LANDSCAPE ARCHITECTURE AS PUBLIC PEDAGOGY: USING ENVIRONMENTAL ART TO ENGAGE COMMUNITIES WITH SEA LEVEL RISE

by

ARIANNE WOLFE

(Under the Direction of Marianne Cramer)

ABSTRACT

The discipline of landscape architecture is engaged in designing landscapes that will be impacted by climate change, yet it does little to educate the public on how the effects could be mitigated. By drawing upon the ideas of public pedagogy and environmental art as lines of inquiry, this thesis attempts to create a framework to guide design of public spaces in an educational way. Using the theory of public pedagogy, a set of guidelines are suggested, which can be used to evaluate designs. Simultaneously, a survey of environmental art is used to understand the tools artists use to engage an audience. Finally, a series of environmental art designs are suggested to address the issue of sea level rise in Charleston, South Carolina.

INDEX WORDS: landscape architecture, public pedagogy, environmental art, climate change, sea level rise, Charleston

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B.A., Tulane University, 2011

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

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DEDICATION

This thesis is dedicated to the City of Charleston.

There are many reasons why I chose this research for my thesis. It could be my undergraduate degree in Environmental Studies which leads me to be interested in environmental education and pro-environmental behaviors. Maybe my innate love of art (though not, I must admit, natural talent). Or perhaps the semester I helped Professor Brian Orland with research on the attitudes and behaviors of coastal Georgia residents to sea level rise and climate change. Above all, though, there is *home*.

It is difficult for me to understand how people can know that sea level rise is a threat, and yet do nothing about it. People continue to flock to Charleston, build new homes in precarious locations, open new restaurants downtown, and new businesses at the beach. They purchase flood insurance, or they are wealthy enough to take the risk. All this time I wonder: why would they do that? Why would they purchase that land next to the creek that floods nearly every time there is a king tide? Is it worth taking that risk?

Meanwhile, at the conclusion of my graduate school career, I am looking for work in Charleston, excitedly figuring out where to live, and dreaming of spending weekends in a kayak. You see, in spite of everything that I know, everything that I have learned in my academic career, I am willing to risk it all. I am willing to live in denial of the facts because it is my *home*. I believe that people choose denial because it is easier than admitting that their homes are endangered. It is not ignorance or apathy, rather it is myopic self-preservation. I *know* this.

The impetus for this thesis is to find a way to shake people out of their denial. How can I present people with reality in small, insidious ways that make them realize that sea level rise something to be concerned with? What can I do to make people see the many ways in which sea

level rise will affect their daily lives? I hope that if there is a way to accomplish that, then there is hope for advocacy and change.

ACKNOWLEDGEMENTS

There are many people who were influential in the creation of this thesis. First, I must thank Marianne Cramer for guiding me through this process. Without her encouragement, enthusiasm, and prodding, this thesis would not be what it is now. I must also thank Brian Orland for helping me decide to address sea level rise. Our conversations on the subject long before this thesis took shape were the impetus for choosing this issue. And Dr. Christina Hanawalt, for encouraging me to look into public pedagogy before I knew what I was looking for.

I would like to thank my cohort, without whom the last three years would not be same. From the late nights in the studio to book club by the fire, you have been along for the ride. My parents, for their ultimate support in all my endeavors—thank you. And last, but certainly not least, I would like to thank my fiancé Nate Dittman. Thank you for being my support throughout this program. You have seen this thesis through to the end right beside me. Thank you for your patience and understanding.

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CHAPTER 1

INTRODUCTION

"We still have a really good chance to make things better than they are. They won't get better unless we take the action and inspire others to do the same thing. No one is without power. Everybody has the capacity to do something."
-Sylvia Earl

Sea level rise is a pressing issue for coastal communities around the world. This thesis takes the stance that landscape architecture should be involved in activism and education about issues that will affect the field, the discipline, and the communities in which we work. Landscape architects are beginning to plan for climate change, but are not involved in educating the public on the issue. We live in a time when the political leadership in the United States promotes "alternative facts" and questions the science behind global climate change. In a time when public education is under threat, the field of landscape architecture should not be content to ignore this and continue practice as usual. We have the power to make statements through our work, and to make changes to the public realm that benefit the wellbeing of the public. We talk about the power of landscapes and the importance of livable cities. But will our cities be livable if sea level rises as predicted?

