. 157). The “theory” in actor-network theory, then, which should emerge inductively, can take many forms, including the political, ethical, or sociological.
- Relies on a flat ontological plane. As Müller (2017) describes succinctly, “all entities, whether they are germs or people, stand on equal ontological footing in the beginning” (n.p.). The dimensions are flattened because they are considered together on the same plane.
- Is often associated with ethnographic methods, as employed within a case study design, but does not need to be exclusively so; for example, it has also been deployed as an approach to historical interpretation and textual analysis, such as Latour’s analysis on Louis Pasteur in *Pandora’s Hope* (1999) (Nimmo, 2011)

- Usually examines sociotechnical systems through a material-semiotic perspective. This means that ANT maps both concepts and things, and so it acknowledges the realness of constructs, beliefs, and perceptions and makes translation between the perceived division between autonomous objects and their social and political aspects. Most ANT studies are about situations that coarticulate human and nonhuman actors in institutions (such as business settings, citizen groups, and scientific practice) with a mind to the construction and practice of power and authority in sociotechnical systems, “working together to accomplish a goal or set of goals” (Kessler & Graham, 2018, p. 123). Often, networks involve one important nonhuman actor, such as a text, a technology (a tool, an invention), or an organism (a scallop, a microbe, a tree). A scientific fact, for example, is fabricated, not in the sense that it is necessarily untrue, but in the sense that it is made through paths that are “indirect, devious, mediated, interconnected, [and] vascularized” (1999, p. 174; 2007, p. 89); it is a type of knowledge, and “knowledge is a social product” (Law, 1992, as cited in Bennett, 2018).

Actors are also affected by distant materials and faraway other actors in both space and time. Some associations are readably observable by humans, some are microscopic, while still others take place at a massive, sometimes global scale. When these associations are traced, given how they multiply and transform over space and time, there is no credible way to identify causes and effects, or linear and deterministic paths that lead to specific outcomes. Movement in a network is fluid, flexible, and ongoing: it does not have a final place where it stops, and it can be changed when new actors are recognized, “enrolled,” and included. Some actors have more associations than others, so they may contribute more to the stability of the network. Interactions are relational,

diffused, and fluid; for empiricists, then, only consequences can be described. ANT, therefore, highlights the dimensions in “hybrid[s] of form, matter, skilled bodies, and groups,” which we would otherwise only perceive as “an unbroken series of well-nested elements” (1999, pp. 56-7); it is a “relativist” perspective in the true sense of the word, meaning that it can navigate relationships and frames.

Although the method does grant its users a certain kind of intellectual freedom, a common criticism of ANT is that, despite Latour’s earlier claim to the contrary, it still runs the risk for some of erasing or washing over difference and obfuscating power relations through its insistence on ontological flattening. Because ANT also depicts scientific activity as a social, human enterprise, communally undertaken, it has also (perhaps inadvertently) rendered scientific claims up to indifference and comparison through the lens of false equivalence. Partly in response to these charges, in an effort later in his life to restore some of the trust that scientific institutions have lost, Latour sought to overcome these limitations with an “evolved” (or at least, revised) version of ANT in *An Inquiry into Modes of Existence (AIME): An Anthropology of the Moderns* (2013). A major exigence for this work, by his own explanation, is climate change (pp. 1-15)—which has prompted inquiry broadly in the humanities and social sciences to shift away from questions of epistemology in the “linguistic turn” and toward questions of ontology and nonhuman agency. Since *We Have Never Been Modern* (1991) was all about what we were not, *AIME* attempts to describe what we are (or have been). The eponymous “modes of existence” (a term coined by the French philosopher Étienne Souriau) are fifteen in number (though Latour repeatedly invites his readers to collaborate with him and find more, and mentions that the important thing is simply that we are able to count beyond

two, as dualism would have it; p. 146): reproduction, metamorphosis, habit, technology, fiction, reference, politics, law, religion, attachment, organization, morality, network, preposition, and double click. Each of these have their own trajectories, but they retain ANT's notion of interconnectedness and its willingness to transcend modernist boundaries. Using the metaphor of a network of gas pipelines, Latour characterizes these modes as networked (the first mode of existence)—“no such thing as the domain of Science, or Law, or Religion, or The Economy, but...networks that associate,” always moving and surprising, which allows for greater intellectual mobility (pp. 30-32). Within the modes of existence are truth conditions, enabled by the felicity and infelicity conditions of each mode and the mode's interpretative key (pp. 55-57); the modes of existence are, in Latour's own description, an ontologization of speech act theory. Because we (in the modern world) have expected too much of an undifferentiated concept of “science,” and need to engage the many facets of our collective life (e.g., law, poetry, religion, etc.), Latour finds it necessary to broaden the scope of philosophical, sociological, and anthropological inquiry, wondering what we will do together in this “pluriverse”; traveling among these modes of existence calls for “diplomacy” (p. 15), learning “to speak well to someone about something that really matters to that person” (p. 46).

The cross-disciplinary perspective described in *AIME* is crucial for my dissertation. Whereas speech act theory also recognizes that discourse is performative and not just *informative*, Latour's concept of “modes of existence” was especially influential in my understanding of the action-oriented, relational nature of *all* things (positioning discourse within a “bigger picture”) and of the hybridity of the Meadowlands itself.

Although my own background and interests as a researcher prime me to gravitate to texts that tell a discernible “environmental” story, I recognize that the Meadowlands is a composite created not just by one discourse type or one discrete realm of activity (although environmental themes play a significant and cross-cutting role in the “creation” of the Meadowlands). Texts *about* this subject do not exist in a separate sphere away from the rest of the world; they are necessarily involved in networks of activity (blending the commercial, aesthetic, legal, scientific, and technical) and make sense in light of that understanding.

2.5 Conclusion

Environmental issues are quintessentially complex; they are, as legal scholar Barbara Cosens (2008) writes, “complex, non-ideal systems” by nature. As such, the task of environmental protection cannot be addressed by single, unilateral solutions. It demands interdisciplinary, intercultural, and intergenerational ways of knowing, with coordinated actions on multiple scales. Rhetoricians, therefore, have a part to play in collaborative efforts to achieve shared goals of sustainability.

As far back as 1996, Greg Myers encouraged fellow writing studies scholars in a *Written Communication* article to take note of developments in science and technology studies, with extensive citations of Latour and description of actor-network-theory (ANT)—for which both RSTM and TC have had great affinity, over the years (Walsh et al., 2017). Because sociotechnical issues look overwhelmingly complex to single actors by themselves, prompting potential feelings of powerlessness, a “sociology of scientific knowledge” is important for researchers of writing and communication who study these contexts. Such an awareness orients them to see the way that “boundaries are the product,

not the cause, of...texts and textual decisions” (1996, p. 17), to conceive of a more active audience (p. 21), and to more critically examine texts as circulating artifacts in organizational settings (p. 26), no longer taking for granted the perceived division between social and technical, technical and natural, structure and action, text and thing (p. 36). While ANT and critical discourse analysis may be incompatible in a theoretical sense, Myers argues, they are “nicely complementary in the practical work of analyzing texts” (p. 27) and are both open to the investigation of an array of mundane items (“quasi-objects”): technical manuals, business plans, lab notebooks, memoranda, shopping lists.

Later, John Monberg (2002) made a similar observation, but in specific reference to TC—noting its compatibility with science and technology studies (STS) and calling for the fruitful integration of the two, with STS positioned “as a research method.” As he argues, “[i]f the practice of technical writing is to be responsive to society [and, I add, to the life of a more-than-human world], the ways in which STS unravels the tangled relations among science, technology, writing, and society can serve as a locus for developing critical awareness of the rationality implicitly or explicitly built into the technical writing process” (2002, p. 212). He helpfully describes rhetoric as “a form of conduct and an ethics” (2002, p. 212), and *practical* rhetoric as “a code of conduct, a locus for questioning, and accountability to the human community as a whole affected by its practice” (2002, p. 225), definitions I share; to add to this, I am particularly engaging a view of rhetoric which underscores relationality and can activate such values and goals as justice, empathy for more-than-human concerns, and epistemic humility.

In this spirit, then, a study of technical communication for environmental purposes can be informed and enriched by rhetorics of science, which notably make salient “the inherent interconnection between technical and social factors” (Monberg, 2002, p. 226) and, still further, account for complexity and systems approaches—even, may I add, ecological approaches. Cross-fertilization between rhetoric of science, technology, and medicine (RSTM) and TC, given all of this, may not seem so surprising to some scholars. However, as I hope to have illustrated here, that connection is also not a simplistic one, even considering any shared ideological roots between rhetoric and TC in pragmatism, functionality, and action-orientation, very often in the world of the ordinary and the mundane—with Latour’s “Attempt at a ‘Compositionist Manifesto’” (2010) also in mind. While artifacts of technical communication may be rich as objects of inquiry, then, TC also offers rhetoricians, who tend to be humanistic, more nuanced looks at agency; it troubles the idea of singular authorship, especially as it has been transformed by Web 2.0. Given that collaboration is the norm for present-day technical writing, and that expertise is already understood as distributed (especially in a “global workplace,” and given that professional technical communicators, while often having their own working knowledge of other fields, typically work with subject-matter experts, or SMEs), embedded in the field is an infrastructural view that can lend valuable perspective in what might otherwise appear (to a single actor), again, as overwhelming complexity. This team-oriented characteristic, which can lend itself more readily to systems thinking, is better equipped to address multifaceted environmental problems than the approaches to writing and communication that unduly prize originality and individualism. This, I argue, is important for an environmentally just practice of technical communication—one that

does not merely replicate the status quo of organizational activity but participates with intention. In the acts of displaying, representing, and assembling our work practices through communication, technical communicators render the very fabric of human productive activities visible, opening the possibilities for invention and change.

Recalling the opening vignette to this chapter—my interpretation of Rebecca Solnit’s essay, I now read this with critical geographer Doreen Massey’s (1994) “A Global Sense of Place” in mind, as I discussed previously in Chapter 1. While both Solnit and Massey acknowledge the environmental consequences of personal mobility, and both acknowledge the involuntary displacement of people from their homes, Solnit’s argument (extending Gary Snyder’s adage) is to “stay home,” “reclaiming home as a rhythmic, coherent kind of time.” Massey problematizes that very notion, however; she questions outright the longing for coherence in a place, but of course, especially where such longing enables “reactionary politics,” “sentimentalized recovering of heritage,” or nationalism. In particular, Massey recognizes the mobility of women as a threat to patriarchal order, and to her, the “gender-disturbing message” would be to “keep moving!” (p. 11); to simultaneously recognize “one’s locatedness and embeddedness/embodiedness, and [take] responsibility for it” (p. 11).

How do I reconcile these two messages? Although they seem different on the surface, I think they both have a common orientation toward understanding place in an unstable, precarious world. With Massey’s recognition that places are “open and porous” and Solnit’s desire to “see a richness that lies not in goods and powers but in the depth of connections,” we can celebrate “place” in welcoming ways, acknowledging multiple scales and layers of experience and meaning.

With these theoretical foundations and thematic considerations established, I want to turn back to the local site (*place*) of my analysis. In the next chapter, I will trace the social making of a place via a network of ordinary technical descriptions.

Chapter 3 — A Genre Analysis of Environmental Technical Description(s)

In this chapter, I provide an analysis of a large collection of texts, including analytical reports, field guides, natural resource inventories, primary scientific literature, and public-facing narratives centered on the Hackensack Meadowlands ($n = 111$). Across these texts, I traced the use of technical description, which I define as a rhetorical genre and not a formal genre.³¹ My reading of over 100 juxtaposed texts about the Meadowlands allowed me to re-see technical description itself—a genre that functions intertextually through aggregation and repetition to 1) build the (discursive) world in which the description exists, 2) link together texts that would otherwise not adhere in the same network, and 3) set the stage for other arguments to then exist, emergent from those very prior descriptions. This analysis is bookended by a discussion of previous writings on technical description, my guiding research questions and methodologies, and takeaways for professional writing practice (in general, and in the environmental sector, particularly concerning the use of reference points in urban wetland policy).

3.1 What is, or are, technical description(s)?

Technical description has been a staple of the introductory technical communication course and frequent inclusion in student textbooks (Pflugfelder, 2017, p. 25). However, despite its recurrence in technical writing curricula, technical descriptions have received little attention in the scholarly literature. With the exception of Ehren Helmut

³¹ To this point, the noun/verb distinction is explained more fully in section 3.2.2.

Pflugfelder's (2017) recent treatment on informal explanations in their web-based tactical iterations on Reddit, relevant publications seem to have slowed since the end of the 1980s (Bostian, 1984; Jordan, 1986; Lipson, 1982; Norman, 1989; Tveito, 1982), roughly concurrent with studies of "explanations" that have been published in the field of science education pedagogy (e.g., Gilbert et al., 2000; Horwood, 1988, p. 7; Martin, 1972). Pflugfelder (2017) argues, however, that technical descriptions are today seeing a resurgence of interest, particularly in their online and hybrid versions.

Textbook definitions of technical description vary. For example, in *Technical Communication Today*, Richard Johnson-Sheehan (2017) devotes a chapter to the subject of technical descriptions and specifications with a focus on their use in "today's workplace," "high tech industries," and by "entrepreneurs and innovators" (p. 177). Johnson-Sheehan presents technical description as a ubiquitous but definite "thing," considered as either a standalone document or as a feature of other technical documents. Technical descriptions (called such in manufacturing), specifications, patents, field notes, and observations are all named as types of technical descriptions, and serve rhetorical purposes of describing, clarifying, illustrating, revealing, showing, explaining, depicting, characterizing, or representing objects or processes (pp. 177, 180). Further, as emphasized in the chapter, the subject matter of these descriptions is partitioned by major and minor parts (or steps, or functions), and organized either spatially or sequentially in the body text or diagram. Here, technical descriptions often rely on the technique of extended definitions, which begin with sentence definitions (e.g., "An ion is _____") and then elaborate in prose format by way of providing examples, dividing into parts, naming similarities and differences, or employing analogy. Johnson-Sheehan writes that

the “key to a successful technical description is the use of vivid details to bring your subject to life—to make it seem real to your readers,” with simultaneous recommendations to use simple words, limited jargon, and short sentence length (pp. 189, 191).

In *Technical Writing Essentials*, Suzan Last (2019) groups technical descriptions and definitions together, emphasizing their low level of abstraction and typical reliance on “concrete, measurable descriptors” (n.p.). Descriptions are categorized as product specifications, mechanism descriptions, process descriptions, and definitions. While Last also dedicates some space in the chapter to audience and purpose, the focus of the text remains on the object and its sensory details.

Finally, Mathes and Stevenson (1991) provide the most formal definition in *Designing Technical Reports*, taxonomizing three parts of a technical description: functional overview (stating the purpose of the object being described), physical description (naming the surface or external features of the object), and functional description (which tells the reader how the parts work together, and what the object is meant to do) (pp. 121-22).

The topics of such descriptions can also vary greatly: appliances, electronic devices, instruments, machines, utilities, tools and technologies, physical processes, anatomies, biological or medical conditions, formulas, models, chemicals and substances, organisms, pathogens, and persons (in a clinical or detached sense) are all among the array of potential subjects. In the environmental sector, Richard Johnson-Sheehan (2021) points to “documents written by archeologists, geologists, anthropologists, seismologists, vulcanologists, microbiologists, conservationists, foresters, and environmental scientists”

as technical descriptions, in which “the authors are trying to capture the dimensions and make-up of an artifact, place, or people in exact detail” (personal communication).

Overall, writers are asked to convey a sense of objectivity, a felt distance between the reader and the subject of the description, given that the relationship of the reader to the subject is meant to be predicated on interest, curiosity, and empirical, reproducible observation rather than direct entanglement or personal involvement. These qualities are encoded into the very grammar and syntax of a typical technical description; they employ third person perspective, passive voice, and nominalization in order to sustain the focus of the text on the object, process, person, or place. While Johnson-Sheehan does account for some variation in the use of these documents by readers with different contexts or goals in mind—a colorful or more persuasively-crafted description used as sales literature, for example, versus a plainly-designed specification for a company’s files—he identifies the “basic features” of a technical description or specification by its title, introduction, body, graphics, and conclusion (p. 198), overall unchanging. To these points, Carol Lipson (1982) writes that

A description, by its very nature, creates problems that every technical writer must surmount. Just as in poetry, the *form* imposes restrictions and difficulties. For example, in composing a technical description, *an author has to try to enliven that which is static in its nature*. As any technical writer or technical writing teacher soon finds, description writing can all too easily be noun-based writing, with “is” verbs and passive constructions prevailing, basically writing without any punch and vigor to

it. One feels sometimes as if the description writer didn't know any verb other than "is" (p. 34, emphases mine).

As a rhetorician steeped in a largely postmodernist education, these characteristics piqued my curiosity. Surely, I reasoned, aims for empiricism and objectivity are exercises in futility. Who can escape the inevitability of the subjective lens in all its anthropocentrism, all its myopia? Who can achieve such object-centeredness? Perhaps the subject merits attention in the community of science and technology studies, then, and particularly among rhetoricians of science. After all, the field is no stranger to lively discussion of the seemingly diametric *subject vs. object*. In addition, while literature in environmental technical communication has examined a range of forms and media—such as natural histories, public statements, books and essays of creative nonfiction, acts and statutes, judicial opinions, and project reports, like environmental impact statements (EISs)—technical descriptions have not received specific address, apart from their brief inclusion in Johnson-Sheehan and Morgan's (2008) list of genres of conservation writing.

As the reductionist paradigm for scientific inquiry and communication gives way and complexity-based approaches emerge in their place, the question becomes apparent: are technical descriptions suited for use in writing about complex social-material systems like places? If technical descriptions *can* be positively located as discrete objects, identified by shared formal features, can they comprehend fluidity, change, or nonlinearity? We know, of course, that environmental systems are far from "static in nature" (Lipson, 1982, p. 34); as such, are the technical texts that seek to describe them static, flat, and necessarily the relics of a modernist era? Writing itself, as a tool, can have the limitation of appearing to fix or freeze that which it describes (e.g., "the

Meadowlands is/are...”), and reference points in environmental policy³² can be impractical for urban wetland governance especially (Hettiarachchi et al., 2014)—as I will discuss more fully in this chapter. Although the corpus of primary texts I examined shows recurring patterns in language use, shared characteristics that can be identified as both “technical” and “description,” I argue that the genre is more discernible for what it does, not for what it looks like; technical description is a *rhetorical move*, and a fluid one at that, as I demonstrate in my analysis. Carol Lipson (1982) thought of technical description as noun-based writing, but in fact, I would group together all textbook definitions of technical description as, together, conceiving of *technical description as a noun*. The main departure that my own chapter presents is to conceive of *technical description as verb*, and to ponder its rhetorical and axiological dimensions at that.

While this rhetorical move is often *operationalized* in the problematic way aforementioned (rooted in an extractive and settler-colonial logic about, in this example, the land and those who inhabit it), I want to develop a theory of technical description that reframes its purpose: less as a discursive way of gazing and more as a discursive way of *orienting*—as a gathering space, or place of encounter. Rather than relying on technical description to tell us “what is” in the absolute sense, as if it is a clear windowpane to reality, we can reposition technical description to be viewed, instead, as a social and cultural resource—as the intertextual “glue” that holds together, or the “string” that threads together, diverse arrays of discursive objects that otherwise might not have come into contact or relation. Understanding technical description as a cross-cutting genre in

³² Although this point will be discussed more fully in section 3.4.1, in this context, reference points are fixed descriptions of “ecological components, functions and services to define the ecological character of a wetland” (Hettiarachchi et al., 2014, p. 277).

this reimagined way—as a form of social action, then—is one means of facilitating inclusive, genuinely participatory social processes of engagement about (in this case) the Meadowlands because it reframes definitional writing *as* rhetorical. This perspective can prompt us to reimagine our own goals for writing about places—attuning to our roles as participants in *intertextual* world-building or place-making, rather than seeking to capture that which is complete, fixed, or absolute.

3.2 Guiding research questions and methodologies

This chapter takes a textual and rhetorical focus in response to the second central research question I posed at the beginning of the dissertation: how is an urban wetland complex “made”? (This is before answering the *first* question, which will come in the next chapter: “How did the rhetorical event of the Lower Hackensack River’s Superfund designation come to be?”)

To respond to the question of “how the urban wetland complex (of the Meadowlands) is ‘made,’” this chapter centers on the text-to-text relationship. Of course, the Hackensack Meadowlands are a composite, and different versions of the Meadowlands are rhetorically enacted via practices that are both discursive *and* material (Kessler, 2020).³³ Therefore, an exclusive focus on texts (as presented in this chapter) cannot be a complete answer to the central research question, even as texts themselves—

³³ Citing the model of Annemarie Mol in *The Body Multiple: Ontology in Medical Practice* (2003), who “open[ed] up differences inside medicine [to] create better access to them” (p. viii) and ethnographically observed the way that the ontologies of atherosclerosis are “brought into being, sustained, or allowed to wither away in common, day-to-day, sociomaterial practices” (p. 6), Molly Margaret Kessler proposes a theory of rhetorical enactments as a way of getting around the dichotomy of perspectivalism vs. new materialism in critical inquiry—to, in her case study, “shift the analytic focus away from perspectives about ostomies toward *practices and experiences* that rhetorically enact multiple ostomies” (p. 298, emphasis my own).

very much inclusive of the ones in my dataset—can also reveal much to us about material practice. Ordinary texts (including the “gray literature”) are a significant and, outside of writing studies, perhaps overlooked *part* of the overall equation: the complex process by which the Meadowlands are “brought into being, sustained, or allowed to wither away” (Mol, 2003, p. 6).

As I mentioned in Chapter 1, literary and creative works are celebrated for their power in influencing or even creating shared place identity—for example, Mark Twain’s 1883 memoir *Life on the Mississippi*, or Helen Hunt Jackson’s 1884 novel *Ramona* in southern California. But such works rely, too, on mundane texts and formal or informal research: maps, notes, reports, histories written or oral. As I write this, I am sitting in my home in northeastern New Jersey, on a bend of the Hackensack River, which I can see from my window. This river flows from southeastern New York and empties into the Newark Bay, situated in one of the world’s most densely populated urban ecologies. I rely on texts, for the most part, to know this. I may know where I am in other ways; I might walk from my door to the end of my street, cross a stretch of Meadowlands Parkway, and arrive at the banks of that river, lined with mudflats and tall reed grass. To be sure, such is one way of knowing. But to *name* where I am in a way that others could understand, and to comprehend orders of interaction beyond what I could know in my personal experiences (across time, that is, and across individuals, communities, or generations), I primarily consult inscriptions—seemingly simple ones, first, like public signs, then increasingly complex, like maps, etymologies, charts, tables, and encyclopedia entries.

In Chapter 1, I examined the idea of *place* as it has been articulated in cultural geography, space and place studies, and new materialist humanities. This chapter sustains those themes by asking a supporting question: does technical description about the Meadowlands “create” the Meadowlands? In singular or multiple ways? Through the interpretive lens of intertextuality (Elkad-Lehman & Greensfeld, 2011), I examined descriptions about the Meadowlands as they morphed over time and across contexts.

3.2.1 *Genre as a verb, not a noun*

The term genre has competing definitions, as Anis S. Bawarshi and Mary Jo Reiff (2010) explain. Do genres “sort and classify the experiences, events, and actions they represent,” or do they “reflect, help shape, and even generate what they represent in culturally defined ways (and therefore play a critical role in meaning-making)” (2010, p. 3)? Both can be argued for, as the word genre can be etymologically traced to two Latin origins, *genus* (“kind,” “a class of things,” through its related word gender) and *gener* (“to generate”) (p. 4). My own understanding of genre derives from the North American approach to genre theory, synonymous with the Rhetorical Genre Studies approach informed by rhetorical theory, sociology, and college English studies. Though there are several disciplinary “schools of thought” in genre studies, “what connects these various approaches,” Bawarshi and Reiff (2010) argue, “is a commitment to the idea that genres reflect and coordinate social ways of knowing and acting in the world, and hence provide valuable means of research how texts function in various contexts” (p. 5). To recognize genres as both organizing and creating kinds of texts and social actions is to recognize that

Such a dynamic view of genre calls for studying and teaching genres beyond only their formal features. Instead, it calls for recognizing how formal features, rather than being arbitrary, are connected to social purposes and to ways of being and knowing in relationship to these purposes. It calls for understanding how and why a genre's formal features come to exist the way they do, and how and why they make possible certain social actions/relations and not others. In short, it calls for understanding genre knowledge as including not only knowledge of formal features but also knowledge of what and whose purposes genres serve; how to negotiate one's intentions in relation to genres' social expectations and motives; when and why and where to use genres; what reader/writer relationships genre maintain; and how genres relate to other genres in the coordination of social life. (Bawarshi & Reiff, 2010, p. 4)

To be sure, a genre-centered approach to writing studies can intentionally or unintentionally become a product-centered approach, wherein "the writing process becomes a series of increasingly accurate attempts to replicate an ideal text rather than an engaged understanding of how writing and writers work within a complex world" (Liu, 2005, pp. 73-74, as cited in Bawarshi & Reiff, 2010, p. 7).