This thesis is research, yes. But it is also a call to action. By bringing together tools from public pedagogy and environmental art, this thesis hopes to inspire those within landscape architecture to take up the torch and fight to save the places in which we live, work, and play.

Problem

Anthropogenic climate change is a phenomenon caused by the byproducts of combustion. These carbon emissions accumulate in the atmosphere, and through the greenhouse effect, result in a shift in the earth's climate. NASA's website explains climate change in the simplest of ways. Earth's climate is always changing, and has been since the beginning of time (May 2017). The

addition of greenhouse gases into Earth's atmosphere is accelerating these natural shifts (ibid). The effects of climate change can be expected to include shifting rainfall patterns, melting ice caps and glaciers, stronger, more frequent hurricanes, and sea level rise (NASA 2017).

Landscape architects in practice today are addressing some of the effects of climate change, but sea level rise is a relatively new issue for the profession. Kate Orf, founder of SCAPE in New York City, recently won a MacArthur Grant, the first landscape architect to do so (McKee 2017). Her project Living Breakwaters addresses sea level rise and storm surge for Staten Island (SCAPE Studio). Living Breakwaters was a project submitted to Rebuild by Design, a competition hosted by the U.S. Department of Housing in the wake of Hurricane Sandy to help coastal New York and New Jersey become more resilient and better prepared to face another disaster of similar scale (Rebuild by Design, n.d.). Other competition submissions show the range of ideas currently being discussed in practice today: redesigning cities to be more resistant to sea level rise; creating floodable cities; creating constructed marshes; and recreating barrier islands (Rebuild by Design; Padjen 2014). All of these efforts are valid, sorely-needed, and most likely feasible. Planning for the effects of climate change is important, but addressing them without addressing the root of the problem, the causes of climate change, is akin to a doctor treating the symptom instead of the disease.

Although landscape architects have long been attempting to address social problems, in the 1990s they turned to addressing environmental problems such as stormwater management, restoration of brownfields, and accommodation of river flooding. The term eco-revelatory design was used to describe the landscapes that attempted to educate people on these environmental issues. Eco-revelatory design was defined at time as the intention "to reveal and interpret ecological phenomena, processes, and relationships" (France 2000, 36). There was criticism, however, of the eco-revelatory movement. Critics such as France found that many designs (as represented in the 1998 special issue of Landscape Journal dedicated to eco-revelatory design), were clear neither in their intent, nor in their execution, and were, in short "illegible" (Ibid).

Perhaps the most successful legacy of eco-revelatory design is artful stormwater management. But the expression "Eco-revelatory design" has faded from the pages of professional design journals. Without a good legacy to follow, how should we, as landscape architects create landscapes as educational tools? How do related fields use their work to educate? If we look to one of our "parent" fields – the visual arts – we may find answers.

The visual arts have always been on the forefront of cultural paradigm shifts, and visual artists have a long history of addressing controversial issues in their work. From Picasso's *Guernica* (1937) to Shepard Fairey's *We the People* series (2017), art has a way of connecting people to causes. What is it about art that has the ability to engage people and spark conversations? Public pedagogy is a theoretical construct that deals with educational processes that happen in the public realm, outside of formal education (Sandlin et al, 2011). Art as public pedagogy brings to light the ability for art to affect people, to teach, and to inspire change without any formal "teaching." More importantly, the term "critical public pedagogy" is used to address public pedagogy that examines and critiques the norms of society (Zorilla and Tisdell, 2016).

In a 2005 editorial, environmentalist Bill McKibben bemoaned the fact that climate change did not have an outpouring of activist art the way that other critically important issues have had in the past (McKibben 2005). In the decade since his piece, things have changed; artists are engaging with climate change and sea level rise in new and innovative ways. For example, in 2009, the *Floating Land* environmental arts festival held biannually in Australia, focused on the issue of sea level rise (Marks et al, 2016). Environmental artist Aurora Robson has started an artist collective called *Project Vortex* around the impact of plastics in our oceans. And quite presciently, Eve Mosher drew the *High Water Line* in chalk in New York City several years before Hurricane Sandy hit and made her art a reality. In short, environmental artists are addressing climate change and sea level rise in their work, and are using public pedagogy in their attempt to raise awareness and inspire change.