Instead, then, we can look to Carolyn Miller (1984) and the landmark essay "Genre as Social Action." As *social action*, genre becomes a more flexible category than substance or form. Miller observes that genre is "typified rhetorical action," and that genres "arise in situations with similar structures and elements and because rhetors respond in similar ways, having learned from precedent what is appropriate and what

effects their actions are likely to have on other people” (pp. 151-2). Such a perspective attunes us to both the historic patterns and conditions that shape a circumstance, and the latent possibilities for reimagining, or refiguring, the tools and techniques we use to accomplish tasks, and our discernment of the suitability of the genre to the task or the rhetorical situation.

It is with this understanding that I approached the study of the genre ecology of the Meadowlands, including both the “professional” and “non-professional” contexts in which writers have attempted to understand the region. In her own study of institutional genres in psychotherapy paperwork, Carol Berkonkotter (2001) observes that “the professions are organized by genre systems and their work is carried out through genre systems” (p. 327). As Berkonkotter reminds us, then, genre itself is primarily behavioral rather than structural; participation in genre allows its situated users to “mediate between the unique features of individual contexts and the features that recur across contexts” (Berkenkotter & Huckin, 1993, p. 475). Clay Spinuzzi (2015) cautions us that context *itself* can be seen in overly bounded or fixed ways; with that perspective in mind, then, I traced technical description as a cross-cutting genre rather than as a local, formulaic activity that can only take place within certain kinds of texts. One articulation of genre has gone so far as to argue that “there’s no such thing as genres,” as result—that “to fully reject formalist approaches is to reject genres as (discursive) entities. They are active structuring templates that guide the processes of becoming according to the strictures of currently ascendant hierarchies. Genre is action. Genre is process. Genre is a verb” (Graham, 2020, p. 76). S. Scott Graham, relying on a Bergsonian theoretical framework, made the recent argument that “the nonexistence of genre is an inescapable conclusion

following a rereading of [“Genre as Social Action”]” (p. 76). Although I do not personally argue in this chapter for the nonexistence of genre, I do follow the action-oriented, process-oriented, verb-like framework that Graham suggests.

Finally, studies of genre are typically situated in human-centered activity systems, and my own study of the genre ecology of the Meadowlands adds to this tradition by looking at landscape change and environmental practice in relation to genre use. I see technical description as *social*, and in the same way that Bruno Latour (2007) uses that term—again, interweaving not just the actors and activities traditionally deemed as human but considering, rather, the entirety of semiotic and material entities that shape, and are shaped, by the network that constitutes their very existence, a “sociology of associations” (p. 9).

3.2.2 *Archival research online and in print*

This study explores the written record, both online and in print. While I was able to gather the scientific and public accounts via searching on the web in both general and specialist databases (ones both freely available and university-provided), and in many cases “follow the citations” of one document to find a host of other ones (in both print and online libraries), I also needed to rely on collections that were already curated in order to access and understand the existing body of gray literature in particular.

To gather the technical and professional articles that I analyzed in this chapter, I relied primarily on the archives of gray literature housed at the Meadowlands Environmental Research Institute (MERI), the scientific branch of the regional zoning and planning agency for the Meadowlands, the New Jersey Sports and Exposition Authority (NJSEA). In the 2019 Hackensack Meadowlands District Master Plan Update,

a 200-page addendum to the original 2004 master plan, MERI's library is identified as one of its core operational units: "The library serves as the principal repository for Meadowlands District document and reports. The library is responsible for holding the collective environmental and institutional memory of the Hackensack Meadowlands District" (2019, p. 1-4). The library is home to both an archive of non-circulating texts and a circulating lending library. While most of its items are still only in print, a few have been digitized on MERI's website.³⁴ The documents cover an array of subjects, including plants and animals, flooding, history, astronomy, computers and technology, birds, management and finance, and land use planning (as named on the website's catalog). Each link forwards the user to a total of nine (9) research guides that provide catalog numbers for the print documents in the library or the archives, but the list is only current as of 2009.

As of December 2021, the previous name of the institute (MERI) will be changing to Meadowlands Research & Restoration Institute (MRRI), and the agency is in the process of developing a new website (still pending at the time of this writing). Figure 9 provides an example glimpse into the website's current design and aesthetic, which features the menu items "About MERI," "Laboratory," "Scientific Data," "Maps," "Drone Mapping," "Archived Documents" (including the Archived Grey Literature page featured in Figure 9), "Resources," and "Search."

³⁴ In 2001, the Digital Meadowlands project began. As Francisco J. Artigas, Kirk R. Barrett, and Richard Holowczak explain, "much of the research, planning and development done in the District over the past 30 years and beyond has been carefully documented through engineering, planning, permitting and scientific reports. Many of these documents are not widely published, thus constituting a body of "gray literature" which has not been readily accessible to the public. HMDC staff and associated researchers have been cataloging this body of literature and migrating document metadata to a digital library environment" (2001, p. 2). However, that project gave way to what is now generally the website itself, and digitization of older materials has stopped or slowed in recent decades.

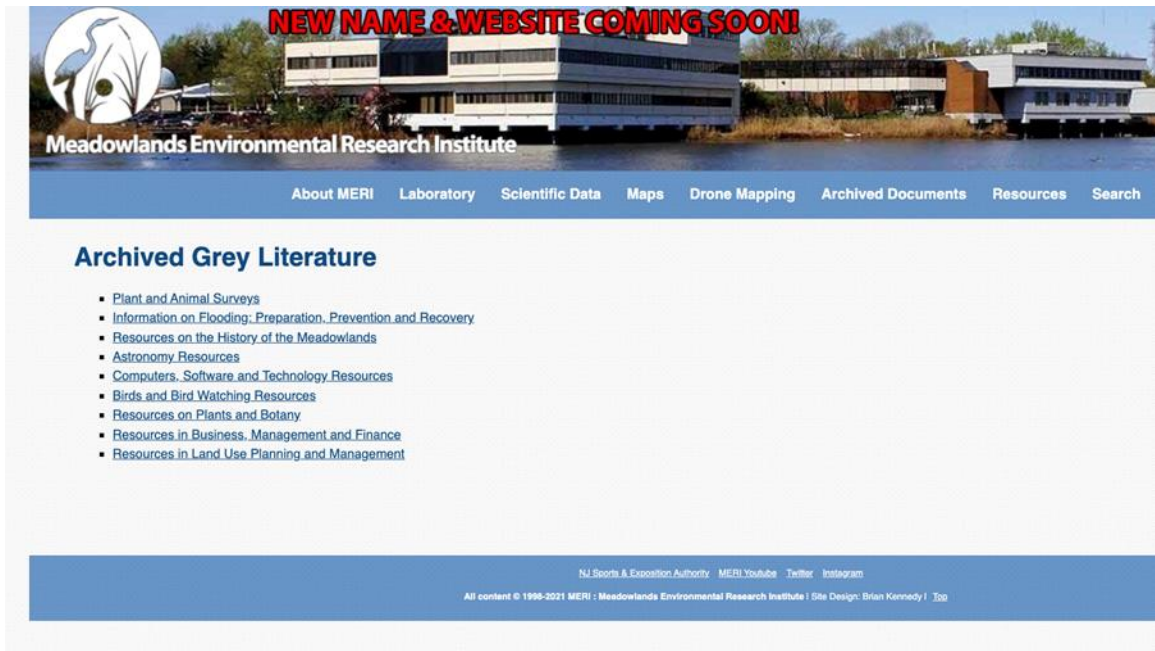


Figure 9. Screenshot of December 18, 2021 webpage "Archived Grey Literature" (Meadowlands Environmental Research Institute, 2021).

MERI once had an in-house librarian who kept track of these extensive records. However, in 2015 with the lean government philosophy of the Hackensack Meadowlands Agency Consolidation Act (S2490), the employed position of the librarian was dissolved in the process of institutional restructuring (Pechmann, 2021, personal communication). To date, a new librarian has not been employed. Record-keeping relies on the volunteerism of Dr. Ildiko Pechmann, an environmental scientist at MERI; I wish to gratefully acknowledge Dr. Pechmann's help with my research, especially since it was all voluntary. Over time, the print collection has grown, but there are at least two stacks that are not cataloged to the public (except under the label "Temporary Shelving In-Processing") and the "true" hours of the library do not reflect the stated online hours; the library was only open to me when Dr. Pechmann was present.

Because of the "unruly" nature of this archive, therefore, I had to rely on a methodology that was not as systematic as I would have liked. Communication studies

scholar E. Cram (2016), however, provides a helpful perspective on the embodied nature of archival research, stating their particular aim to center queer and decolonial perspectives at communication's sensory turn (p. 113). "Even the most sterile feeling and highly institutionalized archives are not passive holding places for primary documents," Cram writes, underscoring the role that archives as "rhetorical places" (2016, p. 109, emphasis in the original) play in "legitimizing public memory" (2016, pp. 110-111). I as the researcher was influenced by the "archival ambience" of MERI's library and stacks and relied on "sensory engagement" to navigate the stacks, sift through boxes and filing cabinets, or withdraw large maps or photo albums, especially since I had only partial help from an existing discursive classification system at this site.

Finally, rather than the straightforwardly bottom-up approach of inductive reasoning or the top-down approach of deductive reasoning, I found myself using associative, adjacent, lateral movement between textual objects, going back and forth between primary and secondary sources. I did not have a predetermined set of codes or categories at the onset of this research, and the categories I did develop went through several iterations of revision. I pursued a research method that allowed me to move back and forth freely between primary and secondary texts.

In order to trace the use of technical description across a variety of texts, I looked for those texts that featured language I perceived as situating, locating, or orienting its users, guided by place names like "Hackensack," "Passaic," "New Jersey," "New York," and "Meadowlands." (To build the data set, I had to rely on Euro-American place names—a point on which I will reflect upon further in the conclusion of the dissertation.) Often, this situating language would take shape as encyclopedic exposition, as site

description, or as introductory passages, and usually in the unit of paragraphs (but sometimes in the unit of sentence definitions, especially those marked by the use of subject complements). Larger and more texts that aim for comprehensive coverage like district master plans³⁵ tend to subsume shorter and more specific texts via citation, such as articles of primary scientific literature, and acts of bibliographic tracing also led to my collection of the texts for this analysis. The full list of primary texts can be found in Appendix B — List of Primary Texts, and the dot plot featured in Figure 10 displays the chronological layering of texts in this dataset by years of publication.

Some texts appeared in scientific and scholarly journals, written by authors who are university-affiliated (or, more rarely, produced by independent scholarship) and inclusive of both STEM and humanistic disciplines such as biology, geology, and cultural studies. They tended to be guided more by the “pure research” standard. Other texts in the collection were generated in a number of “applied” fields, such as environmental management, law, policy, and planning. While most of these documents come from the public sector and are affiliated with government agencies, a few were produced within the private and commercial sectors exclusively. In either case, I would characterize these kinds of texts as part of the realm of gray literature. Gray literature is a broad category that includes reports, policy literature, working papers, newsletters, government documents, white papers, and urban plans (McKenzie, 2021). Gray literature commonly contains the reported findings of “frontier science that lack a legitimating consensus of

³⁵ In the field of environmental management and other realms of planning or management, the term “master plan” is common. Because it is the term used by the writers themselves, I have retained the use of the word “master” when referring to that text. However, this retention is not an endorsement of the term, and I argue that we do need better metaphors in this space as in others. (For example, real estate is confronting its use of the term “master bedroom,” as has technology with its use of “master/slave” labels.)

affirmation by relevant scientific communities” (Schlenz, 2000, p. 55); they have not received the scrutiny and peer review that generally constitutes sanctioned or accepted scientific knowledge (Killingsworth & Palmer, 1991, p. 189).

Finally, several texts I examined were oriented toward public readers who are presumably interested in the subject matter but may or may not be formally trained as scientists in those areas. In addition to its archive, MERI also has a circulating library, which contains some of the popular sources I located (in addition to broader web browsing and sifting through historical newspapers in online databases). Overall, the entries in this category were public-facing texts such as documentary films, reference materials (encyclopedia entries), outreach and promotional materials, general interest field guides, museum and park texts, public journalism, and works of creative nonfiction.

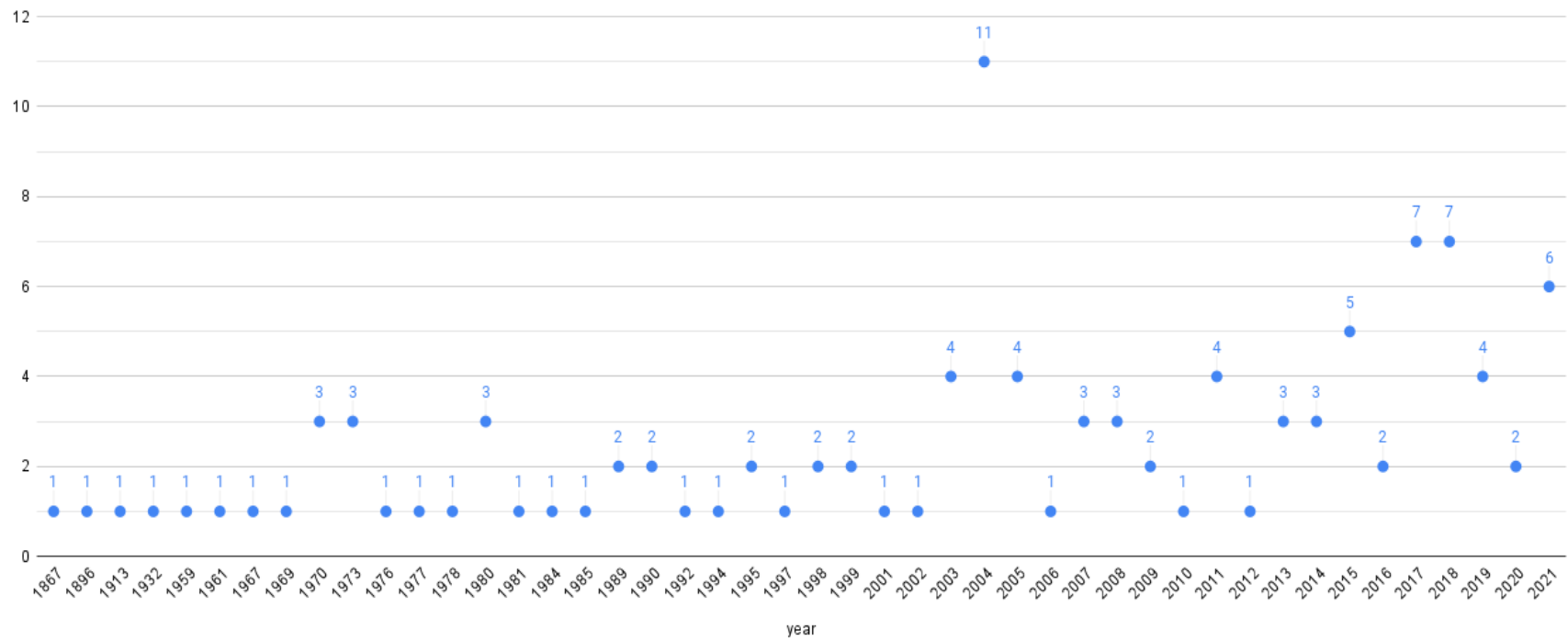


Figure 10. A dot plot displaying the count of primary texts over time ($n = 111$).

3.3 Analysis of the primary texts

At the beginning of this dissertation, I quoted the poet Owen Terry (1922), who lauded the Meadowlands in this way: “Oh, the marshlands of New Jersey / Oh, the broad moors near the sea / Oh, the brave life of the marshes, / Jersey’s moorland green and wide, / And the brotherhood that crowns it, / Blowing wind and flowing tide!” (as cited in Quinn, 1997, p. 5).

When I began this project, that was my question: What has been this “brave life of the marshes,” as recorded in the broad and varied set of literature that comprised my data set? While my reading of over 100 juxtaposed texts about the Meadowlands did teach me a great deal about how this “moorland, green and wide” has transformed dramatically over time, which I describe in more detail in the next chapter, I want to first pause to share what I learned about the genre itself that served as the vehicle (so to speak) for that learning. In this section, using the case-in-point of the Meadowlands, I explain technical description as a rhetorical genre that functions intertextually through aggregation and repetition to 1) orient writers and readers to the world in which the description exists, 2) link together texts that would otherwise not adhere in the same network, and 3) set the stage for other arguments to then exist, emergent from those very prior descriptions.

3.3.1 *Aggregation and repetition*

In a case study of a wind turbine installation in Canada, rhetorician Jordynn Jack (2022) argued that “figures of repetition coordinate regularities in the environment, linking repeated items into relational relationships....bringing salient aspects of the environment into knowability” (p. 2). Relatedly, anthropologist Michel Serres argued that

time does not flow, but rather, it “percolates”; time sets “a recurrent pattern of forgetting and then remembering” (Serres, 1989, as cited in Nicotra, 2019, p. 475). Figures of repetition are memory devices (Harris, 2020, as cited in Jack, 2022, pp. 5-6), and so repetition *across texts, over time* instantiates collective, communal memory to amend for those periodic lapses in memory that Serres describes.

Aligning with these arguments, I observed a great deal of repetition across the primary texts. In Table 1, notice the repeated identification of figures (such as acreage), characteristics (such as individual species), nearby landmarks (such as Times Square or Manhattan Island) and other recurring features intended to distinguish and define “the Meadowlands.” (These series of statements are only loosely chronological; I was guided first by the kairological framework, as outlined more fully in the dissertation’s introduction.)

Table 1. Examples of repetition across the primary texts.

APA Parenthetical Citation	Excerpt
(The Hackensack Meadowlands Reclamation and Development Act with Digest, 1969)	It is hereby declared that there are approximately 21,000 acres of salt water swamps, meadows and marshes which are commonly known as the meadowlands...
(Sipple, 1971, p. 4)	The Hackensack Meadows is located in the Triassic Lowlands, a subdivision of the Piedmont Province in Northeastern New Jersey. Elevations range from zero to ten feet... consist[s] of 18,000 acres...
(Carmichel, 1980, p. 515)	Changes in the preserved flora and fauna reflect environmental changes ranging from sea level fluctuations to man’s deforestation, ditching, burning and settlement. The Hackensack tidal marsh today at the section site is characterized by vast coverage of <i>Phragmites communis</i> ...
(Agron, 1980, p. 216)	The Meadowlands [comprised of 19,730 acres, the same figure provided later in <i>Fields of Sun and Grass</i>] are as an estuary of the Hackensack River Valley, of the Piedmont physiographic province of northeastern New Jersey, whose bedrock (the Brunswick Formation of the Late Triassic Newark Group) is 225 to 200 million years in age... an area larger than Manhattan Island...
(Berger, 1992, p. 511)	[After defining the 21,000-acre estuarine area, 18,000 of which was originally wetland, and 32 sq. miles of which have been administered by the HMDC since 1969:] Extensive development, drainage, diking, filling, garbage dumping, and sewage pumping

APA Parenthetical Citation	Excerpt
	<p>have occurred in the Meadowlands, disturbing many of the area's natural ecological processes. Despite its central location in the northern New Jersey - New York City metropolis, the area was long avoided by developers because of the high costs and technical problems involved in building in an estuarine marsh with substrate of peat and clay. Consequently, it has been used largely as a waste-disposal site [receiving sewage from 52 New Jersey towns and the garbage from 144 towns, totaling 30 to 40 percent of New Jersey's garbage (Berger, 1992, p. 511, citing Scardino, 1990)]</p>
(Quinn, 1997, p. 11).	<p>The "meadows," as defined by nature and so called by local residents...extend from the middle Hackensack River and Overpeck Creek.... They comprised, until quite recently, about 21,000 acres of natural salt marsh and coastal white cedar forest habitats. The cedars have vanished, done in by both human and tidal encroachment, and the runways of Newark International Airport lie upon the reclaimed Newark Meadows just to south. The boundaries of the modern Hackensack Meadowlands District, on the other hand, were determined by the state-appointed [HMDC].... The district is of a slightly lesser area than the natural estuarine marsh complex: it encompasses some 19,730 acres.... and is six square miles larger than Manhattan Island...</p>
(Raichel et al, 2003, p. 512)	<p>The study site is located in oligo-mesohaline marshes along Mill Creek, which lies within the Hackensack Meadowlands near Secaucus, New Jersey (Fig. 1). The HM District consists of 7,985 ha of predominantly tidal marsh (Quinn, 1997) occurring along the Hackensack River in northeastern New Jersey. Marsh elevations range from 0-3.1 m with most areas being less than 1.5 m above mean sea level (Sipple 1971)...</p>
(Kiviat & MacDonald, 2004, p. 1)	<p>[The Meadowlands] comprise a large area of tidal and nontidal wetlands, wetland fill, and small natural uplands associated with the estuary of the Hackensack River from the Oradell Dam to the Newark Bay. Three centuries ago, a mosaic of Atlantic white cedar swamps, salt marshes, and other wetland and upland habitats. Today they are a system of fragmented and contaminated urban wetlands dotted with dumps...</p>
(Artigas et al., 2001, p. 2)	<p>....a 32-square mile degraded, urban, estuarine watershed, located six miles west of New York City.... the District encompasses 32-square miles including parts of 14 municipalities in northeastern New Jersey. The District is a complex, heavily impacted and ecologically important area comprising much of the Hackensack River estuary, just a few miles from Manhattan, and because of the proximity of the Meadowlands to Manhattan, there is pressure to develop remaining open space...</p>
(U.S. Fish & Wildlife Service, 2003, n.p.)	<p>The Meadowlands is the largest remaining brackish wetland complex in the NY/NJ Harbor Estuary. Just 7 miles west of Manhattan, the Meadowlands supports a remarkable diversity and abundance of fish and wildlife...</p>
(Marshall, 2004)	<p>The official boundary of the present-day Hackensack Meadowlands, as defined in the 1968 Hackensack Meadowlands Development Act, encompasses approximately 32 square miles...</p>

APA Parenthetical Citation	Excerpt
(NJSEA, 2020, p. 5-18)	[In a description that looks eerily the same as a 2003 brochure published by the U.S. Fish and Wildlife Service:] The Meadowlands is the largest remaining brackish wetland complex in the NY/NJ Harbor Estuary. Approximately five miles west of Manhattan, the Meadowlands supports a remarkable diversity and abundance of fish and wildlife. Birds migrating along the Atlantic Flyway feed and rest throughout the Meadowlands. Given its location amidst a highly urbanized landscape, its importance as an oasis for wildlife cannot be overlooked. The Meadowlands consists of a diverse mosaic of habitats...
("Annual Report," 2020)	In the southern section of the watershed, the Meadowlands is a prime example of the importance of the Trust's work in protecting dwindling, ecologically important marshes and open space. Set against an urban backdrop, the Meadowlands hosts a unique ecosystem that includes more than 8,400 acres of vital wetlands less than 10 miles from NYC and in close proximity to major highways. Once an urban wasteland, the Meadowlands today is a natural oasis set within one of the busiest economic corridors in the country...
("Important Bird Areas," 2021, n.p.)	Just seven miles west of New York City and four miles north of Newark, this estuarine complex sits in the middle of one of the most highly urbanized areas in the United States...
(Artigas et al., 2021, p. 181)	The marshlands of the Meadowlands of New Jersey are valuable wetland ecosystems in a highly developed urban area and provide a natural habitat to more than 285 species of birds, a great variety of fishes, and many other living organisms. It is not clear if these ecosystems and their associated ecological services will persist under conditions of accelerated sea level rise (SLR)...

In one striking example, a National Research Council (NRC) text (1992) featured unexpected language similarity to a 1977 *Sports Illustrated* article. The NRC chapter does not directly cite that article, of course; it is only through my orientation to shared “technical description,” shared efforts to discursively define and describe (and thereby understand) the complex social system of a place, that I was even able to make the connection between the two.

How does such repetition come about? Through known or unknown borrowing? In some cases, repetition is required and mandated; in others, it could be the result of a cursory writing process, such as copying and pasting (i.e., “lazy writing”). In many of the practical rhetorical situations in which these texts originated, after all, it is not necessarily

the goal or expectation of the writer(s) to come up with a new and creative way to render their site description. Linguistic and formal repetition give rise to the rhetorical qualities of traction and retention—which, itself, feels weighty and substantial enough for writers to rely on it as its own type of credibility (“common knowledge”). As more texts cited or otherwise “copied” previous ones to establish or provide definitions (e.g., “The Meadowlands is...”), those original texts seem to grow in prominence, such that they took on the appearance of authority as touchstones for what, in fact, we believe the Meadowlands to be.

3.3.2 *Situating and orienting*

Least surprising of my observations, perhaps, would be the “situating” work of site descriptions across text types: an orientation of the reader (and likely even the *writer*) to the “world” that exists in the discussion—recalling the discussion of Latour’s (1999) concept of a “circulating reference.” The Meadowlands “transports” via text. The subtle but important effect of these site descriptions would be discursive boundary-setting—establishing the Meadowlands as a recognizable place and region, which is a necessary building block for subsequent argumentation.

As I previously noted in Chapter 2, Latour and Woolgar (1979) wrote in *Laboratory Life: The Social Construction of Scientific Facts* that the word “fact” is derived from the Latin *facere*, “to make or do.” Facts are constructed (fabricated), which only means that they are (sometimes lovingly, even) “made”—not necessarily that they are false or based on deception, which the term fabrication might invoke. A similar idea is invoked in Latour’s (2004) “Whose Cosmos, Which Cosmopolitics?”: “a common world is not something we come to recognize, as though it had always been there (and we

had not until now noticed it). A common world, if there is going to be one, is something we will have to build, tooth and nail, together” (p. 455). A common world is *composed*, and not found.

Importantly, then, the texts themselves create the world we come to know and accept as the Meadowlands. Shared characteristics are repeated discursively, over and over again—accepted as “fact”! After all, a writer does not manually survey and measure the acreage of the Meadowlands each time they write about it; they rely on other texts, and critically, on the mass of other texts that repeat the refrain: “The Meadowlands is 8,000 acres.” Unless the writer must seek to change the figure, that is—if the rhetorical event itself is powerful enough to call for a shift in that solid ground that had accumulated and been fortified over time and with repetition. (For example, the NJDEP’s Superfund listing proposal lowers the figure from 8,000 to 5,000, a sharp decrease.)

Multiple instances of technical description, across texts and over time, compose (not find) the Meadowlands. Just one in isolation is not powerful enough to create this effect, unless it is backed by a mass of another kind (such as a viral following, the addition or subtraction of a major participant, or an “event” on a perceptible human level, such as floods and odors). In the mundane and everyday order, then, technical description accumulates power and meaning with each new addition; they function as a collective, a conglomerate, and as multiple, not as individual.

3.3.3 *Linking together*

In their book chapter “Tweeting the Anthropocene: #400ppm as Networked Event,” researchers Lauren E. Cagle and Denise Tillery (2017) track the use of the hashtag #400ppm and hyperlinking associated with it, circulated widely in 2015 with the

National Oceanic and Atmospheric Administration (NOAA)'s announcement that "the monthly global average concentration of [carbon dioxide] surpassed 400 parts per million in March 2015" (NOAA, 2015, as cited in Cagle & Tillery, 2017, p. 131). People communicating in this way "transformed a scientific measurement [of 400ppm] into an event" (p. 133), Cagle and Tillery observed, in which hyperlinks serve as Latourian delegates (p. 134). As delegates (which take up the work shifted onto them by humans), hyperlinks "function as pivotal actors propelling the transmission of news about science events," "bring[ing] together otherwise scattered parts of the web" (p. 134, p. 139). Although the instances of technical description represented in this study are usually *only* orthographic or visual and don't have an added interactive function in the direct way that hyperlinks do (as both "discourse and technology," in Cagle and Tillery's words), I argue that technical description serves the same purpose as a hyperlink as described in the "Tweeting the Anthropocene" analysis; technical description, too, acts as a through-line to connect texts in a rhetorical ecology, texts that would otherwise not exist in relation to each other. While formal citations also serve the purpose of cohering separate texts, not all of the texts in this data set contain citations. Recurring descriptive patterns, themselves, then, serve as the foundation around which the composite network of "the Meadowlands" coalesces.

Although Johnson-Sheehan (2017) presents technical description as a building block or component inside of larger technical documents (p. 177), I take this claim further to see technical description as a zipper that enfolds large collections of texts. Technical description acts as glue for collections of texts, layering together accounts that would otherwise live and work in very separate discursive "spheres" (e.g., an ecological

inventory of the Meadowlands as a precarious habitat in need of protection, vs. a *Sports Illustrated* commentary that the Meadowlands is “not your everyday bog,” but rather “a reedy channel,” “resisting man's encroachment since the Dutch first tried diking and draining the marsh in the 17th century” and “one colossal garbage dump” that would be the site of “the miracle of the meadows”: “what used to be one of the outstanding garbage dumps of our time has become a gold mine of a sports center.”)

Although the technical accounts, the scientific accounts, and the public accounts clearly differ in their intended audiences and purposes and demonstrate content and editorial choices accordingly, I noticed a significant amount of overlap and interconnectedness among these “spheres” or “domains”—much more than I noticed separateness. Technical description appears to be the common thread running through all these seemingly different forms and media, and these separate dimensions cohere to together “make” the composite that we refer to as the Hackensack Meadowlands—which, while not “whole” and in fact “multiple,” is hybrid nonetheless. This curious characteristic could help to shed light on the coexistence of multiple simultaneous “versions” of the Meadowlands, all of which seem equally entrenched and “true” or “real” to a single person’s perspective (e.g., the Meadowlands as a bird sanctuary, the Meadowlands as a dumping ground, or the Meadowlands as a synonym for the Giants stadium, to name a few) and then epitomized by the tangled, dense mixture of separate goals, objectives, and workings of an agency like the NJSEA.³⁶

³⁶ In the view of Dr. Francisco Artigas, the NJSEA is today “a purely environmental organization”; many of its other goals and functions are appearing to atrophy (2021, personal communication). However, it is still the leaseholder for the land on which the MetLife Stadium is built, and thus it has retained its name as a sports and exposition authority.

3.3.4 *Setting the stage*

In 1982, originally published in *The Journal of the American Forensic Association*, G. Thomas Goodnight's "The Personal, Technical, and Public Spheres of Argument" set out a model that has pervaded the literature in rhetoric since then. Goodnight's primary motivation for writing was his defense of the art of deliberative rhetoric, which he perceived as threatened by the kind of social persuasion found in mass media. To do so, he compares the way that arguments manifest differently in separate realms of discourse³⁷—ultimately upholding the public realm as the one in which deliberation over uncertain issues can thrive and futures can be co-created, in which we can resist takeover by "government technocracy or private hands" (2012, p. 206). While this would seem to underscore the incommensurability problem that science and technology studies scholars repeatedly encircled, my reading of the texts ended up steering me away from a belief in discursive "spheres," as if they were mutually exclusive, and more toward a theory of discursive "layers." Just as geological strata 1) accumulate over time, 2) retain distinct characteristics but draw from shared material and present seemingly unified wholes from a distant read, and 3) are shaped by events and other forces that will influence the way such layers are deposited, reoccur, or erode, *rhetorical* strata pile up in crisscross fashion.

³⁷ To be fair, Goodnight does acknowledge that "the term 'sphere' is not altogether a felicitous one because of its 18th and 19th century connotations of discrete, unchanging arenas where the virtuous play out life according to prevailing custom" (2012, p. 200). He does, however, proceed to demonstrate his view on that perspective because he was not satisfied with alternatives like "ephemeral contexts or mere points of view"; he was trying to identify the boundedness of arguments to the grounds on which they are deployed and expressed (2012, p. 200), and he goes on to delineate "distinctions among the spheres of argument" (p. 201).

In general, I noticed that the scientific texts showed the most linear progression of topics: the earlier scientific literature attempts to chart a big-picture vision of the area and describe its essential characteristics and features. Over time, the texts get increasingly specific about either the object of their analysis or the lens through which they are going to examine their subject. The government documents and reports provided the most granular and diverse look at the Hackensack Meadowlands, although they are the least unified (thematically). These accounts very obviously do not feature neutral language; they are charged, even emotionally so, with apparent values and ideals. Consider the charge of this transmittal letter from the State of New Jersey Department of Conservation and Economic Development, included in the front matter of a 1961 recommendation report called *Develop the Meadows*:

The Meadowlands Regional Development Agency is a local agency. The State Department of Conservation and Economic Development has provided the staff service for the preliminary steps to get the Agency underway. The time for community action has arrived. The decision to fully utilize the Meadows in accord with its utmost potential rests squarely with the municipalities and the local citizenry. You can rely on the continued full support of this Department in your efforts to develop this meaningful new concept. This concept represents one of the few new attempts at joint-municipal action toward solving common municipal problems. (1961)

—or, to look at a more recent example, the striking goals of the NJSEA’s most recent master plan update, such as: “To safeguard and restore the Hackensack Meadowlands’

irreplaceable heritage of natural and historical resources.... To promote a suitable array of land uses that encourages economic vitality with job creation and supports the public health, safety, and general welfare... To create a sense of place that captures the character and identity of the Meadowlands... To direct the NJSEA's policies and practices toward a sustainable Meadowlands..." (2020, pp. 1-6-1-7). These accounts also tended to be self-referential: for example, in the Hackensack Meadowlands Agency Consolidation Act, the District is defined very strictly by a preceding legal definition. The public-facing accounts, such as the newspaper and magazine articles, provided the most composite look at the Hackensack Meadowlands and featured the most abrupt and even dramatic shifts in tone, stance, and content subject matter when read chronologically.

Even by using the words like granular and composite in my analysis, then, my time with the primary texts has steered me away from the model of "discursive spheres" and prompted me to re-envision this particular rhetorical topology as layered. But to be sure, again, the discursive layers I've described here are porous, and their convergences were more striking to me than their contrasts. Although Schlenz (2000) argued that gray literature (usually, the outgrowth of applied government research) appeals to primary scientific literature (peer-reviewed in the academy) for its credibility, which I also observed in the more recent texts especially, earlier scientific texts showed a reversal of that trend, citing plant catalogs and USGS drainage reports from the preceding 19th century. When scientists were first writing about the Meadowlands, after all—coinciding with the formal onset of the field of ecology in the mid-20th century—scientists looked to industry and government, which had conducted much of the surveying and charting of the

land as driven by functional demands in Euro-American culture (e.g., diking, farming) (e.g., Sipple, 1971; even as late as Agron, 1980, cited the same 1896 drainage report).

Furthermore, much like the argument Jenell Johnson (2016) argued in *American Lobotomy* (that public perception of lobotomy shifted the way medical professionals presented their practice and not, strictly, the “science informing the public” model), I did see more than one instance in which the scientific and technical texts cited popular texts not as “popular sources of knowledge,” but as mere supplies of accepted knowledge. (As examples, two texts by John R. Quinn, *An Artist’s Journal of the New Jersey Meadowlands* and an essay in *Wild New Jersey* made frequent appearances in this way. Rachel Carson’s 1955 text *The Edge of the Sea* also appeared in the scientific texts as a cited driver for interest in wetlands nationally, especially the history texts, such as Marshall, 2004.)

How do these rhetorical layers form? For sure, this is a process of gradual accumulation (although I did notice a quick succession of a number of publications in the year 2004, in my particular case). Technical description is multiple rather than singular, and one act of describing is always ready to beget another. So *why* do these rhetorical layers form? It is outside the scope of my study design to comment on the intentionality or awareness of the authors who wrote these many texts. However, as explained in my previous chapters regarding this dissertation’s guiding frameworks, I am primarily interested in *effects*, rather than in uncovering motives or devising causal explanations. To what *effect* do these layers seem to pile up, then?

In the next chapter, I will comment on the *topoi* that comprise discourse about the Meadowlands—at least, as captured in the temporal and necessarily partial data set of this dissertation.

3.4 Conclusion

The Hackensack Meadowlands, even for its character as an *urban* wetland (and a particularly complex one at that), seems to epitomize the American relationship with wetlands generally and shows the same paradigmatic shifts that environmental historians such as Ann Vileisis (1997) have described in their own analyses.³⁸ What once was nothing but a desolate and scorned landscape has transfigured in the culture to become a last stalwart of hope in an era of climate change and sea level rise (SLR), even through a consistently utilitarian logic, as I will expand upon in the next chapter. But by first following the through-line of technical description across these texts that are on the surface different from one another in authorship, audience, and purpose, we can better understand the discursive arena we've created for talking about, and living with, the Meadowlands.

3.4.1 On reference points: A connection to environmental policy

In their analysis of four urban wetland policy regimes in four different countries, Missaka Hettiarachchi, Clive McAlpine, and T.H. Morrison (2014) examined the use of reference points in urban wetland management, as prescribed by the international standards set by the Convention on Wetlands (first adopted in the city of Ramsar in

³⁸ If New Jersey generally has served as a cultural microcosm for the projection and study of American struggles generally (Ard, 2005), then this study is no exception.

1971). “Wetlands of International Importance,” known as Ramsar Sites, must meet the criteria established in the framework: it must contain rare or unique wetland types, support vulnerable, endangered, or critically endangered species, and it must support plant and/or animal species at critical stages in their life cycles, to name a few (“Wetlands of International Importance,” 2014). The Hackensack Meadowlands are not a Ramsar Site; environmental advocates of the Meadowlands are, at present, pushing for recognition for the region as a state park in the U.S., and so to envision the Meadowlands as site of national or “international importance” per Ramsar standards does not seem like a likely outcome at this time. Nonetheless, the Ramsar Convention set policy trends for wetlands across the globe. In 1999, Ramsar adopted a special resolution that required setting reference points, to define the ecological character of a wetland defined as “the combination of the ecosystem components, process and ecosystem services that characterise the wetland at a given point in time” (Hettiarachchi et al., 2014, p. 277).

Hettiarachchi and his colleagues found, however, that

The declaration of fixed biological reference points was not a strong feature in the existing institutional arrangements in any of the cases [they examined]. This affirms Ehrenfeld’s (2000) argument that setting pristine ecological conditions as reference points for protection of urban wetlands is impractical, as their ecologies are highly idiosyncratic and it is impossible to return to historical conditions (Hobbs et al., 2009). The possibility of establishing fixed biological reference points is further constrained by the absence of “unmodified” wetlands in an urban context that can provide the reference conditions. (2014, p. 285)

The cases showed, however, that policy implementers did rely “formally or informally” on ecosystem-service benchmarks that “more or less” serve as reference points. “As Ghosh (2005) argued, in relation to Kolkata, the use of ecosystem services in an urban wetland is integral to its ecological character,” they acknowledge (p. 285). Even then, however, the writers observe that reference points that are too narrow, prizing a single ecosystem service over others, can have limiting effects. Therefore, they call for a social, pragmatic approach attuned to real-time fluctuations in environmental conditions (much like my own reflection at the beginning of this very chapter): for policy, an “evaluation of each policy cycle both in terms of wetland ecological changes and the changes to use of ecosystem services in the given period. Furthermore, more research should be undertaken to attend to the problem of how to attain consensus among the contending actors on the desired diversity of wetland uses and the ecological conditions corresponding to that” (p. 285).

How does this discussion relate to my own genre analysis of technical description? Throughout this chapter, I have argued that it is more interesting to observe what technical description “does,” rather than what it “is.” So, does technical description serve as the basis for the impractical, limiting versions of reference points described by Hettiarachchi et al. (2014)? (This echoes the question I asked at the beginning of this chapter regarding the tension between the seemingly fixed nature of “the world in the text” and the alluvial, changing nature of the world that seems “outside of the text.”) If the text is viewed as an absolute representation of “what is,” then it will necessarily be a modernist relic. If it is viewed instead as a source of cultural and social knowledge, however, I believe it can become something more useful and practical: a “through line”

that can be followed to string together collections of texts that, together, help us understand the subject we've created—however mosaic-like that picture may look, as in the case of the Meadowlands. Although some rhetorical frameworks are oriented toward unidirectional movement and consensus (through agonism and dynamic exchange or through “civil reasoning”), others do not necessitate harmony or agreement at all—striving only for differences to be listened and heard, rather than necessarily resolved or reconciled. Rather than a lack of consensus as the problem, therefore, I wonder if a lack of connection (among otherwise conflicting parties) might be the deeper concern. Connections are forged, not found—common ground is not something found externally, but “composed bit-by-bit, issue-by-issue” (Latour, 2014, p. 62). If descriptions are connective tissue, then they can serve as a shared space for gathering—one that must be made and remade each time.

3.4.2 Greening the gray literature

Finally, how might the perspectives offered in this chapter inform technical writing generally? In “Greening ‘Gray Literature’: Reconceiving Rhetorical Models for Environmental Discourse,” Mark Schlenz (2000) argues that “a necessary first step to ‘greening’ gray literature requires interrogation of the supposed objectivity and rhetorical neutrality of technical documentation in environmental assessment and risk communication discourses to reveal the lack of thorough scientific method behind the data this literature claims as scientific evidence” (p. 56). Awareness of the rhetorically constructed nature of such materials will “contribute to a critical scientific literacy necessary for democratic society” because it renders policymaking documents like environmental impact statements (EIS) “more available to modification, challenge, and

rejection by environmental activists and governmental decision makers,” wherein the ability to conduct rhetorical analysis is a part of critical and informed citizenship (p. 56). Schlenz frames this argument as a response to the lack of understanding among his students that technical reports are rhetorical; they were only perceiving forms like creative writing or nature poetry to be rhetorical, whereas they saw environmental assessment documents as neutral and belonging to a separate discursive sphere. However, as Schlenz attempts to make clear to his students, NEPA documentation regularly recycles text and represents “technocratic applied science,” not the “pure research” ideal they expected; “by virtue of their legally determined intertextuality, environmental assessment documents contain environmental resource and management analysis produced and validated more directly by legislation and litigation than by scientific observation and experimentation,” as Schlenz reminds us (p. 62).

As this chapter has argued, technical description is a rhetorical force. Because of the invisibility and complexity of those rhetorical networks, we might take for granted or assume the truth quality of the recurrent descriptions—for example, “meadows” as a defining and eternal feature of the region that is today called the Meadowlands. While the appeal to scientific authority today has the affordance of keeping us oriented toward non-human others (e.g., migratory birds, benthic macroinvertebrates, peat and clay), science is only one way to describe the world. As science and science education works on its own decolonization and diversification, and we are seeking to “green” gray infrastructure, so too can writers, editors, and designers can think about how scientific and technical communication (not dependent on formal genres) can move in tandem from “gray” to “green.” This involves both 1) continuing to make clear the social/rhetorical nature of

texts, especially gray literature (which continues to resist that categorization—probably due to its focus on nonhuman subject matter—but rethinking the human-centeredness of the term “social” can help us be more flexible about that) and 2) developing inclusive, flexible, and collaborative writing practices that “document” places without freezing or fixing them; necessitates documentation practices that account for polyvocality and multimodality.

In the conclusion of this dissertation, I will explore the implications of this analysis in more depth (for theory, practice, and pedagogy), with connections to environmental justice, land justice, and issues of absence and colonialism in the archive. Before that, however, I want to use the next chapter to revisit the Superfund announcement that I described in the introduction of this dissertation—an outgrowth of the descriptions that preceded it.

Chapter 4 — Flow and Stasis in the Hackensack Meadowlands: A Rhetorical Analysis

This second analysis chapter examines the rhetorical conditions that precipitated the proposed listing of the Lower Hackensack River (LHR) to the United States Environmental Protection Agency's (EPA's) National Priorities List (NPL), a "landmark request." First, I review a portion of the existing literature about EPA communication and Superfund designations (which are especially difficult for waterways). Next, I chart out the rhetorical topology of the Meadowlands (the dominant feature of the LHR) that was created from layers of ongoing technical description, distilling themes about the Meadowlands that overall align with wetlands discourse generally. Finally, I conduct a close reading of a citizen's petition to the EPA for a preliminary assessment of the LHR and the EPA's proposed listing in ultimate response, which includes both an NPL site narrative and a hazard ranking system (HRS) documentation record. I argue that these acts can be understood in light of the previous build-up of argumentation about the Meadowlands, with an emphasis on flow and stasis (which significantly characterize the rhetoric of water-based toxic pollution, especially for the Meadowlands, which are repeatedly described with the metaphor of a bathtub in which water cannot flow, circulate, or refresh). This discussion relates not only to the ancient rhetorical technique of stasis theory (which helps us understand the "what" of a conversation), but to modern environmental rhetoric, as it illuminates a specific instance of the rhetoric of toxicity and the challenges of accountability and agency.

4.1 The Lower Hackensack River (LHR): A national priority

On March 18, 2022, the EPA published a proposed rule to volume 87, issue 53 of the *Federal Register* (the official journal of the U.S. federal government). The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the federal government’s “blueprint for responding to both oil spills and hazardous substance releases” (U.S. Environmental Protection Agency, 2013), includes a list of “national priorities”—the list of sites that are in need of further investigation regarding the nature and extent of public health and environmental risks. For each site, investigators will determine what (if any) CERCLA-financed remedies should be pursued. The Lower Hackensack River (LHR) — “Lower Hackensack River, Bergen and Hudson Counties, NJ, docket ID number EPA–HQ–OLEM–2022–0192” — was deemed among the five “uncontrolled hazardous waste sites” proposed for the National Priorities List (NPL) in the March 18 announcement. At the time of this writing, comments on this or any other proposed listing on that notice are due on May 17, 2022 via Regulations.gov.

To be confirmed as a proposed listing by the EPA, a preliminary site assessment needs to have occurred at the site—which, in 2015 and 2016, happened for the LHR. The preliminary site assessment determines “the extent of the contamination, whether any immediate response should be taken, and if any parties exist that can take financial responsibility for the site, apart from the federal government” (Stratman et al., 1995, p. 24). If the site is found to be an environmental or health threat, a hazard ranking system (HRS) score is compiled that guides the decision to include that site on the NPL. Today, the proposed rule for the LHR is accompanied by an NPL site narrative, the HRS

documentation record, and a link to relevant Regulations.gov page for public commenting (U.S. Environmental Protection Agency, 2022).

The decision was noted as a “landmark request...with major liability implications for industrial companies with current or former operations in New Jersey” (Taft, 2021, n.p.). As the Cincinnati-based law firm Taft warned in a recent bulletin about the issue, the move “places potentially responsible parties (PRPs) on notice that NJDEP will aggressively pursue the remediation of the New Jersey waterway, which could ultimately drag in hundreds — or thousands — of companies with legacy industrial or commercial operations in the area” (2021, n.p.). Although a NJDEP press release declared that the proposed listing of 23 miles of tidally influenced river from the Oradell Dam to Newark Bay was “the first time that a New Jersey river itself would be proposed for Superfund listing,” the nearby Diamond Alkali Superfund Site “includes portions of the Passaic River beginning at the lower Passaic River Study Area (LPRSA), which runs 17.4 miles south from the Dundee Dam to the confluence with the Hackensack River, and the Newark Bay Study Area (NBSA), including Newark Bay, the Arthur Kill, the Kill Van Kull, and tidal portions of the Hackensack River” (U.S. Department of the Interior, 2022); another neighbor, the Hudson River, is home to the “Hudson River PCBs Site[,]...a 40-mile stretch of the Hudson River between Mechanicville and Fort Edward, New York” (U.S. Environmental Protection Agency, 1983). Originally, the NJDEP argued that the jurisdiction of these pre-existing Superfund sites should be expanded, rather than listing the LHR itself (Sheehan, 2015).³⁹ However, the argument to list the river ultimately prevailed, and is today under review in the *Federal Register*.

³⁹ Retrospective reporting in *North Jersey* implies, perhaps in addition, that the delays and differences were political (Fallon, 2021, n.p.).

How did this historic proposed listing come to be, then? After all, the EPA is usually reluctant to pursue waterways for listing, given that they historically present as expensive and risky clean-up projects, even more time-consuming than Superfund projects normally are (DePalma, 2012; Len, 2015). “Even the most notorious hazardous-waste dumps on land pale beside the prospect of cleaning up miles of riverbed – in which the slightest movement can stir up long-buried wastes that tides, floods, even motorboat traffic can spread upstream and down. Trying to predict how everything will work is so complicated that preliminary planning alone can cost more than an entire land-based cleanup,” as reporter Anthony DePalma (2012) explains (n.p.).

According to an NJDEP press release (Hajna & Shinske, 2021) and a special section on its website dedicated to the ongoing effort (N.J. Department of Environmental Protection, 2022), the effort was originally prompted years ago by a letter to the EPA from Captain Bill Sheehan, the Hackensack Riverkeeper. “We took this step after long thought, careful consideration and after meeting with both state and federal regulators,” wrote staff writer Chris Len in spring 2015—volume 18, issue 1 of *Hackensack Tidelines*, the Riverkeeper’s newsletter publication. Unlike combined sewer pollution and stormwater pollution, which the Riverkeeper addresses to the state to handle, the category of toxic pollution required more resources, Len argued: “a bigger job than we can handle on our own.... We cannot petition the [NJDEP] for stricter regulation because these pollutants are already in the water. We cannot wait for the toxins to naturally attenuate because the evidence does not support significant reductions over a human time frame. If we want a fishable Hackensack, we need to force the polluters who caused the damage to clean up their messes” (2015, pp. 1, 3).

This chapter reaches back in the intertextual history in order to understand the nature of the LHR's proposed listing. In a sense, this chapter could well be an investigation of any proposed listing and the heavy documentation needed to support those ultimate declarations. While such an examination might itself be useful (untangling the dense and layered associations of the term "Superfund" in American discourse, and what we think of as "Superfund sites"), I am especially interested in the unique rhetoric of water-based toxic pollution, which poses challenges for our perception of accountability and agency.

4.2 Guiding research questions and methodologies

The first research question I asked at the onset of this dissertation was, "How did the rhetorical event of the Lower Hackensack River's Superfund designation come to be?" Stemming from this original question, I now ask in addition: what do the Riverkeeper's letter, the HRS documentation record, and the NPL site narrative tell us about the Lower Hackensack River today? In Chapter 3 (section 3.3.3), I argued that technical description sets the stage, or creates the conditions, for all subsequent argumentation—and the description itself implicitly argues. In what ways, then, does the proposed Superfund designation represent the rhetorical outgrowth of all previous description—really, argumentation—about the region? If descriptions layer over time (as also established in the previous chapter), what do they surface in this instance of the LHR's proposed Superfund listing?