Through studying art as public pedagogy, this thesis seeks to answer the following question: *How can landscape architects engage public pedagogy through environmental art to address the issue of sea level rise?*

Supporting questions, which will help guide the research include: What potential does the study and understanding of art-based public pedagogy bring to landscape architecture? What methods or tools are environmental artists using to engage the public? How can landscape architects use these tools of engagement to influence environmental education in the public realm? What would environmental art on the topic of sea level rise look like for Charleston?

Objective and Justification

This thesis is intended to shed light on how landscape architects can integrate public pedagogy into their designs. The field of landscape architecture resides on the spectrum between engineering and art, and therefore is in a unique position both to help solve some of the wicked problems of the world, and to bring aesthetics and artfulness into those solutions. For more than a century, artists have engaged the public, trying to bring awareness to social, political, or environmental issues. Many are creating art that, explicitly or not, uses public pedagogy. The purpose of their art is to create opportunities for learning outside the traditional realm of learning institutions. This thesis will study public pedagogy, in addition to the tactics that environmental artists are using to successfully engage the public in a critical dialogue. Through these studies, the thesis will develop a framework to help landscape architects produce designs that will effectively communicate and educate. This thesis will bring together the knowledge of several disciplines to inform how landscape architects might create a dialogue around sea level rise.

It is not enough for the discipline of landscape architecture to be designing for climate change. The discipline should do more than simply engage students of landscape architecture in designing solutions to these problems. It should explore the ways in which landscape architecture can initiate a critical public dialogue. Likewise, it is the responsibility of practicing landscape architects not just to design solutions for the problems that exist, but to help educate those outside

the realm of our work. In this way, this research will benefit the practice of landscape architecture by providing examples of successful strategies for engaging the public in a critical dialogue about sea level rise.

Limitations and Delimitations

This thesis is concerned with the engagement of citizens in the public sphere on the issue of sea level rise. It seeks to understand the processes environmental artists use to engage with citizens in order to educate them on topics of environmental concern. It will not address the effects of that engagement. In order to measure the effects of the engagement, it would be necessary to install projects, survey citizens who interact with the projects, and follow up with the same citizens after a designated period of time. This is work for further research, but will not be addressed here.

By limiting this thesis to purely theoretical work and not implementing any projects, there is a risk that it will not produce any change in the public sphere. The hope is that the research from this thesis will provide a framework for future work. This framework should guide works to successfully engage citizens with sea level rise. Additionally, the design concepts presented in the thesis could be implemented and researched in the future in order to provide a more complete understanding of how these installations facilitate a discussion around sea level rise.

Methodologies and Chapter Summaries

This thesis begins by providing further context for Charleston, South Carolina and the topic of sea level rise. In Chapter Two, the impacts of sea level rise on the peninsula of Charleston will be studied in depth. Through an understanding of the current science of sea level rise, and an awareness of Charleston's attempt to respond to the issue, this chapter will answer the question: why address sea level rise in Charleston, South Carolina?

The third chapter of this thesis explores public pedagogy. Using classification, this chapter will describe and categorize the current literature on public pedagogy. Through this

analysis, this chapter will connect public pedagogy to landscape architecture in order to answer the question: what potential does the theory of public pedagogy bring to landscape architecture and environmental art? Finally, this chapter provides a set of criteria for analyzing work as public pedagogy. Chapter Four takes a closer look at environmental art and studies the tactics artists are using to captivate their audience. Through classification, this chapter defines "environmental art" and categorizes this art based on the tactics used by artists. By studying environmental art, a series of tools of engagement are identified and defined. Through analysis, this chapter provides an understanding of how these tools can be used together.

Chapter Five uses descriptive case studies to take a more detailed look at four pieces of environmental art. The detailed descriptions provide a deeper understanding of the tools of engagement. They will illuminate how the art engages the audience, how the work educates, and explore if there are any additional tools used to engage the public. Finally, this chapter will analyze these designs using the framework created in Chapter Three.