4.2.1 *Previous scholarship on EPA communication*

As noted in Chapter 2, EPA communication has been a popular topic in the subfield of environmental technical communication. In “Risk Communication, Metacommunication, and Rhetorical Stases in the Aspen-EPA Superfund Controversy,” for example, James F. Stratman et al. (1995) examine the risk communication guidelines on which EPA’s own risk communication guidelines are based, interview data with EPA officials, and samples of correspondence between EPA and Aspen officials in their effort to understand why the city of Aspen did not accept the EPA’s cleanup plan of toxic lead mine wastes. While my own study focuses more specifically on the making of a proposed rule for a site, rather than on public controversy regarding a particular cleanup plan, I share Stratman et al.’s (1995) basic understanding of EPA communication *as* argumentation, rather than unidirectional messaging from sender to receiver.⁴⁰

A more recent study by Donald Ross (2018) detailed the characteristics of an environmental impact statement (EIS) as a technical text⁴¹ and showed “that federal and state statutes and (formal) regulations are the legal and rhetorical basis for environmental-impact assessment” to a profound degree (p. 225). Each argument of an EIS is rooted in

⁴⁰ Stratman et al. (1995) also acknowledge that it is easy to critique the conduit model of communication on paper and fail to account for the actual complexity of the rhetorical situations in which the EPA finds itself (in which the agency must negotiate between the identities of “good listener” vs. “final legal enforcer” in its presentation to public communities—and not able to ultimately escape the latter). Nonetheless, they firmly suggest that “[EPA representatives] may need to see that the kind of argumentation they need to develop is not only substantive but that which acknowledges and responds explicitly to other stases emerging in a controversy,” and that “such a shift in role perception could help EPA listen to the public in more genuine way” (pp. 35-36).

⁴¹ An EIS is typically sponsored by a federal agency, with writing outsourced to third party contractors. The stated author of the example studied by Donald Ross (2018) was a former agency of the Department of the Interior. However, the EPA maintains the Environmental Impact Database (the repository of all statements since 1987), and the EPA reviews the EIS of other federal agencies as mandated by the Clean Air Act.

“the accumulation of laws and practices within the government agencies that write the Statements and a growing understanding of how complex ‘the environment’ is,” with the latter being a significant point in postmodern critiques of the environmental review process (p. 227). After all, the stratification of media in environmental governance (“stovepiping”) seems diametrical to the systems-based concept of an “ecosystem,” as Ross (2018) noted (p. 232). My own study has similarly sought to balance both textual and contextual study of government communication, especially with the intent to make sense of the seemingly very different characterizations of “the environment” and, in this case, the Meadowlands.

4.2.2 *Kairology and topology as rhetorical lenses*

In order to understand the conditions that gave rise to the LHR’s most recent (prominent) rhetorical events, I found it necessary to conduct a thematic analysis on descriptions about the Meadowlands over time. More specifically, I gravitated to the concept of a rhetorical topology, related to the kairology framework introduced in section 0.4.1 of the dissertation. In the introduction to the edited collection *Topologies as Techniques for a Post-Critical Rhetoric*, Walsh and Boyle (2017) present topology as the best of both worlds: critique and invention. Topology, as a term, is most familiar to mathematicians; it is the study of space as it changes in response to stretching, twisting, folding, and bending (but not tearing or rupturing). The concept has various applications in the sciences—for example, topology can be used to discern the shape, structure, and arrangement of networks. Because of rhetorical scholars’ dissatisfaction with critique as the dominant mode of scholarly engagement with text, some have turned to the turned to the once-unfashionable concept of *topos/topoi* (from the Greek for “place” or “stance”) in

ancient rhetoric for generative, inventive alternatives.⁴² Other examples of works in this vein are Derek G. Ross's (2013) "Common Topics and Commonplaces of Environmental Rhetoric" and the edited collection *Topic-Driven Environmental Rhetoric* (2017), both of which have sought to distill recurring patterns in environmental rhetoric, *topoi*, because they "construct expectation so certain premises may remain unstated—we, as an audience, hear that the topic for a speech will be 'global warming,' for example, and are thus able to extrapolate likely argumentative trajectories" (2017, p. 7). In research, "a topological approach traces the contours of a discourse and may fold it into a new configuration... [so that] change may be invented without restoring to the ruptures of critical intervention" (Walsh and Boyle, 2017, p. 4). Rhetorical topologies are constructed by the tension and interplay between *topos* and *kairos*,⁴³ where *kairos* is understood not as a break in habitual or routine relations but "as an emergent fold or wrinkle in them that opens a space for reflection and revision" (Hawhee, 2002, as cited in Walsh & Boyle, 2017, p. 5). To generate a topology is to make visible the contours and frequencies of discourse and to illustrate critical moments of change.

⁴² As Walsh and Boyle explain (2017, pp. 249-250), renewed interest in *topoi* came about right after *The New Rhetoric*, and was especially embraced in rhetoric of science. It was derailed in the 1990s by the critical turn, however, and especially Gaonkar's critique of rhetoric of science. As spatial studies have come to the humanities from geography, however, topology has come back as well. Walsh and Boyle's (2017) collection certainly typifies this interest.

⁴³ As you can see, my understanding of topology comes primarily from Walsh and Boyle (2017). However, not all rhetoricians use this term the same way. In her explanation of the rhetorical-topological approach used by Amy Koerber (2018) in *From Hysteria to Hormones: A Rhetorical History*, Jodie Nicotra (2019) notes the differences between Michel Serres's concept of topology and Judy Segal's concept of kairology (p. 474). Whereas kairology seeks to understand the felicitous factors that precipitate and *give rise to* the social acceptance of a claim, topology focuses on the "the way that things at a certain time *don't* add up and therefore lead ultimately to the production of new knowledge" (p. 474, emphasis mine). Like Koerber, however, I find it more productive to combine these concepts.

Every topological engagement is case-based and empirical, and topologies can be assembled by both qualitative and/or quantitative methods and heuristics (Walsh & Boyle, 2017, p. 11). Some topologies rely on quantitative methods—for example, content analysis that extracts and counts recurrent linguistic units and then produces visual representations of that text data, such as tag clouds or network maps (e.g., Jack et al., 2017, in the same collection). However, my own analysis used qualitative methods for data collection. Via the descriptive drive of the topology methodology, I sought to understand the “structure” of the Meadowlands’ rhetorical ecology.

4.2.3 *A rhetorical and pragmatic approach to argument*

Finally, the analysis in my chapter rests on a rhetorical and pragmatic approach to argument (as opposed to a formal approach to argument, such as that found in the branch of mathematical logic). A well-known source for this approach is British philosopher Stephen Toulmin’s *The Uses of Argument* (1958), whose model of argumentation has been a popular inclusion in rhetoric and composition textbooks since its inception (2001, p. 121). This model includes the versatile elements of claims, data, warrants, qualifiers, rebuttal, and backing, representing a significant departure from the model of the traditional syllogism that had prevailed before it. Later, Ross and Rossen-Knill (2016) pick up on this framework by charting “Features of a Written Argument”—a list of thirty-eight characteristics of natural-language arguments informed by the literature in rhetoric and linguistics and understand written argument as a “a rhetorical, linguistic, and social-communicative act....a purpose-driven activity motivated by the writer’s goal and intended to affect or change the beliefs or actions of some readers” (p. 191). Whereas Ross and Rossen-Knill (2016) define uptake as “how the reader understands or responds

to the text,” I am looking at uptake in a different sense: the “uptake” of language and other symbols from text to text, which is closer to how they define “sources” (as “intertextuality; citation or quotation of written or spoken texts; use of earlier texts in a series; works cited”) (p. 187).

4.3 *Topoi of the Meadowlands*

Now that I have referenced relevant previous scholarship, I will turn again to the collection of primary texts ($n = 111$) that informed my original study, discussed in more detail in Chapter 3 and outlined in full in Appendix B. Table 2 encapsulates the themes that I derived from my reading of this literature, with just a few relevant examples provided for each.

Table 2. Thematic analysis of Meadowlands discourse over time.

Theme	Examples
Ruin, chaos, grunge, and desolation	<ul style="list-style-type: none"> <li>● A 1977 <i>Sports Illustrated</i> article that glorifies the efforts of Sonny Werblin in building a “gold mine of a sports center” in “what used to be one of the outstanding garbage dumps of our time”: “...in a forsaken New Jersey salt marsh known as the Swamp. In fact, what was billed as the ground-breaking for a ‘magnificent new world of sports and entertainment’ looked more like the last rites for a cesspool....surrounded by industrial litter—auto skeletons, oil drums, bedsprings....rats the size of cats nosed through mounds of garbage, and off in the windswept reeds, in tidal creeks tainted with chemical wastes, fish lay belly up in the pale winter light...” (Kennedy, 1977, p. 76) <li>● Sullivan (1997) makes explicit references to the Lewis and Clark expedition, drawn as inspiration for the urban exploration and discovery aesthetic of his book. Excerpt from the book include references to the police officer who rescued him and his friend as their “Sacajawea,” and the observation that “Soon we were in Walden Swamp . . . The stagnant water was brown & marbled with green and white and dotted with tapioca bead-like bits of wading Styrofoam. We passed a small school of giant plastic soda bottles. At 11 a.m., we saw ahead of us the sole of a boot, floating ominously. On closer inspection, we could see that it was attached only to a desperate bit of

Theme	Examples
	<p>algae the first sign of nonreed, photosynthetic life we'd seen" (p. 87)</p> <ul style="list-style-type: none"> ● <i>Back Water</i> (2015), a documentary that features a group of apparent white people kayaking the Meadowlands in an effort to reenact "a traditional expedition," "as romantic as it is political," even if it means trespassing on private property and walking on top of live gas lines; to an ambient atmospheric soundtrack, the kayakers paddle down the river, flanked by the distant turnpike, and the narrator introspectively wonders if they are aliens, or the last civilized people on the lonely earth ("Even though we were in one sense close to civilization, we were in another sense incredibly far away")—dramatically and artistically highlighting moments of a flood warning over the radio, the ripped-off head of a groundhog, and a natural gas line on fire
The Meadowlands and (its need of redemption to restore) its utility	<ul style="list-style-type: none"> ● The <i>NYT</i> article in 1923 about the building of a viaduct: "Utility and symmetry—one may well add beauty—are combined in the Diagonal Overpass...which Governor Moore symbolically opened to traffic by cutting a blue ribbon.... All triumphs of engineering, well worth going miles to see. A great deal has been said about reclaiming the meadow swamps...The day is no doubt coming when the mosquito-infested jungle of rank vegetation will only be a memory of the oldest inhabitants of Secaucus and Kearny" (p. 14) ● A 1913 <i>NYT</i> article ("Dredge Hackensack River: Improving Newark Meadows Section for Industrial Development"), in which the Hackensack is among the waterways "destined to become important factors in the development of the large properties adjacent to them...The land on the Plank Road has recently been filled in and offers desirable factory sites." ● The Kiviat 2020 report focusing on landscape uses of the Meadowlands
Lamenting the fate of a place on the cusp of change	<ul style="list-style-type: none"> ● Pehr Kalm, a Swedish professor who documented his visits to the young colonies in <i>Travels into North America</i>, writes (on the disappearance of cedar forests in the Meadowlands): "A quantity of white cedar wood is likewise exported every year to the West Indies, for shingles, pipe staves, etc. Thus the inhabitants are very busy here, not only to lessen the number of these trees, but even to extirpate them entirely. They are here (and in many other places) in regard to wood, bent only upon their own present advantage, utterly regardless of posterity. By this means many cedar swamps are already quite destitute of cedars, having only young shoots left; and I plainly observed, by counting the circles round the stem, that they do not grow up very quickly, but require a

Theme	Examples
	<p>great deal of time before they can be cut for timber” (1750, p. 177, as cited partially in LeafScore, 2021)</p> <ul style="list-style-type: none"> ● Terry Owen’s poem appears in a 1922 history by Frances Westervelt. In the middle of a long paragraph that otherwise entails a seemingly dry litany of characteristics about the area—the soil composition and its clay beds, which yielded a once-vital brick industry that shipped to New York City—Westervelt offers a striking observation: “The Hackensack river was a paradise for anglers a quarter of a century ago, but fishing is now a lost art owing to the pollution of the stream by sewage and contaminating matter from manufacturing plants” (1922, p. 274).
<p>Surprising natural beauty; the unusual persistence of a wetland ecology in spite of heavy human activity</p>	<ul style="list-style-type: none"> ● The <i>NYT</i> special “Hackensack Meadowlands still paradise for trappers” (1978), in which a muskrat trapper “seemed to be stepping out on another era as he emerged from a thicket of 12 foot marsh feeds into a crowd of secretaries returning to their jobs in two new office buildings” (p. 2) ● The <i>Wild New Jersey</i> essay (1998) “The fishes swim through it—once again,” on the “remarkable transformation” and “rebirth” of fish species in the Meadowlands, owing to the “rigorously enforced regulations of the 1964 Clean Water Act...[and] the combined efforts of public and private groups with an interest in the fate of this ancient river” (p. 2) ● The characterization of the historian John R. Quinn (1997), that the region is “one of the grandest environmental paradoxes on Earth” (p. 1) ● <i>Lessons of the Hackensack Meadowlands</i>, a 1984 documentary of The Nature Conservancy that argued “places are used as they’re perceived... Humans in the last century tried to dike it and farm it, and they blew that badly... Mosquito people took over and worked their will on the land... those are all part of that previous effort to contain the freshwater marsh... In the shadow of New York City, still a piece of wild country” and <i>Turning the Tide</i> (2011), a 2011 documentary that featured “an extraordinary place right alongside buildings and bridges... attracting modern-day explorers,” succeeding “through the combined efforts of legislation, planning, and open-space preservation” (1:20-1:30) to save this coastal wetland, “one of the most dynamic ecosystems on the planet” (3:30-3:34) ● Journalistic reports of seal and bald eagle sightings (e.g., Baldwin, 2018) ● The <i>North Jersey</i> feature essay “Jersey icons: The Meadowlands – How a dumping ground became an environmental gem”: “example”

Theme	Examples
<p>An emphasis on the human-ness of the Meadowlands and a call to unite on behalf of the cause</p>	<ul style="list-style-type: none"> ● The Meadowlands’ pioneering trash museum, as described in popular reporting (Depalma, 1989; Narkiewicz, 1990) and scholarship (Ard, 2005) ● <i>The Meadowlands Survival Story</i> (2011), which declare that “the Meadowlands is recovering, and it is inspiring people in urban wetlands all over the world to look for hope in this flat, wet, beautiful place” (n.p.)—as aided by the likes of Karin, a young student on a field trip: “Karin’s teacher explains the other ways marshes help humans, like soaking up floodwater and keeping soil from washing away. Karin also learns how to take care of the wetlands. When she gets home, she’ll recycle more and use less of everything, so less waste is dumped in wetlands. She’ll teach her family to conserve energy to create less air pollution” (n.p.). Thomas Yezerski (2011) sketches the complex web that is the reality of the Meadowlands in the last sentence at the end of the book, in the author’s note: “[The Meadowlands] is shared by fourteen municipalities, three professional sports teams, three Superfund sites, forty-five species of fish, and 332 species of birds” (n.p.).
<p>Recovery, but the lurking threat of a relapse</p>	<ul style="list-style-type: none"> ● “Sheehan says the surface waters are as clean as they’ve been in 100 years, but he adds that old industrial poisons still lurk at the bottom of the river.” ● “The Hackensack River is a toxic stew, having been savagely polluted for several decades. An Environmental Protection Agency sampling in recent years showed its riverbed laced for 22 miles—from Newark Bay north to the Oradell Reservoir—with a dangerous cocktail of dozens of contaminants. Designating the Hackensack with federal Superfund cleanup status is the most effective way to rehabilitate the river in a comprehensive way.... Though the river is getting cleaner and more people use the Hacknesack to kayak, pollution remains in the sediment.” (Editorial...toxic stew) ● The “invisible bird killer” lurks in revitalized New Jersey Meadowlands
<p>The bathtub metaphor, stagnation of toxic pollution, and the dangers of flooding in light of climate change</p>	<ul style="list-style-type: none"> ● Artigas et al., 2021: “Contrary to other estuaries, there are no adjacent areas in the Meadowlands of New Jersey where salt marshes can retreat. The Hackensack River estuary covers a 3 km wide glacial valley with steep straight sides that rise more than 40 km from the valley bottom (Widmer 1964). Moreover, industrial parks, residential areas, bulkheads, tide gates, railroad lines, and highways that crisscross the meadows, further complicates any possibility for landwards marsh migration. Under these “bathtub” conditions, if marshes are to overcome rising water levels, they must be able to accrete at a rate where surface elevation gain is sufficient

Theme	Examples
	<p>to offset the rate of water level rise (Cahoon et al. 1995)” (p. 182)</p> <ul style="list-style-type: none"> <li>● In an NJDEP promotional video for <i>Rebuild by Design Meadowlands Project; Strengthening New Jersey for Today’s Climate Threats</i>: “Although [the project] cannot solve every challenge, the final design phase focuses on building greater capacity by quote unplugging the bathtub and allowing more water to move more efficiently through the project area” (1:53-2:08)

To be sure, the Meadowlands are a fascinating case-in-point about wetland perceptions generally—what environmental historian Ann Vileisis (1997) calls “a landscape on the periphery” (p. 2). The “turns” in Meadowlands discourse that have been captured in brief in the preceding table, once again, reflect the same “turns” in American wetlands discourse that Vileisis identified, and also map loosely onto the “turns” in environmentalism more generally that were discussed in Chapter 2, section 2.3.2 (embracing rather than rejecting the North American landscape through a transcendental and Romantic lens □ conservation vs. preservation □ the anti-nuclear movement □ the antitoxins movement, the rise of ecology, and the focus on local action □ the rise of environmental justice □ the rise of sustainability and a global perspective). While the themes in Table 2 *generally* represent a progression of ideas over time (colonial attitudes of desolation and hideousness □ acceptance and celebration of wetlands as natural “sponges” that buffer and protect land, clean water, and provide recreational and aesthetic benefits), note that older *topoi* most certainly do not disappear altogether; for example, the logic of utility morphed from that of an extractive economy in its original form (e.g., the wetlands to be turned into more useful, fruitful places) to a *new* sense of utility: that of ecosystems services. The overall net effect, however, is that due to gradual and collective action on multiple rhetorical fronts, wetlands shifted from their previously

vilified status. Up until the 1930s, the USDA subsidized wetland drainage for agricultural production (Ravit, 2004, p. 8). In New Jersey, the marshlands closest to urban centers were destroyed, and the more distant marshes kept for salt hay to be transported to the cities. But this same state that had enacted the earliest drainage laws later became an early adopter of coastal wetlands protections laws (Vileisis, 1997, pp. 32-33). The Meadowlands, once been a dumping ground for waste from New York City and one-third of waste from the state of New Jersey itself, became an environmental jewel by the turn of the millennium—now, though, a precarious one, as the next two texts illustrate more closely.

Recalling Derek G. Ross’s (2017) guiding assumption that *topoi* provide the building blocks for argument trajectories that extend far beyond their simple denotations, I will now turn to two new primary texts: the Hackensack Riverkeeper’s petition to the EPA (4.4) and the EPA’s the NPL site narrative and HRS documentation record (4.5).

4.4 An analysis of the Riverkeeper’s petition

Captain Bill Sheehan’s petition to the EPA appears in full in Appendix C of this dissertation. Within this chapter, I will narrate and explicate portions of that letter, comparing the text to Chris Len’s public-facing explanation of the same petition in the Hackensack Tidelines issue (in an article titled “The Next Big Step in the River’s Recovery”).

The letter begins with its direct ask: “a Remedial Preliminary Assessment as soon as possible pursuant to 40 C.F.R. section 300.420(a)(5).” Captain Sheehan invokes the standing and credibility of Hackensack Riverkeeper to bring the petition:

Through our work, we see firsthand how the river we oversee is negatively affected by toxic pollution. We operate two paddling concessions on the river and offer eco-cruises throughout the warm weather months; I firmly believe my business opportunities are limited by the presence of toxic contaminants in the river and the general perception of the river as unsafe for recreation. (Sheehan, 2015, n.p.)

He goes on to acknowledge that the toxicity of the sediment poses a significant challenge for restoration and remediation; “it is more difficult, for example, to restore a tract in the Meadowlands because of legitimate fears that disturbing sediment will increase toxic pollution in the water column” (n.p.). The main text goes on to compare and contrast the Hackensack to that of its twin, the Passaic River, bordering the Meadowlands on the south:

The Hackensack, like the Passaic, is a tidal river. River currents do not control its water and sediment; rather tidal action sloshes them back and forth. My extensive experience on the river leads me to believe that the tides transport pollutants up and down from their sources, but generally do not wash the contaminants out to sea. Thus, I believe pollutants from these sites and innumerable others are still in the river sediments and will indefinitely remain unless the Agency acts. But unlike the Passaic, there is no dominant polluter responsible for the majority of the toxic contamination. Therefore, it makes no sense to me to expand the jurisdiction of an existing Superfund site throughout the river. (Sheehan, 2015, n.p.)

In order to think about the rhetorical power of the Riverkeeper's initial petition, we can think of it as one accumulative outgrowth of all previous descriptions: 1) it relies on an understanding of the Meadows as a "place," worthy of "ecotourism" (everything that went into that to make that so—harkening to the poem, the paintings, and the other cultural landmarks that interestingly also serve as collective reinforcement); 2) it relies on arguments about pollution interfering with the Riverkeeper's "business" (and the long legacy of industry interests in the area—how that has spurred significant action, for better or worse); and also 3) the intriguing rhetorical appeal regarding the water itself and its tidal nature; the mental concept that pollution is just sloshing back and forth instead of draining out, much like the recurrent "bathtub" metaphor described in the previous section, and the "commons" dimension to water: the ambiguity around accountability and agency.

Whereas the petition addressed to the EPA primarily makes appeals to the agency's own standards and criteria for petitions (as outlined in the federal code), the explanation of the petition to the public, written by Hackensack Riverkeeper staff writer Chris Len (2015), makes more cutting appeals to the "forc[ing] the polluters who caused the damage to clean up their messes," weakness and leniency of state enforcement, and the futility of repeated lawsuits brought by the Riverkeeper against individual actors. Without a single or prominent actor responsible for conditions in the LHR, however, the finding of potentially responsible parties (PRP) seems uniquely challenging.

The Riverkeeper's petition invokes an image that has "stuck" from previous description—that of a bathtub. In *The Cultural Politics of Emotion* (2014), Sara Ahmed

offers a more detailed look at the rhetorical concept of “stickiness” as “a form of relationality...in which the elements that are ‘with’ get bound together” (p. 91).

How do surfaces become sticky? Well, at one level an obvious question has an obvious answer: things become sticky as an effect of encountering other sticky things. Such stickiness gets transferred onto other things.... [and] what sticks ‘shows us’ where the object has travelled through what it has gathered onto its surface, gatherings that become a part of that object, and call into question its integrity as an object....Stickiness then is about what objects do to other objects—it involves transference of an affect—but it is a relation of ‘doing’ in which there is not a distinction between passive or active, even though the stickiness of one object might come before the stickiness of the other, such that the other seems to cling to it....How do signs become sticky?.... We could argue signs become sticky through repetition; if a word is used in a certain way, again and again, then that ‘use’ becomes intrinsic; it becomes a form of signing....This repetition has a binding effect....The ‘binding’ effect of the word is also a ‘blockage’: it stops the word moving or acquiring new value. The sign is a ‘sticky sign’ as an effect of a history of articulation, which allows the sign to accumulate value. The stickiness of the sign is also about the relation or contact between signs...To use a sticky sign is to evoke other words, which have become intrinsic to the sign through past forms of association. (Ahmed, 2014, pp. 91–92)

4.5 An analysis of the NPL site narrative and HRS documentation record

The proposed NPL Site Narrative is a 1-page document that succinctly makes the following chain of claims: the LHR contains contaminated sediments; “the Lower Hackensack River, associated wetlands and surrounding area have been a center of industrial activity for more than 200 years”; surface and subsurface sediments contain the following inorganic constituents and organic compounds; the contaminants are found in areas that are “used for recreational fishing and ecological [sic] sensitive environments including wetlands,” and the LHR is part of the New York-New Jersey Harbor Estuary, “a designated Estuary of National Significance” and “habitat to over 30 state and or federally designated endangered or threatened species and home to over 8,400 acres of wetlands”; to date, only fish consumption advisories, including bans and limitations, have been imposed for several fish species; and finally, “the state of New Jersey referred the site to the EPA because it is the best alternative to investigate the extent of contamination and determine how to address the site. Other federal and state cleanup programs were evaluated; but are not viable at this time because of the complexity of the site” (“Proposed NPL Site,” 2022, n.p.).

Accompanying this brief NPL narrative is a much longer text: the 180-page Hazard Ranking System (HRS) documentation record. The HRS is a screening tool, “the principal mechanism that the EPA uses to place uncontrolled waste sites on the [NPL]” (“Hazard Ranking System (HRS),” 2022). It uses information from the preliminary assessment, the site inspection, and the expanded site inspection (which was done for LHR) to measure threats numerically. However, a high HRS score does not necessarily mean that the site will outrank others in terms of time and attention, since that would

mean interrupting or slowing efforts that were already underway (“Hazard Ranking System (HRS),” 2022). The remedial investigation/feasibility study (RI/FS), which follows NPL listing, will ultimately determine EPA priority.

The HRS documentation record accounts for existing or potential release, waste toxicity and quantity, and “people or sensitive environments (targets) affected by the release” (“Hazard Ranking System (HRS),” 2022). Normally, HRS scorings focus on four pathways: 1) ground water migration, 2) surface water migration/drinking water threat, 3) soil exposure and subsurface intrusion, and 4) air migration (“Hazard Ranking System (HRS),” 2022). Interestingly, on the cover sheet of the LHR’s HRS documentation record, none of these pathways were scored, however. The same reason was repeated four times, without further explanation: “The surface water pathway human food chain and environmental threats are sufficient to qualify the site for the NPL.” The cut-off score for NPL listing is 28.50, and the LHR received its final grade as follows:

Scores

Air Pathway: Not Scored

Ground Water Pathway: Not Scored

Soil Exposure and Subsurface Intrusion Pathway: Not scored

Surface Water Pathway: 100.00

HRS Site Score: 50.00

To provide backing for its numerical scores, the LHR’s HRS cites a number of the same technical reports in my own study (Table 2); the first twenty pages are, in fact, a long list of references. All references appear before the narrative instead of after it (unlike, for example, academic writing); in-text citations appear throughout the narrative formatted

as, for example, Ref. 4, Ref. 18, Ref. 120; author names are not included, or they are de-emphasized. From a reader perspective, the references are not easy to follow; one must scroll or flip all the way back up to page 7 on a 180-page document to remember what Reference 4 is, for example—if they are attempting to read the document in a linear fashion. So, what rhetorical function do the citations *serve* in a document like this one? I argue that the references function separately from the narrative. The references *within the text* seem to work in the aggregate (much like I observed about the function of technical description *across texts* in Chapter 3); it is in their sheer numbers and quantity that they collectively create a “meta” argument in support of the proposed rule—multiplicity *as a rhetorical power*.

Table 3. Shared citations in the HRS documentation record.

Reference	Reference # in the HRS
US Fish and Wildlife Service. The Hackensack Meadowlands Initiative. Preliminary Conservation Planning. March 2007. 474 Pages	4
Tiner, R.W. and H.C. Bergquist. The Hackensack River Watershed, New Jersey/New York Wetland Characterization, Preliminary Assessment of Wetland Functions, and Remotely Sensed Assessment of Natural Habitat Integrity. U.S. Fish and Wildlife Service, National Wetlands Inventory, Ecological Services, Region 5, Hadley, MA. September 2007. 141 pages	8
DiLorenzo, J.L., R.J. Filadelfo, C.R. Surak, H.S. Litwack, V.K. Gunawardana, and T.O. Najarian. Tidal Variability in the Water Quality of an Urbanized Estuary. <i>Estuaries</i> Vol 27, No. 5, p. 851-860. October 2004. 10 pages	11
Marshall, Stephen. The Meadowlands Before the Commission: Three Centuries of Human Use and Alteration of the Newark and Hackensack Meadows. December 2004. Available at http://www.urbanhabitats.org/v02n01/3centuries_full.html . 24 pages.	14
Windham, Lisamarie; Laska, Mark; and Wollenberg, Jennifer. Evaluating Urban Wetland Restorations: Case Studies for Assessing Connectivity	22

and Function. Urban Habitats, Volume 2, Number 1. Issn 1541-7115. December 30, 2004. 17 pages	
USFWS. Conservation Planning for the Hackensack Meadows. The Meadowlands and Its Fish and Wildlife Resources. June 2005. 2 pages.	44
LANGAN Engineering and Environmental Services, Inc. Site Investigation Report and Remedial Action Work Plan. New Meadowland Stadium Project. May 12, 2006. 399 17 pages. Excerpt. Complete copy available at: http://www.nj.gov/dep/special/meadowlands/	121
United States Fish & Wildlife Service (USFWS), National Wetlands Inventory (NWI). May 2017. Downloaded from https://www.fws.gov/wetlands/Data/StateDownloads.html . 2 pages.	145
New Jersey Meadowlands Commission: Meadowlands Environmental Site Investigation Compilation. Existing Restoration, Preservation and/or Mitigation Site Map. Accessed 19 May 2017 http://meri.njmeadowlands.gov/mesic/maps/existing-restoration-preservationandor-mitigation-site-map/ . 2 pages.	150
New Jersey Audubon Society. Avian Abundance and Distribution in the New Jersey Meadowlands District: The Importance of Habitat, Landscape, and Disturbance. November 28, 2007. 123 pages.	182

The conclusion of the assessment is also stated up front, mirroring the Riverkeeper’s own argument in his petition:

Due to the large number of current and former industrial or other anthropogenic activities affecting the local area of the LHR and its tributaries, combined with the tidal nature of contaminant transport in the river, it is not currently possible to identify the origins of all the contamination in any particular location of the LHR or the origins of any specific hazardous substance in the LHR (Ref. 169, pp. 8, 17, 18). Targets

at the site include a human food chain fishery and several sensitive environments within the zone of actual contamination and within the target distance limit (TDL). ... As documented in this HRS documentation record, investigations completed within the LHR have not identified specific releases but have identified the presence of multiple past and present possible releases. As a result, the origins of contamination in any particular location in the LHR cannot currently be determined. Also, although other contaminants may be present, the hazardous substances associated with Sources 1-5 [arsenic, chromium, lead, mercury, and polycyclic aromatic hydrocarbons] were selected for HRS evaluation as they are representative of the contamination and suffice to show the site qualifies for NPL listing; however, other hazardous substances released to the river may be identified in future investigations. (HRS, p. 22)

What do all these appeals to quantity, often *unknowable* quantity, suggest? Stratman et al. (1995) define metacommunication “to include messages or signals that different parties send out about (a) their social status or roles in the communication process, (b) the forms or channels that that view as appropriate for communication, and (c) the issues or topics that they view as acceptable for debate” (p. 23)—in other words, the creation and maintenance of social conditions for communication: the messages that “can” be conveyed in the social environment. My observation about the metacommunicative work of the HRS documentation record once again reinforces the basic understanding that technical writing is especially important for what it “does,” not just “says”; it not just

represents, but *creates* the reality in which toxic pollution is vast, far-reaching, and tangled up with “all of us.”

4.6 Conclusions

Superfund designations for waterways are particularly challenging, and so I ultimately suggest that the LHR was successfully included in the proposed rule because it gained enough rhetorical traction from previous accumulation of texts over time. In other words, it seems like complex systems, like urban wetland regions and urban waterways, need extra momentum in order to propel them into an arena of activity that is *known* to be burdensome and daunting: the chasing of accountability in response to many and distributed acts of pollution, especially given the historic “commons” dimension to water and public perceptions of water. As Ann Vieleisis observes, terraqueous spaces like wetlands have always been the subject of dichotomous and contentious relationships in American environmentalism:

The Lockean tenets of labor and land ownership on which American concepts of property are based failed to account for variances in the nature of land and certainly did not account for water. Traditionally, land has been considered as private property and water as public property. Because wetlands are not only land but land and water, regarding them simply as real property with no other consideration has been a fundamental error in paradigm. This error long misled citizens attempting to drain wetlands and continues to mislead those who seek to conserve wetlands without violating traditional property rights.... [and] the very wetness of wetlands

means that there will always be a “commons” component to them. (pp. 5-6)

While the conclusion of this dissertation goes into more detail regarding the overall implications of this study, one finding of this chapter’s analysis merits immediate discussion here. We know that water quality starts at the headwaters: with the smallest, most mundane, *least* storied sources of origin—subregions of subregions, the *smallest* hydrologic units catalogable. However, these are the sites that have little or no written record—they are difficult even to database, let alone to narrate to the extent that has been done for a large, prominent area like the mainstem of the LHR. In the conclusion of this dissertation, I will more fully explain my additional argument that documentation and even storytelling is an essential activity for even the smallest sites of a watershed system; it is, itself, a conservation and preservation activity.

4.6.1 *Flow and stasis*

The word *stasis* in Greek translates to “a standing still,” and the term’s use in biology, medicine, and history refers to blocks and stoppages of various kinds. Stasis seems also to characterize the rhetoric of toxicity, at least for the Meadowlands in a climate change era: a dangerous, pooling stagnancy, trapped at the bottom of a low-lying basin.

For rhetoricians, the term is more likely to invoke thoughts of stasis theory, developed in the third century by Hermogenes of Tarsus. Like Toulmin’s model of argumentation, stasis theory has made reoccurring appearances in the writing classroom and has endured for its versatility and great potential for generative action (though it was

originally invented and used in forensic questioning). Modern versions of stasis theory usually entail some version of the following (although the original stasis theory was a four-part questioning technique, not five):

1. What are the facts? (These are arguments of fact. Did it happen? How do we know?)
2. What caused it? (These are arguments of cause. Where does it come from? How did it begin?)
3. How can the issue be defined? (These are arguments of definition. What is it? How should it be classified? What does it mean, in the context provided?)
4. How much does the issue matter, and why? (These are arguments of value and quality. What is its worth? What do I use to determine its value? Is it good? Is it bad?)
5. What actions should be taken as a result? (These are arguments of policy. What should we do? How should we act or respond? How do we solve this problem?)

My own engagement with contemporary sociotechnical decision-making about the Meadowlands resembles a stasis-driven analysis. Like Brizee (2008), however, my invocation of stasis theory relies more on the Greek values of *arete* and *agon*, which have more to do with process, conflict, and becoming, rather than the eristic and goal-driven, position-driven quality attributed to the Roman version of the theory (p. 376). While stases can appear intractable and rigid, I argue that a study of their composition would be conducive to opening up processes of flow and exchange.

While the case studies presented in Walsh and Boyle's (2017) collection still influenced my study design, I found over the course of this project that the idea of *chôraphilia* (Carlo, 2020, p. 122) better characterized my engagement with the archival material than the concept of *topoi*. Whereas *topoi* are boundary-oriented and can trap the researcher into a process of coding that is too category-oriented (increasing the likelihood of interrater disagreement over the criteria and parameters for a code, for example), rhetorician Rosanne Carlo emphasizes *chôraphilia* as an especially appropriate method of engagement with places, wherein a choric understanding would account for the multiple and simultaneous threads that coexist, whether or not such coexistence is harmonious or even necessarily whole (like notes on a musical chord).

The overall drive of this dissertation has been to recover the role of technical artifacts as cultural artifacts, and this particular chapter has served to position the EPA's proposed rule as a *made* object. If writing is a technology, as I will discuss more fully in the conclusion of this dissertation, then an examination of this tool in use must honor its deep integration with a host and ecology of other investigative and restorative activities—and not separate from those things. Although this case study was primarily motivated by intrinsic interest in the Meadowlands, I gesture at transferable takeaways for interdisciplinary consideration.

Conclusion

The conclusion offers two final reflections. The first is a comparison of the Meadowlands to another famous “urban wilderness” in northern New Jersey, that of the upstream and relatively pristine Great Swamp National Wildlife Refuge. Downstream, the Newark Meadows, which were once the former southernmost portion of the Meadowlands, now do not exist as such and have been entirely industrialized (Marshall, 2004). While the tide has turned rhetorically for the Meadowlands and its remaining acres have some measure of protection from development, this case-in-point serves as a cautionary tale for upstream/downstream relations.

The second reflection is a synthesis of the insights of the previous chapters to affirm the role of mundane texts as shared efforts to understand, explore, and shape the Meadowlands, which involves questions of both land and environmental justice. It discusses the importance of this understanding for critical literacy and participatory involvement in sociotechnical and environmental decision-making and offers implications of the analyses in this dissertation for theory in rhetoric and writing studies, for archival practice, for public and professional writing practice, and for writing pedagogy. It ends by suggesting paths forward for continued study in this area, guided in part by the limitations of the present work.

5.1 A tale of two wetlands in the Passaic River Basin

Cultural historian Patricia Ard aptly observes that the way Americans cling to the image that New Jersey is a dirty wasteland of unrestricted industrialization and growth “may be a projection of the fears of other states: if New Jersey is not the garbage state,

maybe they are” (Ard, 2005, p. 59). After all, New Jersey “has become something of a laboratory for the study of U.S. social and cultural phenomena” (Ortner, 2003, p. 3, as cited in Ard, 2005).

The Great Swamp National Wildlife Refuge and the Hackensack Meadowlands were once connected more closely by the Passaic River. In the *Encyclopedia Britannica* entry for “New Jersey,” the two areas are even mentioned together:

The marshy area west of The Palisades (the Hackensack Meadows, popularly called the Meadowlands) and the Great Swamp of Morris County are relics of glacial lakes of the last Ice Age. The former is dominated by grasses, the latter by trees. The Meadowlands are managed to encourage wise land use and pollution abatement. The Great Swamp, one of several poorly drained areas in the Passaic River basin, is a national wildlife refuge. (Wacker et al., 2020, n.p.)

However, because of the disappearance of the Newark Meadows, the Passaic River only brushes the southern border of what is today delineated as the Hackensack Meadowlands (Figure 11).

One version of the history is told in the 2016 documentary *Saving the Great Swamp: Battle to Defeat the Jetport* (Morris, 2016), broadcast on American Public Television, and the book that inspired it, Cam Cavanaugh’s (1978) *Saving the Great Swamp: The People, the Power Brokers, and an Urban Wilderness*.

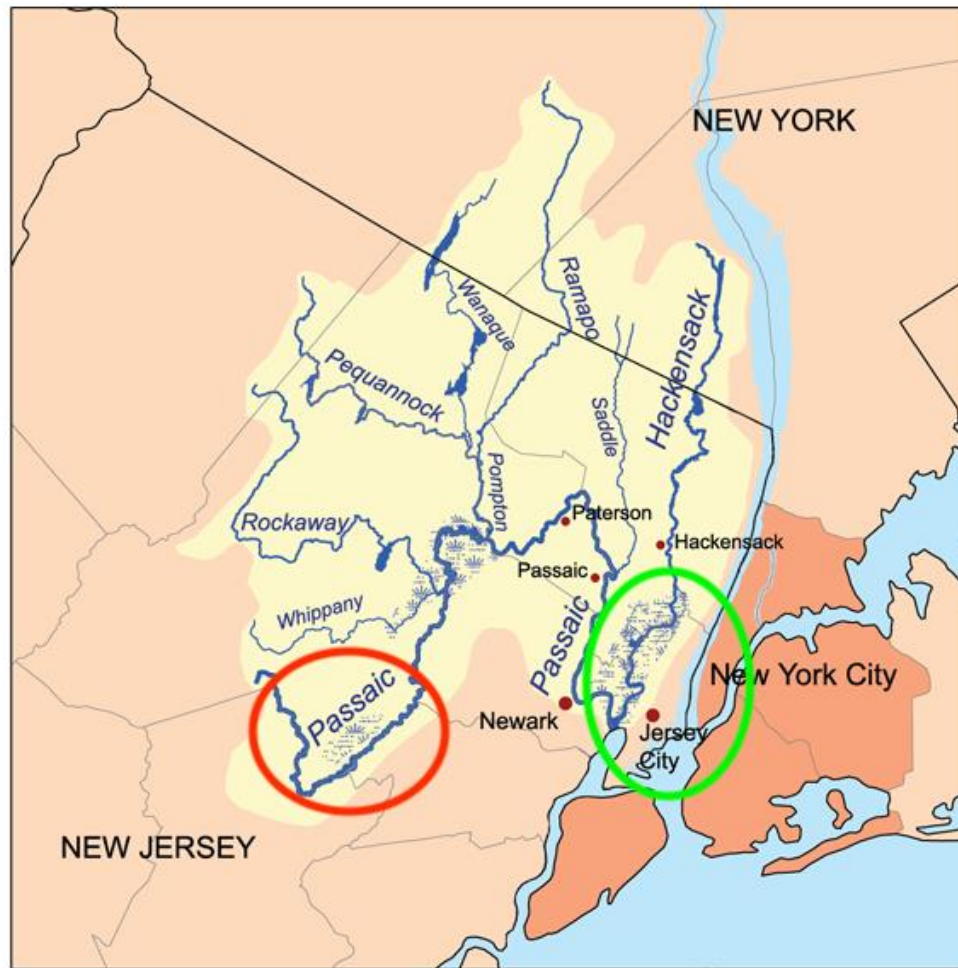


Figure 11. Map of the Passaic River Basin. Reprinted from Wikimedia Commons, 2007, Retrieved December 19, 2021, from <https://commons.wikimedia.org/wiki/File:Passaicwatershedmap.png>. The map was created by Karl Musser using USGS data of the Hackensack-Passaic Watershed. On the map, I as the author have circled the Great Swamp in a red circle, and the Hackensack Meadowlands in a green circle. In-between, the other marshland area is a separate place called the Great Pierce Meadows

“In 1959,” the documentary’s narrator begins, “a sparsely populated area of New Jersey was chosen as the location for a new airport. It was to be the world’s largest jetport....covering 10,000 acres of wetland” (2016, 0:00:43-0:01:06). However, in one of the early mainstream environmentalist movements in the United States that set a global precedent for grassroots organizing, those plans were thwarted.

“The area known as the Great Swamp is located only 26 miles from New York City, in the middle of New Jersey, the most densely populated state in America,” the

exposition continues, sounding familiar (0:02:33-0:02:43). “Historically, the place was viewed as a mosquito-infested obstacle, a place to be drained, cut down, filled in, farmed, anything but preserved” (0:02:43-0:02:55). The documentary goes on to explain, however, that the Great Swamp features a variety of habitats: open grassy wetlands, upland forests, “streams and brooks that meander through it, ponds scattered throughout” (0:03:30-0:03:56).

After Dutch and then British colonization (“settlement”), “some small villages and hamlets began to spring up at the edge of the wetlands” (0:04:40-0:04:50). From 1770 onwards, the lumber industry took off and deforested the areas. Naturally, then, flooding became a problem, but the area resisted civil engineering solutions.

“As time went on, the swamp continued to be viewed as an unfit place that needed to be changed for whatever current industry demanded” (0:06:09-0:06:16). In the 1930s, government relief programs sent workers to build ditches in attempts to reduce flooding, “but farming was hard, and many farmers gave up and moved away” (0:06:31-0:06:34). The area started to see secondary waves of ecological succession, and by the 1940s and ‘50s, many of the residents of the Great Swamp were non-farmers. The area became well-to-do because it benefited from the economic support provided by prominent families and their estates (the Frelinghuysens, the Ballentines). The Great Swamp “retained the tranquil air of colonial America” (0:08:39-0:09:00) at the time that the Port Authority (PA), “the transportation agency with broad corporate and political influence,” first announced its plans for siting the jetport there (0:09:22-0:09:25).

The PA is a bistate agency that has a 25-mile radius from the Statue of Liberty (in which the Meadowlands, by contrast, did fall within). Using eminent domain, the PA had

been known to bulldoze entire neighborhoods for civil engineering projects, including the Cross Bronx Expressway and the areas surrounding George Washington Bridge and Lincoln Tunnel (0:09:39-0:09:58). Although there was “a general feeling” that PA activities were helpful (0:11:03-0:11:10), the agency did not expect the fierce uprising that would occur among the Great Swamp residents when they announced their plans to build a fourth airport.⁴⁴

The Great Swamp was at mile 26, just outside their reach. The PA’s strategy was to inform newspaper editors of the proposed project and persuade them to endorse that project. The story made front page news almost every day (for an unspecified while): “Jetport plan unveiled,” “Morris site PA’s choice,” “\$220 million project would occupy 10,000 acres in Great Swamp area,” to the shock of the community, and the PA’s issuing of subsequent reports “only made matters worse” (0:15:02-0:16:32). At the time, the PA believed a fourth jetport was needed not only to accommodate the rise in air traffic, but to give planes an additional landing place to refuel on their way to Europe (as was believed to be necessary at the time).

Vocal opponents of the jetport plans made their opinions known, including Congressman Peter Frelinghuysen, Jr. and the mayor of Montclair, George K. Batt. A group called the Jersey Jetport Site Association was formed, and they put out a map with red rings emanating from a center rectangle to show how many communities would be affected. Although the entire 14-member New Jersey congressional delegation voted to

⁴⁴ This fourth airport was going to be in addition to the existing airports at Newark, Idlewild (since renamed JFK), and LaGuardia. For additional context, in the 1950s, commercial and air travel was becoming more viable and major airlines were seeking to expand their infrastructures. Two major airplane crashes had also added to the exigence, which were the worst aviation disasters that the United States had seen at that time.

pass a resolution that would oppose the project, the PA continued its fight. The story even became national news at the point when Austin J. Tobin, the executive director of the PA at the time whose legacy also included the World Trade Center, refused to cooperate with a federal subpoena for the PA's files (0:24:23-0:24:45). Tobin could not convince the Senate to expand the 25-mile radius from the Statue of Liberty, but the agency did keep putting out reports that argued that the Great Swamp was the only logical choice for the project and that the project was necessary.

In September 1960, a turn of events took place. Marcellus Hartley Dodge, one of the largest landowners of the area and a lifelong conservationist, transferred 1,000 acres of Great Swamp land to the U.S. Department of the Interior for use as a wildlife sanctuary (0:25:40-0:25:48). As a state agency, the PA could condemn and take land, but it could not take land owned by the federal government (0:27:40-0:28:15). To convince farmers to also give up their lands in order to save it, Dodge got on his horse and buggy and approached farmers personally, persuading his neighbors that way (0:28:26-0:28:45). (Together, Dodge and the small farmers had put forth the first 1,000 acres that were transferred.)

At the time, the scientific understanding of wetlands was changing. For example, a clip from a 1968 NBC-TV documentary, shown in Morris's film, featured Drew University for its encouragement of students to "view the swamp a living laboratory to study plants and animals" (0:29:57-0:30:14). "Grace Hand," one of the citizens of the Great Swamp Committee who was also a scientist, "was one of the women who explained to us why the great swamp was important," recalled Cynthia M. Robinson, a New Vernon resident interviewed in the documentary (0:30:24-0:30:41). "There were

certain people, environmentalists and ecologists, who had studied the great swamp all their lives. They told us that this was a natural basin, where all heavy rains, all quick snowmelts, could just be soaked up like a sponge and prevent flooding downstream. We could not destroy that!” (0:30:45-0:31:12)

Previously disparate groups began to unite, raising money to purchase land in addition to the 1,000 acres that were already donated. But “before people donate money,” the documentary’s narrator reflects, “they want to know what it is for.”

And it was going to be for the Great Swamp itself as the largest unspoiled remnant of Lake Passaic, a major resting and feeding area for waterfowl and birds along the Atlantic fly away. To protect the water quality in the heavily populated areas downstream and for the benefits of open space for human enjoyment. These themes were rarely heard before by the public. Should an area like the Great Swamp be destroyed, it can never be replaced. With no talk of runways or landing patterns, not even money, they began to push to educate and inform the public. (0:31:51-0:32:30)

The Jersey Jetport Site Association began to put out their own reports to combat the PA’s, and one disagreed altogether that a fourth jetport was even necessary. From “humble beginnings” in “Helen Fenske’s kitchen” (0:35:33-0:35:50) the newly formed Great Swamp Committee of the North American Wildlife Foundation had a chance to promote its cause with John Gottschalk, the regional director of the U.S. Fish and Wildlife Service (FWS) in Boston. He was impressed and told them that a gift of 2,000 more acres would be enough to begin active management and that 3,000 acres “would guarantee a national wildlife refuge” (0:37:32-0:37:56).

The FWS opened a field office at the Great Swamp in November 1961, its “flying goose symbol prominently displayed on the sign outside the door, assuring the government’s active interest” (0:41:35-0:41:51). By 1962, the committee and its allies were just 900 acres short of its 3,000-acre goal. At the time, Stewart L. Udall was the Secretary of the Interior, in the process of writing the future bestseller *The Quiet Crisis*. To him, the Great Swamp was “precedent-setting” as “a new way of looking at wildlife refuges,” because FWS “had not had the experience of having a refuge in an area that was highly populated and that was quite urbanized” (0:43:06-0:43:25). At a dinner there in Udall’s honor, the committee presented to him the deed for the 2,000 acres obtained so far, and Udall promised in his remarks that he would declare the area a national wildlife refuge when the 3,000 mark was reached (0:43:54-0:44:08).

In an attempt to get another big donor, Helen Fenske cultivated the favor of a *NYT* columnist, Brooks Atkinson. Atkinson wrote that the “Great Swamp has friends in far places,” and the commentary invited big monetary donations, solidifying the claim that they now had a worldwide audience (0:44:57-0:46:28).

By spring of 1964, the area could be declared a refuge by secretarial order. Peter Frelinghuysen, John Gottschalk, and Governor Hughes were all present at a “hastily prepared” ceremony, including Stewart Udall who came by helicopter. This whole ceremony was a bit of a ruse, however; it hadn’t been officially declared yet with the land officially “tied up,” but they were trying to put on a show for the PA to scare them off and make them go away (0:47:52-0:49:54). In 1966, Tobin commissioned a *new* report, saying:

It would appear that much of the land on or near an airport on the Great Swamp site could continue to serve as a wildlife preserve just as at other major airports in the country, and suitable areas adjacent to the site could more than replace any acreage used for airport purposes. The manner in which this could be done would require detailed analysis as part of airport design and layout studies. (0:50:10-0:50:25)

That's when the anti-jetport advocates knew that they had to ride on the coattails of the newly signed Wilderness Act of 1964. After eight years of public hearings, President Lyndon B. Johnson had just signed the Wilderness Act, and it had become "the highest form of land preservation in the nation...If we can get some of the refuge designated as wilderness, you can't have permanent man-made structures. And that would be the final nail in the coffin of the Port Authority" (0:51:42-0:52:00).