The sixth chapter uses projective design to understand what environmental art in Charleston could look like. Using the tools of engagement from Chapters Four and Five, several design concepts were created. These designs were then evaluated as public pedagogy using the framework created in Chapter Three. Through this design process and the evaluation, new conclusions about environmental art as public pedagogy are researched, and the tools of engagement are themselves re-evaluated.

The final chapter concludes the thesis by answering the research questions, explaining the framework, and providing direction for future research.

CHAPTER 2

SEA LEVEL RISE AND CHARLESTON, SOUTH CAROLINA

"Charleston has a landscape that encourages intimacy and partisanship. I have heard it said that an inoculation to the sights and smells of the Carolina lowcountry is an almost irreversible antidote to the charms of other landscapes, other alien geographies. You can be moved profoundly by other vistas, by other oceans, by soaring mountain ranges, but you can never be seduced. You can even forsake the lowcountry, renounce it for other climates, but you can never completely escape the sensuous, semitropical pull of Charleston and her marshes."

– Pat Conroy

This chapter seeks to answer the question: Why address sea level rise in Charleston, South Carolina? Through evaluating the current science surrounding sea level rise, and understanding the implications for Charleston we can begin to see why this issue is important to address. By understanding the social and political climate in Charleston, and knowing what is already being done to address the issue, this chapter should also address why more action is needed on this topic.

Charleston and Sea Level Rise

Charleston, South Carolina is a coastal city, founded in 1670 by English settlers. As a coastal city, it has experienced flooding throughout its entire history. However, the issue of sea level rise means flooding is increasingly a threat. For three years in a row, Charleston has experienced major flooding events, showing how vulnerable the city is. As it had been over a decade since the last major storm threatened the city of Charleston, three storms in a row made people take notice. In 2015, rains from Hurricane Joaquin inundated South Carolina leading to a 1000-year flood in many parts of the state, and causing 157 road closures in Charleston (Fly et al., 12). In 2016, Hurricane Matthew hit the coast, causing evacuations, flooding, and a storm surge

of 6.2 feet (Ibid, 13). In 2017, Hurricane Irma, while not directly hitting the city caused the worst storm surge since Hurricane Hugo in 1989.

As with all of the predictions for climate change, sea level rise is incredibly difficult to predict with any precision. While there are too many variables to predict with certainty how much the seas will rise, scientists are in agreement that it is a matter of when, not if. In Charleston, for example, the predictions for sea level rise by 2120 are anywhere between two and seven feet.

The Surging Seas Risk Finder is an interactive, online tool used to determine the status of sea level rise in the coastal United States ("Surging Seas Risk Zone Map, n.d.). The website uses elevation data from NOAA to determine where the coastline would be with various climate change scenarios. Of course, these "bathtub rings" do not account for the fact that worsening storms and shifting rainfall patterns will also increase the flood risk for homes and businesses at higher elevation. This thesis considers predictions for the next century (until 2120) to understand how sea level rise will reshape Charleston. Using 2120 as the target year, the Surging Seas website provides a variety of scenarios. If there is unchecked pollution, the Surging Seas map indicates that there will be seven feet of sea level rise by 2120. With extreme carbon cuts, there predictions indicate a two-foot rise by 2120. The best-case scenario, in other words, involves two feet of sea level rise in the next century (ibid).

Given the current political climate, this thesis will assume that no changes will be made to carbon-emissions, and Charleston will be facing seven feet of change in the next one hundred years. Figures 2.1-2.3 show maps from the Surging Seas website of the current coastline for the Charleston area, and maps showing comparisons of the coastline configuration with two and seven feet of sea level rise. Charleston County is the third most populous county in the state with just over 350,000 people at the 2010 census. While not the largest coastal county by area, Charleston County is long and linear, occupying approximately one third of the coastline of the state. Because of the population and the shape of the county, Charleston will be the county most