With their proposal to be considered for wilderness designation and the aid of public support, the committee had to demonstrate that the Great Swamp had sufficient biological and ecological quality to *qualify* as wilderness (0:52:42:0:52:59). In 1968, the Great Swamp Wilderness Act was signed, and the Great Swamp thus became "permanently unobtainable" (0:53:38-0:53:40). Although the Great Swamp was not the first National Wildlife Refuge, it now contained the first ever Refuge Wilderness Area in the United States (the eastern half of the Refuge).

"This is the irony behind the entire jetport battle: if it weren't for Austin Tobin, there would be no Great Swamp National Wildlife Refuge. It was the fight itself that led to its preservation" remarked Nicolas W. Platt, mayor of New Vernon interviewed in the documentary (0:54:03-0:54:18).

What happened instead of building the fourth jetport? Existing airports, such as the Newark Liberty International Airport, were expanded instead.

With a cautionary note about the continued need to protect the Great Swamp from insidious and ubiquitous threats like nonpoint source pollution, Morris's documentary ends, and Cavanaugh's book ends by giving advice to other conservationists who want to organize similar grassroots efforts.

Not mentioned in the book or film are the more recent developments. The Ten Towns Great Swamp Watershed Management Committee formed in 1995 to provide an effective regional watershed management program that would cross municipal boundaries, though it disbanded in 2010. In the 1980s, the formerly named Great Swamp Watershed Advisory Committee published recommendations for stormwater management within the Great Swamp watershed, and these recommendations were going to inspire the creation of an independent commission that would "oversee development and regulate environmental protection in the Great Swamp watershed" (*Our History*, 2005, n.p.). However, knowing that this top-down approach would pose issues for local municipalities "that have authority for land use decisions under New Jersey land use law," a volunteer non-partisan organization reached out to legislators and citizens to promote the idea of an alternative, and so the Ten Towns committee, a 501(c)3 organization, was created.

Today, the Great Swamp National Wildlife Refuge is

managed as part of the Lenape National Wildlife Refuge Complex. A

National Wildlife Refuge Complex is an administrative grouping of two or more refuges, wildlife management areas or other refuge conservation

areas that are primarily managed from a central office location. Refuges are grouped into a complex structure because they occur in a similar ecological region, such as a watershed or specific habitat type, and have a related purpose and management needs. (U.S. Fish and Wildlife Service, n.d.)

The U.S. Fish and Wildlife Service is attempting to act as a vehicle in this sense for reconnecting members of the displaced Delaware Tribe, a federally recognized tribe of Lenape that resettled in Oklahoma in the late 1860s, with their ancestral homelands in the eastern part of the continent. Service employees are working with the Delaware Nation to “mend the hoop” and create tribal-led virtual education programming (J. I. Miller, 2020, n.p.)

5.1.1 Connections to social justice

In 1896, George H. Bailey, a hydraulic engineer, was commissioned by the New Jersey legislature to conduct a feasibility study: “On the condition and proper mode of effectually draining the Great Swamp, in the counties of Morris and Somerset, New Jersey.”. However, “nothing came of it” (Cavanaugh, 1978, p. 43; Morris, 2016, 0:05:56-0:06:07).

Meanwhile, however, this was the same year that C. Vermeule’s first report, “Drainage of the Hackensack and Newark Tide-Marshes,” was published about the Meadowlands and gave rise to an extensive program of diking and draining on the landscape—and still serves as a major reference for activity in the Meadowlands even today.

So why did “something” come out of Vermeule’s reports and “nothing” come out of Bailey’s report? Why are Vermeule’s reports readily available to me today online, through the public domain, but Bailey’s report can only be accessed through special access to a local archive? How did Vermeule’s report so clearly lead to a program of action that can be seen on the physical landscape, but Bailey’s report led to “nothing,” as Cavanaugh puts it so simply, with no further explanation?

In effect, then, what does this story about the Great Swamp vs. the Newark Meadows tell us?

This story illustrated the deliberative and epistemological consequences of the place-making rhetorical work of environmental technical descriptions. Because technical descriptions are a form of knowledge production and institutional memory, they necessarily entangle axiological questions and concerns of social justice—and in this case, land justice and environmental justice. As the example of the Great Swamp’s story showed (in the documentary *Saving the Great Swamp: Battle to Defeat the Jetport*, which might have also been subtitled *The Battle of the Reports*), texts collectively work together to forward certain knowledges about a place and exclude other knowledges, made especially salient by examining aspects of argument, authorship, and audience(s).

My understanding of the Great Swamp and Meadowlands story in this lens is informed by related social movements in the United States, including land justice, environmental justice, and the “social justice turn” in the discipline of technical and professional communication (TPC). While renewed momentum on this front had been building widely over the course of the late twentieth and twenty-first centuries, the historic events of 2020 and early 2021 exposed existing inequities in a stark new light

and pushed conversations forward in multiple realms of work, life, and community, including academia and governance.

Experts and advocates in environmental health have repeatedly demonstrated that the burdens of industrial development and risk of exposure to environmental hazards have fallen disproportionately to low-income communities, communities of color, and developing nations. This violence plays out on local and regional levels (e.g., the protests in Warren County, North Carolina to halt the state's plans to locate a toxic waste landfill in a rural and predominantly African American community) and on the global (e.g., the fact that the Global South and other developing nations disproportionately bears the burden of climate change, as evidenced by the rise in climate refugeeism, even as they are the least to have caused climate change) (Pezzullo & Cox, 2017).

In the United States, in the early 1980s, environmental justice emerged as a historically Black and historically anti-racist call to action. Eventually, it became a legally defined concept that sought to ensure environmental protection and fair distribution of benefits and burdens. As Buford (2017) recounts, this began with the creation of the Office of Environmental Equity in the Environmental Protection Agency (EPA), renamed later as the Office of Environmental Justice, in the George H.W. Bush administration. In 1994, President Bill Clinton echoed the national concern for environmental justice with Executive Order 12898, titled Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Since then, however, the momentum of environmental justice has waned among politicians and legislators. The executive order did not have the force of law, leaving environmental lawyers uncertain about its application. President George W. Bush, not following in his

father's footsteps, de-emphasized the problem of racism with talk instead of "environmental protection for all." President Barack Obama promised early in his own campaigns to renew environmental justice efforts, but no legislation was passed in his duration in office. In the administration of President Donald Trump, efforts went underway to eliminate the Office of Environmental Justice altogether. Its senior adviser resigned, and the National Environmental Policy Act (NEPA) was set to relocate away from the EPA to the Office of Policy—two moves that have been met with alarm. The Office of Environmental Justice is one of two EPA programs that are slated for complete termination in the proposed Wasteful EPA Programs Elimination Act, not to be confused with separate proposed legislation to eliminate the EPA entirely.⁴⁵

Support for environmental justice in institutional politics, then, is uncertain; regardless, however, the ethic of environmental justice is required at every turn in public decision-making. Efforts to ensure environmental equity will require coordination at local, regional, national, and international scales and the joint commitment of many kinds of experts and expertise. It should be noted that only as of 2018 has there been formally articulated "An Environmental Justice Paradigm for Technical Communication," by Donnie Johnson Sackey, who implores us to "train technical communicators to have (1) a theory of the environment, and (2) a theory of justice" (2018, p. 144). This discussion is critical, then, not just for those who take as their subject matter "environmental concerns," but for all of us who seek to carry on business, in one way or another.

⁴⁵ Scott Pruitt, former administrator of the EPA, defended these moves to eliminate the federal office, saying that the environmental justice is best left to the discretion of the states. While right-to-know laws do indeed still exist and environmental impact studies, by virtue of NEPA, are required to involve public participation, communities are concerned about the progressive weakening of the legal foundations for environmental justice.

Nonetheless, as history has shown us (or at least, as critical theorists have called to light), the field of technical communication is in a mixed position to respond such crises. Elizabeth Ellcessor reminds us that “[d]evices, as we know, are never neutral; they reflect their contexts and are shaped by their uses and become parts of chains of cultural and technological adaptations.”⁴⁶ It is understandably difficult to separate this field from the ideological values that have shaped and spurred its proliferation: industrialization, expediency, convenience, the consumer movement, neoliberalism, mass production, notions of corporate secrecy and intellectual property, and even, in some cases, institutionalized violence, such as war and racism. Can artifacts that were made and developed by such logic be possibly or even ethically employed, then, for the purposes of environmental action? For resisting and reversing the tide of degradation that has resulted from those very values enacted? Scholars in the field are contending with those very questions now, as evidenced by the “social justice turn.” Like Sackey (2018), however, I want to broaden social justice to environmental justice—not in an effort to displace human matters, but to undermine the line of demarcation that has been drawn between the human and the nonhuman.

While globalization supplies the demand for continued STEM development, it is perhaps through the accumulation of many local interventions can this ethic be most fully realized for TC, and this capitalizes on one of the great strengths of a rhetorically-informed practice: recognition of situatedness. After all, if we attend to the local (e.g., Sackey, 2018; Sun, 2006), we resist top-down logic that has prevailed otherwise, which is

⁴⁶ This is also the epigraph of the CFP for the 2019 LangRhet Conference, and this quote was excerpted from *Restricted Access: Media, Disability, and the Politics of Participation*. While many scholars have expressed this kind of understanding, I thank the writers of this CFP for bringing this particular sentence to my attention.

not helpful for environmental communication; “the more universal our theories become...the less useful they are” (Coppola, 2000, p. 34). Where attention to local contexts does not have the deleterious effects of creating regressive fortress mentalities, siloing ideas, or delaying contemplation of larger issues, we can then, perhaps, disrupt the usual binary of either thinking or acting, either locally or globally; the situated acts translate to systemic change.

5.1.2 On land acknowledgments

As quoted earlier in the dissertation, “the library [at MERI] serves as the principal repository for Meadowlands District document and reports. The library is responsible for holding the collective environmental and institutional memory of the Hackensack Meadowlands District” (2019, p. 1-4).

As I reflect on that statement now, I ask: whose institutions? Whose memories? “Collective,” involving or centering whom? Given the context of historical and systemic injustice that I described earlier in the chapter, these questions should follow logically and urgently from such claims.

The analyses in this dissertation have shown that it is easy for arguments to “slip” and transpose from one setting to another. We elide descriptions all the time and carry our associations from one context to another. (Hérons, for example, are repeated mascots appearing in wetland conservation discourse; a snowy egret among tall grass appears on the cover of the 1964 program for the ceremony dedicating the Great Swamp, *and* a snowy egret beside cattails is the current logo of the Meadowlands Environmental Research Institute.) It is important to focus on the rhetorical power of site descriptions

and to compose them with care and a sense of reflection. One type of site description, a land acknowledgement, needs to be addressed.

Summer Wilkie (2021) reminds us that, in spite of the intent of speakers to acknowledge injustice against Indigenous people, “land acknowledgements can range from perfunctory to profoundly moving, and when they are poorly worded or produced in certain contexts, they can cause uncomfortable cognitive dissonance for Indigenous people” (n.p.). These statements, though trendy, ring hollow when they are shared in contexts of no other meaningful action (or even harmful action, such as the teaching of inaccurate history in schools). Wilkie maintains that “as long as the narratives remain in the hands of academia, stripped of cultural significance and deprived of an accurate historical narrative,” “acknowledgements” or displays will never mean anything, only to perpetuate the “continued erasure of the original residents and their descendants, in a kind of cultural genocide” (n.p.). Environmental and social justice require both the remediation of harm that has been caused by the burden of industrial development placed on minoritized communities and land justice: the reconnection of contemporary Indigenous people to original land. The connection of the Great Swamp National Wildlife Refuge to a larger Lenape National Wildlife Refuge Complex in one sense facilitates reconnection to the Great Swamp, but this is not true for the state-based “district” of the Meadowlands. Notably, Lenape histories were not present anywhere in the texts that I studied, and none of the descriptions feature a meaningful land acknowledgement; mentions of the Munsee Lenape were only included as “natural history” in historical accounts that are presumably created by white authors. For example, Quinn (1997) only discusses the Lenape in a chapter called “Yesterday,” concluding in this way:

By the close of the seventeenth century, most of Lenapehoking from Sandy Hook to Bear Mountain in New York had been appropriated by the Europeans, and the majority of the Lenape had migrated west to Pennsylvania and Ohio. Others, through various agreements and treaties with their conquerors, were removed to alien lands in Canada, Wisconsin, Oklahoma, and Kansas Territory, where they gradually intermarried with whites or members of other tribes, ultimately relinquishing their identity as the Lenape, ‘the real people.’ Within little more than a century, the Lenape had met the Old World and had been vanquished by it. (p. 74)

Another report references what the “roaming” Lenape “were able” to do before the region experienced the rootedness of white settlers, using “a large amount of land lightly...[practicing] a primitive form of crop rotation...[relying] entirely on nature...with no government regulations...no lasting monuments or towns...no written language, and no complex science” (Ravit, 2004, p. 3). The only source that acknowledged the Lenape in a contemporary context was the documentary *Back Water* (2015); while the film itself did not discuss the Lenape whatsoever, the homepage of the film’s associated website says briefly, “While the film doesn’t depict the local history of the Meadowlands, it’s import [sic] to recognize this area as traditional lands of the Lenape or Leni Lenape people” (*Back Water Film by Jon Cohrs*, n.d.)

Land acknowledgements have been critiqued as perfunctory and merely performative, especially when the speaker or writer does not intend to do anything real or meaningful by way of land repatriation. The land is acknowledged to be stolen, and even that it somehow considered radical enough — to acknowledge it — and then, life goes on

as normal. Because of my own status as a white person and scholar benefiting from settler colonialism—who lives comfortably in a relatively affluent neighborhood in a stable, purchased home, without daily exposure to environmental and atmospheric toxins or carcinogens or threat of violent displacement—I initially hesitated to engage the subject more deeply for fear of hypocrisy. I could feel white fragility settling in me, so to speak, but wanted to avoid what Tuck and Yang (2012) call “moves to innocence.” I cannot even categorize my relationship as “non-extractive” — surely, I am writing a dissertation in service of getting a degree.

What I want to do first, then, is to clarify my project as anti-colonial rather than decolonial. My dissertation has not, itself, made a significant move to land reparations, although it has inspired me in the rest of my life to be a better accomplice on this front. Because I as a rhetorician am still focusing primarily on the symbolic, then, I once again cannot claim that the dissertation directly enables land justice. Chris Bell (2020) does argue that land acknowledgments “unsettle existence” and “invite decolonize work,” and while that argument would align well with my broader argument about the material semiotic power of technical descriptions, I will add that I do not believe texts are not themselves sufficient as brokers of justice — there I would suggest an examination of another immutable mobile, to use Latour’s terms, such as money. In a neoliberal world, anyway. As economist and environmentalist Winona LaDuke would say, “the only compensation for land is land.”

The deeper I dove into indigenous studies and perspectives, the more I felt unsettled and provoked, discomforted, which arguably should be the goal! Although the

dissertation does not directly enable land repatriation, it will serve as another opportunity to share the following message:

We cannot be seduced by power and privilege. We must always remember that there is always an oppressor within each of us....I have never met anyone who is decolonized. We are all on a life long journey to a new place. No one is under an illusion that it is a paradise. But it is a journey worth pursuing because our current world is unjust, unfair and exploitative. What must keep us going is the belief and hope that through resistance we can begin to design our own self and collective futures and create a different world than we currently inhabit. (Dei, 2019)

However, even as I recognize my limited ability to describe or understand these issues, I want to emphasize the necessity of not just affirming the voices of Black, Brown, and Indigenous people who have experienced exactly those violences, but being spurred into critical inquiry and thoughtful, better practice.

5.2 A synopsis of the dissertation

When I first visited the Meadowlands Museum, I remember lingering in the William Carlos Williams Memorial Room. Williams, who was born and died in the town of Rutherford, New Jersey, is one of the cultural icons of our region: the 20th-century American poet and physician most closely associated with the famous imagist poem “The Red Wheelbarrow.”

“so much depends / upon // a red wheel / barrow” (W. C. Williams, 1923, p. 90): a compelling example of a still life object in writing—meditative and intense. But do we inadvertently turn places into still life objects when we write about them?

As I move forward with my own research in the fields of writing and technical communication, I continue to ponder some of the bigger questions that have followed from my original research questions. Revisiting the questions I first posed in Chapter 3, I return again to ask: how do we document places without fixing them in time? How do we allow our collective understanding of those places to change and adapt over time, since places themselves are always in flux?

To recap, this dissertation began by surveying the relevant scholarly literature, providing the context for my own inquiry. Together, Chapters 1 and 2 introduced the interdisciplinary theories and frameworks that guide this conversation: first, in terms of place studies and human geography, and second, in terms of environmental writing as a subset of rhetoric, writing studies, and technical communication fields. Chapter 3 then traced the use of technical description across a large collection of public and professional texts about the Meadowlands; in doing so, it offered insight about the technical description genre itself and its connections to environmental policy, especially regarding the use of reference points. Chapter 4 centered on a close reading of two primary texts—the petition of the Hackensack Riverkeeper to the EPA, and the EPA’s own National Priorities List (NPL) site narrative and accompanying hazard ranking system (HRS) documentation—arguing that these events are outgrowths of the repeated use of technical description that preceded them. The beginning portion of this conclusion offered a reflection on the now-vanished downstream Newark Meadows (the former southernmost portion of the Meadowlands) compared to the famous upstream site of the Great Swamp National Wildlife Refuge, the first federal wilderness area in the U.S.

5.3 Implications and takeaways

Now I will discuss implications and takeaways from the project in tandem with limitations on the current study and directions for future research. However, it is also necessary to address these questions: in what ways *have I changed*, as a result of having engaged in this study (S. Wilson, 2008)? How do I plan to be accountable moving forward as an environmental communication scholar?

5.3.1 *For technical communication theory*

Although the “technical communication is not neutral” statement is nothing new to scholars in the field, this study is among the few that centers technical description, and I argue that further study of the genre will be beneficial. After all, technical description is the very site enacting those qualities we perceive as neutrality and objectivity, which were once considered hallmarks of technical communication (TC) itself.

Theorists in our field have made clear that TC is inherently interdisciplinary; for example, Redish (2010) cites Quesenbery’s “origins of user experience” as an array of influences from fields like computer science and human-computer interaction, psychology, graphic arts, and market research alongside technical communication. While this study shares the methodological and critical leanings of scholars in English studies and the environmental humanities, it was clear to me during this study that additional disciplinary expertise would have also helped me understand the phenomena I engaged. Scholars in library and information science, science and environmental education, and journalism could have also engaged the same texts in productive conversation. Therefore, this study serves as additional evidence that disciplinary ties should *strengthen* between

related fields, even as TC scholars have traditionally sought to articulate what makes their field *unique* or separate. I find this point to be especially relevant for the connection between technical writing and journalism, for example. Much of the environmental rhetoric about the Meadowlands that I studied came from journalism, just as well as it did from formal reports or government brochures. Usually, technical writers (or teachers of it) are keen to explain the difference between technical writing and journalism; TC is a serious field requiring more specialization and focusing on the medium, whereas journalism is often “sensational” writing focusing on the story. Just as there has been a recent turn to embrace social media’s relationship to technical communication, however, I also argue that we can further deepen the relationship between technical communication and journalism. While there is a science writing genre of journalism that might contain the greatest area of subject matter overlap, we could even productively examine shared theoretical roots, shared motivations, and shared practices, even as our formal outputs look quite different from each other in some cases. After all, both TC and journalism are research-intensive forms of writing that, in many cases, serve to make complex events accessible for new audiences.

5.3.2 *For space and place theory*

Technical texts are ordinary but powerful sites of discursive situating, because they have externalized, codified, and institutionalized memories over time into a portable form (recalling Latour’s “circulating reference” concept), such that they can be shared. Even though the technical texts themselves often obfuscate authorship, my approach should also, hopefully, surface the very questions of authorship; who decides what a place is, and where its boundaries are? The western scientific or technical epistemology

can never comprise the whole of a place identity, but this study has called attention *to* the artifacts of that enterprise as seemingly invisible vehicles for place knowledge.

What I hope this study has shown fellow environmental humanists outside the field of writing studies is that writing is external memory (whether or not it also carries the status of legal instrument)—an important point, given that environmental deliberation and engagement require great demands on the human capacity to imagine time. This is one of the many reasons why environmental conflicts are so hard to resolve; they require long-term courses of action, and human memory is fleeting. (Original signees to an agreement, for example, may come and go; successors may not honor old agreements.)

5.3.3 For public and professional writing practice

Currently, no catalog exists for the Meadowlands Environmental Research Institute's gray literature archive. One was started in previous decades, but the software has since broken and has not yet been restored. My engagement with this archive has spurred me to the argument that multi-layered access to stories of the Meadowlands is a matter of compliance with the public mission of the agency, and that in contrast to the lean government ideology, a librarian is a necessary and vital post to allow a better and mutual link between information stored in *texts* to scientific and educational activities that take place in the fields.

The analyses provided in this dissertation have highlighted opportunities available to technical and professional writers for rhetorical intervention, not only in terms of diversifying authorship and increasing participation in the collective act of place-making, but also in terms of the writer's own goals and choices (for example, media of

expression). While the technology of small-w writing is in some ways limited in its ability to convey simultaneity, account for change, or catalog multiple experiences, it is its own species of reality, and it can be best understood within a multimodal network of other (communication) activities.

In public and professional writing, another question remains: Can technical communication (TC) enact environmental justice? For this to happen, I see that at least three contributions toward these goals that TC has within its purview and capabilities to make, even if these activities first require better definition or refinement in the field: 1) equalizing access to information, 2) attending to the full experience architecture of texts, and 3) engaging critically with the ideological underpinnings of our communicative practices.

We know, of course, that information, on its own, does not translate to changed conduct (Coppola, 2000, p. 21). In fact, as people become more informed about environmental problems, their behavior often becomes more passive; inadvertently, perhaps, “being informed” takes the place of their intent or motivation to change behavior, and they stop short of action or change because they see “being informed” as having fulfilled their obligations to solve environmental problems (Allen & Weber, 1983; Lowe, Pinhey, & Grimes, 1980, as cited in Coppola, 2000, p. 22).

Nonetheless, however, everyday citizens have *a right to know* what is happening, for when action *is* pursued on environmental matters, arguments in the formal settings of law and governance must rely in large part on scientific evidence—more often than not,

the “best available,” as specified in the example of the Endangered Species Act—in order to be treated as relevant (Tillery, 2017, p. 160).⁴⁷

Public engagement in technical areas take on critical urgency among low-income and communities of color. Affluent and white neighborhoods are equipped to devote time and resources to public participation in saving green and beautiful spaces that they already typically have, for example (as the Great Swamp story vividly illustrated). They, too, are systemically granted the kind of literacies that are valued and privileged in civic discourse (e.g., Young, 2002), along with access to the technologies that will make their voices heard. Among those who are strapped for the same time and resources to participate, and whose voices the nation has been conditioned to discard, participation is a greater challenge—participation beyond token measures, beyond “decide and defend.”

Information disparity is a significant factor for environmental injustice, as Emmett and Desai (2010) observed in their community-based research. The two researchers, coming from the field of occupational medicine, document the efforts of a small rural Appalachian community to form an environmental justice partnership. In their case, the community did not have access to information about a local water pollution issue because the industrial facility controlled its use and access, which the researchers addressed with the development of a community-first communication strategy. Meanwhile, information *complexity* can be a constraint to public involvement in sociotechnical decision-making, as Robson et al. (2010) demonstrated in a case study of sustainable forest planning in Ontario, Canada. Their suggestions included “standardizing

⁴⁷ While I do not mean to leave this point here as wholly unproblematic, the rule remains in place from a legal and decision-making perspective: claims must be based on scientific evidence, which involves access to a rarefied form of literacy. Some may be more responsive than others to grassroots or informal knowledge not framed as “best available scientific evidence.”

text documents and maps, communicating information formally through presentations by experts, debriefing attendees about relevance of public input, and providing guided tours,...[as well as] the need for audio/visual methods of presentation to supplement text and maps” (p. 1167), though I would add that such tactics should also be place- and context-sensitive, attentive to multiple and simultaneous literacies (rather than a deficit model of public understanding), and responsive to high turnover rates in committees by easing the process of looping in new participants.

Natasha Jones (2016) has written about the role of technical communicator as advocate, “necessary for further legitimizing the field of [technical and professional communication, or TPC] and interrogating how TPC can be complicit in reinforcing which perspectives and whose experiences are valued and legitimized” (2016, p. 343). This echoes a history of thinking in our field about usability issues, human-centered design, and considerations of power in the wielding of, creating of, and sharing of information. Risk is typically communicated in a transmission (or code) model of communication—or, to use Craig Waddell’s (2000) taxonomy, Jeffersonian models of interaction with the public, whereby information is seen as a one-way stream from experts to publics (from the viewpoint of regulatory agencies and government administrations) and the public only supplies, at best, values and emotions. If such a linear model is carried out uniformly in every case, however, without regard for context or for the practical rationality of actors, the “information” communicated will be lacking because it is arhetorical (Boholm, 2009; Grabill & Simmons, 1998; Sauer, 2002).

Alongside existing efforts in community informatics (Grabill, 2007), technical communicators as professionals may be uniquely positioned to alleviate the burdens of

proof that typically rest on the public—to recall again the role of “advocate” (Jones, 2016). For example, even as social media and other capabilities of Web 2.0 have broadened the reach and speed of dialogue, the need persists to coordinate and organize the conversations (in order to make them both possible and effective). In his chapter in *Solving Problems in Technical Communication*, William Hart-Davidson (2013) gives the hypothetical example of Elena, a technical communicator who volunteers for a citizen action group concerned about contamination in the aquifer that supplies her neighborhood’s water. Whereas the group members assume at first that she can *only* serve to refine an organization’s message for broad audiences (i.e., create a brochure), she also offers her skills as a *steward* of writing activities. Given that the regulatory commission did not allow group reports, and only allowed individuals to submit comments, she wanted to coordinate the community members’ writings, so she created a website for the group that could function as an intranet and as public-facing/input-gathering, with such features as discussion boards and shared repositories for scientific source material (2013, pp. 69–70).

As some scholars have argued, it is critical for scholarship in TC to consider the use of databases—how they shape and organize information, and how they can be deployed as inventional resources in the making of arguments (e.g., Card, 2020; Grabill, 2007). Addressing information disparity will also involve serious attention to matters of intellectual property, paywalls, and open access, to matters of literacy education (and access thereof), especially where it relates to the digital divide, and to the nascent field of public engagement with science and technology. More broadly, TC must continue to engage questions of information form and function, and the actors that bear directly on its

creation and use—again, though, not *simply* to transmit it in discrete packages, but to open up its responsivity to new inputs and to account for ways of knowing that are not always or necessarily framed as scientific or technical (e.g., local knowledge, native knowledge, traditional knowledge). Small examples here include the preference for semantic search over Boolean search, the use of community asset maps—which Sackey (2018) emphasizes as a means of local participation and creation of just policy—and the rise in the use of metadata for community organizing, such as tagging (an intriguing and more convenient ancillary to text-based technical description, serving a similar function).

In addition, there is a need to attend to the full experience architecture of technical texts. Accessibility, in this field, is a matter not only of clearing the way for information to be sent and received (understood here as responsive and pliable); it is also a matter of the multimodal design choices that are made at the production end, and using genres that are appropriate to the task.⁴⁸ To engage an environmental ethic requires activation of the fuller range of human experience than the purely intellectual—including intuition and emotion. Even regarding the page-based documents with which the technical communicator has typically worked—not to mention, of course, the increasing production of audio, video, graphics, presentations, and workshops—the field places a premium on such qualities as visual aesthetics, readability (and “scannability,” which includes finding and searching for terms), and regularity (e.g., such that a screen reader

⁴⁸ TC relies very much on the ways that multimodality has been theorized—e.g., Kress’s (2009) *social semiotic* formulation, and Bateman’s (2008) layered GeM model approach, which accounts for socially situated canvas constraints, production constraints, and consumption constraints on documents—all of which can be thought of as symbolic-analytic work (Johnson-Eilola & Selber, 2013, p. 52, citing Johnson-Eilola, 1996). These considerations go hand-in-hand with turns in the field toward information design, user experience (UX), and experience architecture (XA), which consider the design of digital spaces holistically (Salvo & Rosinski, 2009).

can pick up machine-encoded text and convert it to speech, that certain information products are more amenable to multilingual translation, that hyperlinks don't break, that digital content be portable between desktop and mobile interfaces, or that cognitive load on the reader can be minimized with more intuitive navigation and predictable features, to name just a few examples). This involves:

- Thoughtful use of digital authoring and production, with movement toward greater access to these tools,⁴⁹
- Iterative incorporation of feedback from users, even where it may surprise us or contradict formal principles (e.g., Sauer, 2002; Sun, 2006),
- Attunement to everyday communicative practices (like social media), whose ubiquity has come to radically transform professional communication (Pigg et al., 2014), and
- Rhetorical analysis of communication, such that (for instance) public participation can be invited or executed more meaningfully, rather than as a token gesture extended only because it is legally required (e.g., Moore, 2016; Simmons, 2007)⁵⁰

⁴⁹ For example, the approaches of content management systems (CMSs) and single-sourcing, although they betray a manufacturing logic over an artisan logic (Andersen, 2013), are still suitable strategies for environmental communication in that they can help us with recurrent needs, enable multiple-audience adaptation, and provide ease of use for writers and editors (Hart-Davidson, 2009).

⁵⁰ For example, Moore (2016) conducted a case study of one professional communications firm engaged in an environmental impact study on the development of high-speed rail service and an increase in rail traffic in the pseudonymous place of Springdale, IL, revealing the communication and engagement strategies the firm employed for interacting with diverse citizen groups (p. 246). Her analysis emphasizes heuristic guidelines for public engagement: adaptable events and activities, listening and speaking in activities, and multimodality, challenging the view of an environmental impact statement as a “document rather than a long-term and complex deliverable” (p. 259). She evaluated the firm’s activities using Simmons’ (2007) rubric of power, participation, and process (pp. 249-50).

Finally, there is a need to engaging critically with the ideological underpinnings of our communicative practices. In a 1979 essay now famous in the field, Carolyn Miller (2004) raised the question against positivistic assumptions of language in the field, a view no longer held by most philosophers of science or thoughtful scientists (2004, p. 17), offering instead a “communalist” perspective wherein TC “becomes more than the inculcation of a set of skills; it becomes a kind of enculturation” (2004, p. 23). This, perhaps, is the area of most readiness and interest for rhetoricians of science and technology, and other scholars in social studies of science. As rhetorical theory has come to inform the practice and teaching of TC, scholars and practitioners in the field have become attuned to concerns that have at times been called *humanistic*. Several key essays illustrate these themes well; Rutter (2004) also expressed what he deemed a humanistic sensibility in his 1991 essay (“History, Rhetoric, and Humanism”) to argue against pragmatism and, instead, for educating the technical communicator as a liberally educated generalist (p. 22); in the same year of 1991, Lay (2004) advanced an early framework for the adoption of feminist theory in TC that celebrates difference, includes women’s experiences, points to silences and gaps in the scholarship, and activates social change; Katz (2004), like Miller, critiqued the logic of objectivity and the prioritization of efficiency and technical accuracy over human concerns; Longo (2000) problematizes the activity of systematized “management” as a control mechanism, reliant on very particular perceptions of scientific knowledge production; and finally; Hunsinger (2006), on critiquing the “heuristic” view of intercultural communication in TC, which seeks to trace “culture” to stable points of origin and make unambiguous, essentialist claims about

communicative approach—drawing instead from Arjun Appadurai’s critical cultural theory to reimagine culture as a much more fluid category.

All of these arguments matter for the ways that technical communicators see their work. While it’s clear, then, that there is a strong tradition of humanistic critique, what’s left is for TC to more fully contend with an environmental and ecology-oriented ethic as well—that is, to keep not just human values at heart, but care for life as a whole, and beyond their aesthetic or literary qualities. Framing becomes a key rhetorical device toward these ends, so as to avoid the imposition or reification of a specifically raced, classed, gendered, and nationalized environmentalism across cases. Given that their work is resource-intensive, technical communicators can also take environmental considerations not only as the *subject* of communication, but as a mindset that informs the work itself, in its materiality and physicality. As developments in the STEM field work to find alternatives in powering the world’s digital connectivity, technical communicators can build a basis for the behavioral changes that must accompany technological change: intentionality with words, a willingness to reuse, a capacity for community-building polyvocality and stakeholder involvement, and enacting values of empathy and justice using a range of semiotic resources.

5.3.4 *For place-based pedagogy*

In *A Place in Space: Ethics, Aesthetics, and Watersheds*, Gary Snyder (1995) argues that we “can and must teach our young people to master the expected standard of writing procedures, in preparation for the demands of multinational economies and of information overload. They will need these skills not only to advance in our postindustrial precollapse world, but also to critique and transform it” (p. 177). While this

sentiment aligns well with Mark Schlenz's (2000) goal in "Greening 'Gray Literature'" to "prepare students to produce environmental technical documents required of environmental professionals *and* to equip them with tools of critical analysis that will enable them to challenge and to transform the operations of these documents in public policymaking debate (p. 56, emphasis in the original), Rosanne Carlo (2020) would likely push back against such "rhetoric of professionalization" in writing programs (in spite of the dual objective of liberalizing that both Snyder and Schlenz suggest) in favor of a place-based curriculum that embraces "exploratory writing, personal writing, and writing for and about community and public issues" (p. 6). I wonder if both are possible: if students in our writing programs can learn about and *practice* real communication in public and professional settings *while also* embracing a less quantitative, positivistic, or certain measure of outcomes—emphasizing "invention and inquiry...uncertainty, conflict, and becoming" instead (Carlo, 2020, p. 6).

Mark Schlenz (2000) proposes a three-part rhetorical model for teaching environmental writing, blending Killingsworth and Palmer's (1992) *ethos, pathos, logos* model with Herndl and Brown's (1996) nature-as-object, nature-as-resource, and nature-as-spirit model. In Schlenz's formulation, public, personal, and professional spheres are interconnected, but contain discrete domains of public/ethos (nature as resource; regulatory discourse) corresponding to an interpretive project (where students must write as "members of the public to inform and influence environmental policy"), professional/logos (nature as object; scientific discourse) corresponding to a mock environmental assessment project (where students must write as "professionals to produce an EIS"), and personal/pathos (nature as spirit; poetic discourse), corresponding

to an environmental journal (which is not defined in-text, but seems to be some sort of ‘place journal’ from which students produce individualistic personal nature essays) (pp. 64-67). Although I appreciate Schlenz’s drive to present these triadic spheres “as overlapping structures rather than disparate domains” (p. 69) and see how a map like this one could make discursive dilemmas seem a little more traversable (for students and, by extension, for the public), I worry that a model like this one is still rather rigid—and, again, the spheres analogy poses some problems for thinking about the way that discourses actually relate. The complexity of *place* tends to thwart our attempts to ascribe discourse to definite and contained spheres, after all, and all of the categories identified in Schlenz’s (2000) model are rooted in a post-Enlightenment worldview that would not easily accommodate philosophies of science that do *not* see “nature as object.” However, I see my own effort not as an opposition to Schlenz’s argument, but as an extension of it. Schlenz’s inclination to ask students to write *from* various positionalities (what Carlo *would* likely see as an *ethos*-based curriculum) does seem like one possibility to open up the “black box” of environmental debate.

In environmental education generally (whether this education also involves environmental writing), studies of the “local” can be reframed. Rather than trying to create internalized, fortified histories of “what really happened” or attempt to *use* the local to buckle down on concepts of “who we really are”—a theme of reactionary or nativist politics—environmental education that centers place can take the more progressive approach of emphasizing its situatedness in the constellation of connections, more aligned with Massey’s (1994) “global sense of place,” Rice’s (Edbauer, 2005) articulation of places as events, or Latour’s (2007) theory of “connected localities” (his

alternative to the notion of “global”). To see an example of place-based pedagogy at work in a writing assignment designed for first-year students (that was also intended to introduce rhetoric and its core tenets, such as audience awareness), please see Appendix D.1 First-year writing assignment example.

5.3.5 For teaching in writing studies

Technical description is a strange (Rivers, 2015) and social (Latour, 2007) genre that behaves or functions (Graham, 2020; C. R. Miller, 1984; Spinuzzi, 2001) to rhetorically enact (Kessler, 2020) the things it seemingly only describes or mirrors (Kinneavy, 1969; Lipson, 1982). Texts that feature technical description are important because they not only represent the objects they describe, then, but also make objects in a very important sense. Because they are a powerful, maybe subtle means of knowledge production, they necessarily implicate matters of equity, diversity, and inclusion.

The strangeness of the activity can be embraced—and this is perhaps a dimension we ought to make quite clear, along with a better emphasis on the inherent multimodality and audience-contingency of real technical descriptions. We ask writers to be objective, but we know the futility of true objectivity — this gets at the fundamental problems of binary metaphysics. However, we can summon powers of object-orientation as a way of communicating something important in appropriate contexts: something phenomenological, maybe, something both inside and outside, around, within, between the observer: a temporary relation, rooted in ethics of respect, curiosity, listening—as Carrie Grant (2021) argues, “an ethic of care, requiring relationships, and demanding understanding to history and context” (n.p.).

I remember participating as a young person in a common English & language arts exercise — “Describe this apple in the front of the room.” I peer in at the apple, intensely focusing, summoning every discursive power or ounce of empiricism I could have at that age. But we know that places, processes, living and even nonliving things—none of these are still life! If we write down what we “know” or what we “observe,” we are only capturing temporary stabilities. At a much broader scale than my grade-school classroom writings, of course, technical descriptions, even the very complex ones, capture those stabilities, and keep, themselves, exerting power—not just in the way that future and more descriptions are then made, not even just in what we believe and know about the places we read about, but about *what happens* to and with the person, people, place, or being. That is why we must always check our relations with that which we describe. That is why the subject is inherently political and relational, even though technical descriptions have been surprisingly taught in a manner that’s arhetorical and asocial. We have been teaching technical descriptions as forms of gazing, rather than as arenas for gathering, participating collectively in knowledge production. We have taught students that technical descriptions should be organized and partitioned in either a sequential or spatial manner, but field descriptions ostensibly defy either of those patterns. I have focused on environmental and place-based site descriptions in this dissertation study, but even in the case of the most traditional technical descriptions — those that have the best chance of being codified formalistically, as in the case of technical standards such as specifications — are always, primarily, tiny sites of world making that speak to audiences, contexts, and moments.

In writing studies, especially in studies that focus on classroom writing, there is a good deal of discussion about plagiarism—what counts as plagiarism, what counts as “common knowledge,” what counts as an appropriate or inappropriate paraphrase (e.g., the swapping of synonyms without changing sentence structure). My observations of repetition in professional writing lead me to reflect on this point as a teaching consideration especially. In very practical terms, how do we teach one to write a “technical description”? If the goal is to replicate an ideal form each time or to write about a subject in some eternal, encyclopedic way with a clinical stance, we might resort to what call patchwriting—defined by The Citation Project as “restating a phrase, clause, or one or more sentences while staying close to the language or syntax of the source” (“What Is Plagiarism,” n.d.). If professional writing so often lacks formal citation, what is the purpose of teaching citation in the classroom?

I have argued against a formalist approach to the technical description genre in this dissertation (Chapter 3). In my own teaching of writing, like others in my field, I teach citation from a primarily rhetorical perspective—emphasizing rhetorical *purposes* (plural) for citation (rather than citation as a one-size-fits-all move) and situating *that* as an act of community-building, world-building, and *ethos*-building, facilitating readable access to connections among texts, writers, readers, and ideas (rather than as a punitive, corrective thing that one must *simply* do as a matter of liability and academic integrity alone, to pass a test of vetting or to be a good person). Rebecca Howard Moore and Sandra Jamieson (2021), the co-creators of The Citation Project, capture this sentiment perfectly in the article “The Ethics of Teaching Rhetorical Intertextuality”:

The mechanics and ethics of intertextuality are both important, essential parts of college instruction. Unfortunately, they too much overshadow and crowd out an equally essential part of intertextual writing instruction: the rhetorical component, which gives meaning and purpose to source-based writing by encouraging writers to be dialogic meaning-makers. When educators focus only on mechanical and ethical issues in source use, attention remains on the surface of the text and on surveillance designed to seek out and repair (or punish) breaches of convention or ethics. The language describing these errors refers to them as intellectual flaws on the one hand, or moral failings on the other. Such binary thinking has left no room for the generative spaces Mackey and Jacobson locate at the heart of metaliteracy, or the “collaborative production and sharing of information” that occur in those spaces (ACRL footnote 7, citing Mackey & Jacobson, 2014). Rhetorical intertextuality is located in those spaces, and in the spaces between pedagogies of surface correctness, academic ethics, and surveillance. (p. 396)

Therefore, when I ask students (as I often do at the beginning of the semester, as a kind of ice-breaker) “What makes for good writing?”, one of my own answers to that question is now—as a result of having completed this dissertation—“How well does that text make known its connection to other texts?” I now consider that one of the paramount qualities to “good writing.”

Combing all of the above considerations, Appendix D.2 displays the way I have revised a technical description unit taught in Technical and Professional Writing (WRIT

3562W), my university's service course for upper-division students. Rather than asking students to take the stance of distanced, rational expert describing *ex nihilo* what a product or process is, I ask students to remix *existing* descriptions for new rhetorical situations of their choosing. In doing so, not only am I emphasizing the common and realistic practice of technical writers of remixing existing texts rather than always generating new ones, but I am also asking students to think about the socially situated nature of texts that have otherwise stubbornly resisted characterization as rhetorical, disrupting the view that technical texts are neutral and impartial transmitters of information from knowing authors to unknowing audiences.

5.4 Directions for future research

To inform my suggestions for future research, I will discuss a few of the limitations I encountered in my own study. Mine was a text-based study, based on publicly available texts; while that is certainly not an inherent limitation, it does mean that the data set was, in an important sense, already curated. This is also related to the recency bias I noticed in my primary texts, which was enabled by the extensive web-based searching I conducted. While I attempted to balance that with searching in the print-based archives (which had its own challenges, as discussed earlier), the volume of literature did correlate with the volume of industrial activity and a heightened climate of regulation from the twentieth century onwards. The historical texts were often difficult to locate, even with on-site library searching, and I often had to rely on the citations of more recent texts to know or find the older texts.

This study might have benefited from a mixed-methods approach; while I as the human researcher cannot scan or organize information from large corpuses of texts in the

same way that a machine can (via distance reading), a human approach was still needed in order to understand the data (and in some cases the *absence* of data) holistically and in context, via close reading. Another complement to my approach might be the *in situ* study of public rhetoric and composition in real-time, following even smaller “sub-cases” within my larger case of the Meadowlands; for example, scientific libraries, environmental education centers, other archives, university extensions, museums, community events that center on environmental participation, such educational events to teach citizens about commenting on permits, are all rich sites for rhetorical analysis and engagement.

This dissertation focused on the technical description genre, but another genre that served as a powerful vehicle in Meadowlands rhetoric was that of the travelogue. While I have cited travel writers in my literature review (e.g., Solnit, 2008), I did not go into great detail about the repeated use of travel writing about the Meadowlands from the colonial era up to the present⁵¹ with ambivalent consequences for place-based environmental advocacy in its connections to increased tourism.⁵² While this genre was helpful for

⁵¹ One interesting example was a photo essay by Wheeler Antabanez (2020), an urban explorer and well-known writer for *Weird NJ*. Photo subjects, centered on the theme of urban decay and urban wilderness, in the essay include maps, a wild turkey, graffiti, a discarded crack vial, other various forms of trash, and a coyote paw print in the mud. The essay is framed as a response to New Jersey’s plan to create its first state park in 15 years: the Essex-Hudson Greenway, which follows the path of a defunct nine-mile railroad line, to pass through eight towns. While the Greenway is a celebrated project said to bring economic, public health, and environmental benefits (including sewer overflow mitigation), Antabanez argues against it; “If this line is developed into a bike path, the local animals will lose their only greenway,” Antabanez argues (n.p.). “The Old Boonton Line is already a greenway / Best to leave it alone / Let the animals have one last corridor” (n.p.). In the video trailer for the published version of Antabanez’s urban trekking adventures (*Walking the Newark Branch*), however, the narrator specifically writes that he is separate from “civilization.”

⁵² Madelene McWha, Warwick Frost, and Jennifer Laing (2017) ponder a similar question in the article “Sustainable travel writing? Exploring ethical dilemmas of twenty-first-century travel writers.” Some travel writing has spurred the so-called “Lonely Planet Syndrome,” in which popular writing about a place ignores mass tourism in places that might not have the capacity or desire for increased visitation. Travel writing, as they point out, has “strong historical ties to Western colonization...[and] has been linked with misrepresentation [and ‘Othering’]” (p. 1403). Current arguments about the Meadowlands are very

bringing the wetlands to public attention and building the traction that was necessary to prioritize wetland conservation using mainstream conservationist arguments, it may have also contributed to the othering of the Meadowlands, but this is a point that can be explored more deeply in a separate project.

5.5 A final reflection

When I began this dissertation, I lived in Secaucus, overlooking the Hackensack River. As I end this dissertation, two years have passed, and I moved upstream to a house near the Whippany River—which flows to the Rockaway, which flows to the Passaic, and the Passaic and Hackensack Rivers empty together into the Newark Bay.

What do I know think, feel, and believe differently as a result of having completed this study? How am I different? How would I act differently as an upstream neighbor to the downstream Meadowlands?

Efforts to bolster the sustainability and resilience of the Hackensack Meadowlands will always rely on a layered understanding not just of what this place *was*, or *has been*, but very much *could be*. “So much depends,” indeed, on the ability of the Meadowlands and other urban wetlands like it to protect and improve water quality, provide vital and productive habitat, store carbon, and protect against floods and shoreline erosion. In turn, then, “so much depends” on the work of ordinary, mundane texts in this regard. It is grueling and exacting, but urgent, and integrally connected with the fate of places themselves.

specifically trying to invite and drive human presence into the area, though—whether to the American Dream mall and the sports complex, to the beautiful green parks, or to one of the new apartment complexes.

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Appendix A — Statement of Guiding Principles

This project did not involve human participants or “real-time” methods of data collection, such as [(auto)ethnographic] observation, focus group, survey, interview, or participatory design. Although I have consulted others in informational interviews and conversation, the study relies primarily on the analysis of existing, publicly available texts in print and online.

Rhetoricians understand communication as situated, and the decision not to analyze texts *in situ* (“field rhetoric”)—interviewing primary readers, perhaps, or observing the circulation and reference of a document at a meeting—may seem at odds with this assumption. However, due in no small part to the limitations for in-person meetings imposed by the COVID-19 pandemic, I accessed texts asynchronously in this study.

Although my work, then, involves sitting at my office desk (or at the desk of the library or archive) and offering my commentary, I am not exempt from the considerations of basic ethical questions as a qualitative researcher: What are the consequences of my writing? Whom does my writing affect? Whose interests does it serve? To whom am I accountable in this research? Toward that end, I maintained the following commitments:

- **Read, and cite, the works of multiply marginalized and underrepresented (MMU) scholars** (Itchuaqiyag et al., 2019). Although my own education has been primarily influenced by Western European thought and tradition, I can make the effort to diversify the conversation as I am rendering it in my work. I want to be a part of the larger effort to amplify MMU voices in the academy, and meaningful citation practices of my own is one way to further this goal.
- **Honor the primacy of the voices I do cite** (Eichberger, 2019). This means making considerate editorial choices when quoting others, taking care not only (of course) to honor the context in which the statements were spoken or written, but to give credence to the interpretative autonomy of those others. I will be mindful about whether I choose to abridge, abbreviate, or interject.
- **Enact justice and care as guiding principles for qualitative research** (Hammersley & Traianou, 2014). Beyond a basic “deontological and/or consequentialist” focus on “minimizing harm, respecting the autonomy of participants, preserving their privacy, and so on,” research can foreground a more “transformative” approach by asking and considering questions of justice and care.
- **Strive for reflexivity and transparency concerning my methods and guiding principles or assumptions.** Traditionally, social science relies on certain markers of soundness and validity, such as reproducibility, replicability, and inter-rater agreement. Although these activities or expectations do not apply as readily to my own work (and others like it), I can still involve or invite others to “participate” (even as a reader) by rendering my process clearer and remaining open to feedback and revision. But this is not an exercise in positivism; it deliberately and thoughtfully interweaves my subjectivities and cares with my orientation toward the involvement of others; it is my attempt to move toward better transparency in research and rhetorical analysis, motivated by accountability and not a form of reductionism.

Appendix B — List of Primary Texts

B.1 Archives and manuscript collections consulted

Hackensack Meadowlands Papers, Farleigh Dickinson University Digital Archives.

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Appendix C — Petition for Preliminary Assessment for Hackensack River

Captain Bill Sheehan
Riverkeeper & Executive Director
Hackensack Riverkeeper Inc.
231 Main Street
Hackensack, NJ 07601

Judith Enck
Regional Administrator
Environmental Protection Agency Region 2
290 Broadway
New York, NY 10007-4575

February 10, 2015

RE: Petition for Preliminary Assessment for Hackensack River

Dear Ms. Enck:

On behalf of the Hackensack Riverkeeper, Inc., I petition that the Environmental Protection Agency perform a Preliminary Assessment of the Hackensack River for future inclusion on its National Priorities Listing under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. section 103 et seq. Consequently, the Agency should begin a Remedial Preliminary Assessment as soon as possible pursuant to 40 C.F.R. section 300.420(a)(5). The toxic contained within the river and its sediments continually affect the Hackensack River watershed, its wildlife and the humans who live in or visit the watershed. These effects will continue until your office adds the river to the National Priorities List and oversees the removal of its toxic pollutants.

Hackensack Riverkeeper has standing to bring this petition. I Founded Hackensack Riverkeeper in 1997 and since that time my business has served as an advocate for the river and its watershed. My staff and I work every day to preserve, protect, and restore the river. Hackensack Riverkeeper is the environmental advocate for the Hackensack River. We also provide the adjoining communities with educational opportunities, conservation programs, and water-based activities. Through our work, we see firsthand how the river we oversee is negatively affected by toxic pollution. We operate two paddling concessions on the river and offer eco-cruises throughout the warm weather months; I firmly believe my business opportunities are limited by the presence of toxic contaminants in the river and the general perception of the river as unsafe for recreation.

The toxic pollutants within the river's waters and sediment cripple Hackensack Riverkeeper's ability to restore the and our water-based businesses. Throughout the warm

months, we offer Eco-Cruises, kayak and canoe rentals, and guided paddles. Toxic pollution in the river limits the number of people willing to venture onto the water for fear of contact with harmful pollutants. The paddlers and cruisers who do venture onto the water are unable to thoroughly enjoy the experience because the high levels of contamination in the river mean they can't eat the fish they catch or see the full biodiversity a healthy ecosystem would offer.

Toxicity of the sediment negatively affects our conservation efforts and makes it impossible to fully restore the river. It is more difficult, for example, to restore a tract in the Meadowlands because of legitimate fears that disturbing sediment will increase toxic pollution in the water column.

We are aware of existing Superfund sites along the river, but I am certain that the effects from these sites extend far beyond the boundaries EPA has drawn in its remedial actions. Berry's Creek, for example, has numerous NPL sites and is one of the most Mercury contaminated waterbodies in the world. There is no reason to think that mercury from these sites has not entered the mainstem of the river. Likewise, the former industrial sites on the lower produced a number of organic chlorides, polycyclic aromatic hydrocarbons, heavy metals and petroleum products. These pollutants contaminated the properties extensively, and there is no reason to think that contamination did not enter the river.

The Hackensack, like the Passaic, is a tidal river. River currents do not control its water and sediment; rather tidal action sloshes them back and forth. My extensive experience on the river leads me to believe that the tides transport pollutants up and down from their sources, but generally do not wash the contaminants out to sea. Thus, I believe pollutants from these sites and innumerable others are still in the river sediments and will indefinitely remain unless the Agency acts.

But unlike the Passaic, there is no dominant polluter responsible for the majority of the toxic contamination. Therefore, it makes no sense to me to expand the jurisdiction of an existing Superfund site throughout the river. We request that the Agency list the entire river to the NPL. No other remedy is likely to result in the fishable and swimmable Hackensack that my organization demands and New Jerseyans deserve. A Preliminary Assessment of the Hackensack River is the crucial first step toward reaching a solution.

Petition:

This petition is sufficient to require you to initiate a Preliminary Assessment under the terms of 40 C.F.R. section 300.420. 40 C.F.R. section 300.420(5) allows "any person (to) petition (EPA) to [perform] a Preliminary Assessment of a release when such person is, or may be, affected by a release of a hazardous substance, pollutant or contaminant."

40 C.F.R. section 300.420(5)(i) requires petitioners to sign the petition and to contain:

- . The full name, address and phone number of the petitioner

Captain Bill Sheehan

Riverkeeper & Executive Director
Hackensack Riverkeeper Inc.
231 Main Street
Hackensack, NJ 07601

- A. A description, as precisely as possible, of the location of the release

The Hackensack River, below the Oradell Dam, has been subject to innumerable discharges of numerous toxic chemicals. These include: Federally listed Superfund sites including Pierson's Creek, PJP Landfill, Standard Chlorine, Scientific Chemical Processing, Universal Oil Products and Ventron Velsicol; leachate from the abandoned Malanka Landfill in Secaucus and other abandoned landfills in the region; and various contaminants from the hundred of New Jersey Department of Environmental Protection known contaminated sites within the watershed.

- B. How the petitioner is or may be affected by the release

As stated above, Hackensack Riverkeeper operates a business on the river whose success is limited by contaminants in the river and the public perception of the river as contaminated. Further, as a non-profit organization, Hackensack Riverkeeper seeks to preserve, protect and restore the river. We cannot achieve this goal while the river's sediments are contaminated with toxic pollution.

40 C.F.R. section 300.420(5)(ii) petitions should also contain the following information to the extent available:

- . What type of Substances were or may be released

The Hackensack is listed under New Jersey's Clean Water Act section 303(d) list as being water quality limited for some or all of the following toxic contaminants: polychlorinated biphenyls (PCBs), Arsenic, Dichlorodiphenyldichloroethane (DDD), dichlorodiphenyltrichloroethane (DDT), Dichlorodiphenyldichloroethylene (DDE), Chlordane, Mercury, Dioxins, Dieldrin, Polycyclic Aromatic Hydrocarbons, Cyanide, Hexachlorobenzene, Ammonia, Lead, Cadmium, Chromium, Copper and Benzene. These contaminants as well as others are likely present in Hackensack River sediments.

- A. The nature of activities that have occurred where the release is located

The lower Hackensack River has been the site of many industrial activities — including waste disposal, chemical manufacture, energy production, and many others — for over 100 years. These activities in aggregate have lead [sic] to levels of many toxic pollutants in the sediment that threaten human health and the environment.

B. Whether local and state authorities have been contacted about the release

My organization has met many times with state and federal regulators about these issues. We feel that all parties agree that some level of listing is appropriate, but that the New Jersey Department of Environmental Protection feels that it would be more appropriate to expand the jurisdiction of existing sites than it would be to simply list the river. For a variety of reasons, we feel that listing the entire river is the quickest and fairest way to address toxic pollution in the river.

Thank you for accepting this petition. Please contact me if you require any additional information or if my staff or I can contribute to the process in any way. The people of New Jersey have been denied the full use of their river for too long. We look forward to the day when the River is once again safe for all uses.

Sincerely,
[signature]
Captain Bill Sheehan
Riverkeeper and Executive Director
Hackensack Riverkeeper, Inc.
231 Main Street
Hackensack, NJ 07601

cc: Mark Pedersen, NJDEP

Appendix D — Sample Course Materials

D.1 First-year writing assignment example: Place narrative & photo essay

This assignment was adapted Assignment 1 in Appendix 2 of Rosanne Carlo's *Transforming Ethos: Place and the Material in Rhetoric and Writing* (2020, pp. 169-170)

Project 1: Place-Narrative Reflection and Photo Essay
University Writing · xx 20xx · Section xxx

Consciously or otherwise, place is an important theme of the human experience. We don't all experience place, or even "the same" place, in identical ways (even public places)—and so place is personal. However, place is also deeply social. When I commuted a long distance to a regional high school, when I chose a college to attend from my options, when I joined new work or recreational communities, when I traveled, when I gained a new family on the other side of the globe, or when I lived in a new state for a while, I experienced shifts in my understanding of place—and maybe you have as well.

How have you yourself experienced place? In this assignment, you'll be asked to choose a single place that's important to you and tell a story about that place by composing a photo essay. A photo essay is a primarily visual medium. To create the photo essay, you'll create or find images that, when juxtaposed, help you answer such questions as...

- What memories do you have around this place?
- What are/were your routines and rituals?
- Who were/are you with?
- How long have you lived there?
- How do you feel connected this place? How might this place have influenced the development of your identity?

Your photo essay will be accompanied by a written reflection, which will take the shape of a cover letter. Imagine that you are writing to the essays editor for a public journal, such as *The Photographic Journal* (and we'll go through this context a bit more in class). Why should the editor choose to publish *your* photo essay? What would a broader audience "gain" by reading your photo essay? The cover letter will serve as the space for you to introduce your essay to the addressee of the essays editor, rhetorically analyze your essay (the visual document that you've created), and reflect on your own goals and choices for that piece, ultimately arguing that you've created something of value that others should see; therefore, it should be published.

The photo essay should contain at least five visuals. Although there are some powerful examples of real photo essays that use barely any words at all, words are welcome in your own photo essay. I do want you to title your essay; otherwise, though, you could include an introductory paragraph, captions for your photographs, and a short conclusion.

None of these need to be very long. We'll look at real examples of photo essays together to serve as models.

The cover letter, on the other hand, should reach about 750 to 1,300 words (roughly 3-5 double-spaced pages).

The Photo Essay: Additional Guidelines

Choose a place that's meaningful to you and that you know from an insider's perspective. (A photo essay is kind of like making a story or series of related posts on Instagram.)

You can set the boundaries as to what constitutes a single place. If you choose a neighborhood, for example, don't feel limited to a few streets. You can branch out a bit more to include old schools, parks, or other landmarks that are local and important to you. You can also use both original and found images: present or past photos, drawings, and/or maps. If you use images that were not of your own making, please include attribution to the proper source in a caption (separate from a descriptive caption). For the sake of ease, you can use my own examples as templates:

Example of an Original Image

A body of water in a tidal mudflat, with a city in the background

Image provided by the author.

A view of the Hackensack Meadowlands from Mill Creek Marsh, a nature preserve in Secaucus, New Jersey.

Example of a Sourced Image

Map

Image accessed Month 11, 2022 from CityInEnvironment.Blogspot.com.

This is a map of the Meadowlands I found at the Meadowlands Museum in Rutherford, dated 1795. The region has changed a lot since then. Some of these placenames don't even exist anymore.

Photo essays tell stories, but they don't usually use a traditional plot structure. Instead, they work by juxtaposing images that, together, create meaning. When you create, choose, and arrange your images, consider how they're working together in concert.

Remember, you are familiar with your place. You know it well. You are an insider. But most of your readers will be outsiders to your place. Keep your perspective as an insider but also adopt the perspective of an outsider in your descriptions. How would you describe your place to readers? What details will you focus on? The placement of objects? The layout of the landscape? The weather at certain times of year? What are the smells of your place? The noises? How have your emotions about this place changed over time; how might that be represented visually? How has your place changed over time? Why has this change occurred? How do you feel about it?

The Cover Letter: Additional Guidelines

In our class, we've started learning about rhetoric: a branch of communication theory that centers on the social, purpose-driven, and audience-focused dimensions of all communication, written or otherwise. Through the rhetorical lens, we realize that writing never occurs in a vacuum. Writing is purpose-driven, and it always imagines an audience, even if (in some cases) that audience is just yourself.

The intended audience for your photo essay is meant to be rather broad. Insider audiences will be able to relate to your photo essay in one way, and people who are learning about your place for the first time will interpret the essay another way. Even if you as the author have a single special person in mind (for example, your grandmother, if you're writing about your grandma's house), you're writing the essay as if it is going to be accessed by a general readership.

However, the intended audience for your cover letter is very specific and narrow. In fact, it's just one person. *The Photographic Journal* ("About") is a good example to use as the imagined venue where your photo essay would be published because it depicts a diverse array of subjects from many different contributors. Paige Mauriello is the current essays editor for the publication, which means that she oversees the Photo Essays feature within each issue of *The Photographic Journal*.

Write a cover letter addressed to the essays editor that explains your photo essay and argues for its inclusion in the next issue of *The Photographic Journal*. Be sure to answer these questions: Why am I composing on this place in particular? Who are the audiences who would be most interested in my essay? Why do I believe each image was chosen effectively and meaningfully, with that audience and purpose in mind? What do I want readers of my photo essay to understand about this place, about my life, about life in general, after they finish my piece?

Cover Letter Formatting

<Your Name At The Top>
<Today's Date>
Paige Mauriello
Essays Editor
submissions@thephotographicjournal.com

Dear Paige Mauriello,

<Insert your cover letter here. Start by introducing yourself briefly and stating your purpose for writing to her. Who are you? Why are you reaching out to her? Then, starting with the next paragraph, summarize/introduce the photo essay you're showing her. What is it? What is about? Move on then to rhetorically analyze your own work using the guiding questions in the above section. Make sure your analysis is framed as a response to a single overarching question that you name and address clearly in your letter: Why should your photo essay be published in *The Photographic Journal*? Conclude your letter

by thanking Paige for her time and consideration, looking forward to future opportunities to discuss your work further.>

Kind regards <or your favorite appropriate sign-off here>,
Your Name

Table 4. Evaluation criteria for place-narrative reflection and photo essay.

Criteria	Guiding Questions
Photo essay: Title	Does the photo essay have a title? Does the title match or relate to the contents of the essay?
Photo essay: Visuals	Does the photo essay contain at least 5 visuals? If the images were derived from another source, are they appropriately cited, as demonstrated in the assignment sheet?
Cover letter: Length and formatting	Does the cover letter “look” like a cover letter, using the formatting that was provided? Does the letter fall within about 750 to 1,300 words? Did you as the writer make sentence-level and paragraph-level choices to create structure and enhance the letter’s clarity and meaning?
Cover letter: Summary	In the letter, do you provide a concise summary and context for the photo essay under discussion? Would the reader be able to tell, clearly, what place you’re talking about?
Cover letter: Analysis	Does your analysis of the photo essay show any audience awareness? Does it demonstrate that the five visuals were well-chosen, in that they do come together to coherently tell a story about a place? Similarly, does the analysis seem thoughtful and purpose-driven in the way it tells the story of the photo essay? Does the analysis show self-reflection on your own goals and choices as a composer? Ultimately, then, does the letter provide a convincing rhetorical analysis of the photo essay—explaining not just the “what” of the photo essay, but the “how,” including specific attention to your rhetorical strategies and your perception of their effectiveness?
Cover letter: Argument and tone	Does the cover letter answer the central question: “Why should your photo essay be published in The Photographic Journal?” Does the cover letter maintain a tone of professional asking and respect for the reader’s time?

D.2 Advanced writing assignment example: Explanations

This assignment was created in consultation with Daniel Card and additionally adapted from two assignments developed by Molly Kessler (“Assignment 1: Translation Analysis” and “Assignment 2: Explainer”) with her permission

Unit 1: Explanations

Technical and Professional Writing · xx 20xx · Section xxx

We will read about technical descriptions and definitions in Chapter 7 of *Technical Communication Today* (“Technical Descriptions and Specifications,” pp. 176-203) and in section [4.2: Descriptions and Definitions](#) of the course reader *Introduction to Technical Communication: Technical Communication through a Social Justice Lens*. We’ll also discuss Plain Language, a reader-centric principle that is also a matter of federal requirement for some documents. As we already learned in the introductory module to this course, technical communication is a humanistic practice that involves the translation of complex information for new audiences. Acts of revising, remixing, redesigning, and re-inventing texts for new audiences require a rhetorical awareness: Who is my audience? What’s my purpose for reaching this audience? What are my audience’s own goals, values, and priorities? What is the context in which our communication will occur, and how can I convey and deliver information appropriately and effectively?

With these ideas in mind, the first major assignment of WRIT 3562W will ask you to **rewrite an existing explanation about an object, place, phenomenon, or process**. You’ll be asked to apply the techniques we discuss in this unit to reimagine and redesign that explanation for a new audience, keeping in mind the foundational principles we discussed in the introductory module (especially concerning rhetorical analysis and diversity, equity, and inclusion).

Steps to Complete the Major Assignment

Step 1: Find an existing explanation that was written for a particular audience or purpose.

As we learned in [4.2: Descriptions and Definitions](#), and as you can see for yourself in the examples I’ve shown you below, technical descriptions can take many shapes and forms. They do not look identical across contexts, although they have some rhetorical moves in common. For example...

- Technical descriptions will often use sentence definitions (e.g., “Curiosity is a car-sized, six-wheeled robot...”).
- They will often divide the subject matter up into constitutive parts.
- They may use visuals, such as diagrams or detailed photographs, to display parts of an object, or to label steps in a process.
- In some uses, “technical description” is a term applied to a standalone document. More often, however, technical description is a building block within a larger document, such as a user manual. You are more likely to encounter technical descriptions in the generic sense rather than in a discrete, formal, or self-identifying sense.

- Importantly, their aim is usually to show or explain to the reader what something is, or how something occurs; they do not typically instruct the reader to perform tasks or actions, but we will cover instructions in the next unit (Unit 2: Instructions). As such, technical descriptions often use third person perspective (e.g., “A solar eclipse occurs when...”) and, sometimes, passive voice (e.g., “Therefore, multiple cells must be assembled...”) rather than second person perspective and active voice, where the implied subject is “you” (e.g., “Place the dry sample into the one-quart glass... Place your finger at the end of the funnel... Repeat steps 7.1 through 7.6...”). Reading a technical description might feel like watching a documentary about that subject; you are positioned as the viewer, rather than as an action-taker.

I have collected a few examples that you are welcome to use. You are also free to find your own example, and we can consider together if the example you found will work for the assignment upon showing me.

- [Requirements for Bicycles](#)
- [Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin](#)
- [IV \[Intravenous\] Essentials](#) *
- [Electronic commerce \(e-commerce\)](#)
- [Accessible playground definitions](#)
- [How ransomware happens and how to stop it](#) *
- [Tomato fruit development and metabolism](#)
- [iPhone 11 - Technical specifications](#)
- [Garment optimization](#)
- [Fact Sheet #32 - Youth Minimum Wage - Fair Labor Standards Act](#)
- [5 Basic Statistics Concepts Data Scientists Need to Know](#)
- [What are the different hair cutting techniques?](#)
- Technical Description Examples in TCT **
 - Mars Curiosity Rover (Figure 7.1), p. 178
 - Solar and Lunar Eclipses (Figure 7.4), p. 187
 - How Fuel Cells Work (Figure 7.5), p. 188
 - SunPower E-Series Residential Solar Panels (Figure 7.6), p. 192
 - What Is the Smart Grid?, p. 197

* These artifacts have some instructional content in them. However, the bulk of the text demonstrates explanation or technical description. In your revised explanation, please do not include any instructional language.

** If you use any of these examples, I recommend using the source information provided in the book to learn more about the context of the description as it originally appeared, or was originally published. You can think of its original audience and purpose that way; you don’t need to acknowledge its inclusion in the Technical Communication Today textbook.

Notice that some of these examples are very long, and others are rather short. The length of the original document does not matter. All students will be asked to create new explanations that are about the same length, and nowhere near the length of some of these very long texts (see Assignment Guidelines and Rubric). For any of the originals you work with, you can think about specific sections you can focus on: perhaps an excerpt from the original, or a very abridged version of the original. Regardless of the length of the original, you'll want to be thinking strategically about details to keep or exclude in your new version—based on the new audience you seek to engage.

Step 2: Conduct a rhetorical analysis on that original explanation.

Consider the original document carefully. You may want to do an intelligent skim of the text itself, you may want to read some parts very closely, and you may especially want to make sure you understand that text's original context. Ask yourself:

- Who was the author of this original description? (Is there a named author? Is there a corporate author, such as an organization?)
- Who was the likely intended original audience for the description? (How do you know? What sort of context clues did you use? For example, you may have to trace the article or document back to its source. You may also want to pay attention to the content of the explanation and the type of language used, which will also give you clues about the audience.)
- What do you suppose was the intended purpose of the original description, given the audience(s)?

If you are stuck on any of these questions, I'd be happy to talk with you about them and we can consider them together. It is perfectly fine to make educated guesses in response to these questions, but I do encourage you to pay close attention to the available evidence.

Step 3: Rewrite—better, redesign—the explanation for a new audience.

Applying the techniques and principles we'll discuss throughout the unit, rewrite the explanation for a new audience. Consider the COVID-19 examples from our course reader. Imagine that your original explanation was the [process description of the nose swab PCR test](#) (for adult readers) at Cleveland Clinic. If you wanted to “rewrite” that explanation for a new audience, you might create a new text resembling the [explanation provided to young viewers at Boston Children's Hospital](#). (Consider, too, how these patient-facing process descriptions vary from the [instructions provided to healthcare personnel](#) at UConn Health.)

Please note that you are not being asked to rewrite the originals because there is anything necessarily “wrong” with those original texts. In fact, many of them are displaying a lot of helpful, reader-friendly characteristics in the way they're written or designed! The purpose of this assignment, in reimagining an explanation of a subject for a new audience, is to “learn by doing.” It is one thing to talk about the importance of a rhetorical perspective, and another thing to see for ourselves how it might work, in action. Besides, technical writers rarely create texts from scratch. More often, they are reworking existing materials for new contexts.

When you are redesigning your text, try to be as specific as possible when thinking about your new audience. It's helpful to be very specific because it can help us avoid making assumptions in our writing that are too general or relying on stereotypes.

Too general: College students

Better: for example, "Students maintaining F-1 visa status at the University of Minnesota" or members of a particular club or organization

Too general: Older people

Better: for example, "Adults aged 50 and over seeking to start their own businesses" or "my grandparent"

Too general: People who work in the automotive industry

Better: for example, "Electric vehicle technicians at Tesla" or "Salespeople at Walser Subaru Saint Paul"

When thinking about a new audience, too, please consider: Who has a stake or interest in knowing about, or understanding, the subject of your explanation? Is it a matter of public interest? Is there an issue of consumer safety or environmental responsibility to consider? Are there aspects of cultural relevance and representation to consider? Is the explanation inclusive? Is the explanation accessible?

For this assignment, please do not include instructional content. If you are writing about a process, you are not instructing someone on how to complete the process; the readers are curious about how that process happens, but they are not completing the process themselves.

Step 4: Explain the rhetorical choices you made in your new description or explanation.

When you share the rough draft of your explanation on our class discussion board (for peer review), and again when you submit your final portfolio, you'll be asked to respond to the following questions:

- What was the original explanation that you found? (Please summarize it in a couple of sentences, using the rhetorical analysis you did in Step Two.)
- What is the goal of your new explanation? Who is your new audience? (Again, please be as specific as possible. Consider: Did the purpose of your explanation change, in relation to your new audience? Does it have a similar purpose to the original, but modified in some way?)
- What interest or stake does your chosen audience have in the topic? Why would they need or want to know about the subject of the explanation?
- In what ways did you as a writer account for your new context? (For example, does the new explanation feature accessible, inclusive, and/or audience-appropriate language? Did you include or revise a visual element? Did you keep some details but change others? Did you approach the subject from a different angle?)

Assignment Guidelines and Rubric

Some assignments in this course will have guidelines for word count. However, this assignment will use page length as a default: 2 pages. Those pages can be occupied with words, tables, lists, pictures... It is up to you and your content, thinking about the most effective ways to present that content for your situation. If you have creative ideas for the assignment—for example, a video, a web page, a podcast episode, or even a conversation—can discuss those, and think about what would constitute an equivalent amount of work to a 2-page static document. I encourage you to keep your works very brief and easily scannable for information—which can be hard, especially if you are working with an original text that’s quite long or dense!

Your rough draft will be considered “complete” if it is...

- fully drafted, or at least 50% complete with a detailed outline regarding future expansions,
- accompanied by your responses to the rhetorical questions (on the discussion board), and
- turned in on time.

Here is the rubric I will use to assess the revised final version of your explanation, to be turned in by the end of the semester:

Table 5. Evaluation criteria for rewritten explanations.

Criteria	Guiding Questions
Topic Selection and Introduction	Did the writer clearly introduce the subject and the purpose of the explanation? Did the writer include any necessary sentence definitions and extended definitions?
Content	Does the new explanation have some sort of subject matter relationship with the original? Can the new explanation be considered accurate or complete in its own way?
Organization and Arrangement	Did the writer introduce and explain discrete parts or types of the subject (at least 5)? Did the writer use a logical and consistent organizational pattern (e.g., top-down, left-right, or first-last)?
Formatting	Did the writer use a design or format that makes sense for the specified audience and purpose? Is the information presented in a diligent way, without any major errors in access or readability?

The rhetorical analysis, to be included in the cover letter of your portfolio, will be assessed separately. There, I will be looking for thoughtfulness in your reflection on the choices and decisions you made as a writer.

Examples of Real-Life “Rewrites”

The task of “rewriting” an explanation for a new audience or a new purpose is not an activity that is restricted to the classroom, by any means. Here are some recent examples of “rewrites” I’ve encountered:

- Take a look at these [excerpts from the children’s book *Meadowlands: A Wetlands Survival Story*](#) by Thomas F. Yezerski. In this pretty remarkable effort, the author “remixed” a host of other texts that were written for various kinds of adult audiences (scientific articles, environmental histories, field guides, natural resource inventories, and U.S. Fish and Wildlife reports, all of which are centered on an urban wetland called the Hackensack Meadowlands) to create a kid-friendly book with watercolor illustrations, appropriate for readers ages 5-8, grades K-3.
- The film *The Big Short* (2015) does an intriguing job of this rhetorical work as well. The film uses unconventional techniques to explain the financial crisis of 2007-2008 that was triggered by the United States housing bubble. For example, [celebrity Margot Robbie explains the concept of a subprime mortgage while sitting in a bathtub](#), drinking champagne—a move befitting the comedy-drama genre of the film and, self-consciously, seeking to explain confusing terms in an accessible way for a non-specialist audience. After all, as the film’s narrator argues:

Mortgage-backed securities, subprime loans, tranches... It’s pretty confusing, right? Does it make you feel bored? Or stupid? Well, it’s supposed to. Wall Street loves to use confusing terms to make you think only they can do what they do. Or even better, for you just to leave them....alone. So, here’s Margot Robbie in a bubble bath to explain.
- Rewrites can also be very practical in nature. For example, manufacturing facilities—Holland Manufacturing, for example—might make [safety data sheets](#) available to their consumers. Unlike the technical data sheets, which simply display information about the dimensions and properties of the products they sell, safety data sheets explain any of those products’ hazards, toxicology, ecological risks, or disposal considerations in response to customer requests for information about these things. In this way, the company “re-presents” the same product, even for the same audience, but in a new light, for a new reason.