Figure 2.1: Charleston with current coastline



Figure 2.2: Charleston coastline with two feet of sea level rise

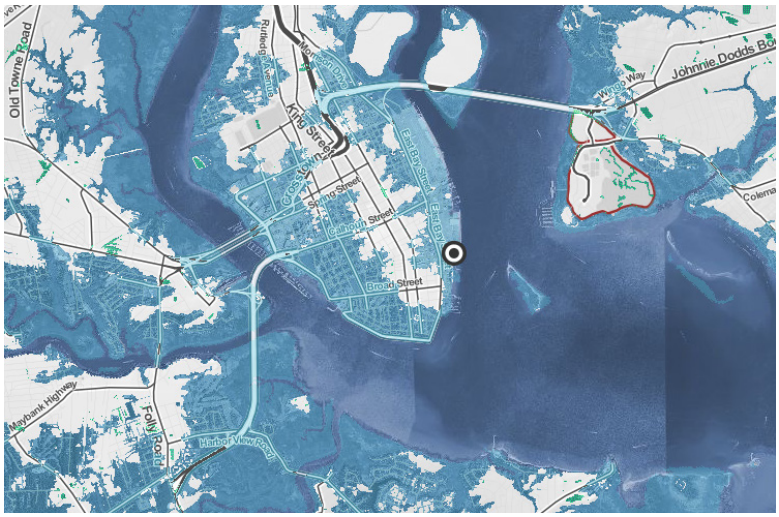


Figure 2.3: Charleston coastline with seven feet of sea level rise

affected by sea level rise in South Carolina. Table 2.1 shows how the seven-foot scenario would affect Charleston County.

Table 2.1: Impacts of Sea Level Rise on Charleston County

Impacts of Seven Feet of Sea Level Rise					
	Population Impacted	Land Lost	Land Value Affected	Homes Lost	Roads Lost
Charleston County	109,974 (31.4%)	250 sq. miles (27.3%)	Not available	58,604 (34.5%)	1,391 miles (28.1%)

Charleston's Reaction to Sea Level Rise

In the 1970s, Charleston experienced only two days of tidal flooding per year, but with sea level rise projections, that number could rise to 180 days by 2045 ("Sea Level Rise Strategy," 2015). In 2015, Charleston's then-mayor, Joseph P. Riley, released a Sea Level Rise Strategy Plan that outlined how Charleston would become more resilient to sea-level rise. The city defines resilience as "the capacity of a system to maintain its core purpose and integrity in the face of dramatically changed circumstances" (ibid, 8). The plan is divided into three main strategies: *Reinvest, Respond*, and *Ready*.

Reinvest: "The City is committed to investigation and adoption of best practices to direct investment in our community that changes the way we address sea level rise and recurrent flooding" (ibid, 9).

Respond: The city is "investing in people, processes and tools to improve our response to these tidal conditions, anticipating that as sea level rises, tidal flooding will become more frequent" (ibid, 11).

Ready: the City is working with a group called the Charleston Resilience Network to "foster a unified strategy and provide a forum to share information, educate stakeholders and enhance long-term planning decisions that result in the

implementation of effective hazard mitigation strategies and recovery efforts" (ibid, 12).

These strategies and the detailed goals for each are a good beginning. However, they do very little where it counts—what to do about the inevitable two foot sea level rise for which they are preparing. Other documents from the City of Charleston document how a 2.5 foot rise will change Charleston's footprint. It compares the location of critical infrastructure in relation to these new boundaries, and the potential road closures due to flooding. The plans for *how* to deal with these potential scenarios, however, have not yet materialized.

The "Sea Level Rise Strategy" page of the city's website says the following: "Implementing the City of Charleston's adopted Sea Level Rise Strategy is a work in progress. Of the 76 items recommended, many are underway to some degree" (City of Charleston). The city is making an effort, but slow progress raises a few questions. Are citizens worried? Are citizens putting pressure on local officials to come up with solutions? The water is rising, whether there is a plan to deal with it or not. If citizens understood exactly what was at stake in their daily routines, it is hard to imagine they would do nothing and assume that the city will handle everything in due time.

The *Post and Courier*, the local daily newspaper for Charleston can be used to gauge how relevant the issue of sea level rise is to the Charleston community. Articles pertaining to sea level rise, king tides, and flooding are becoming more frequent, however the front page from Monday, January 1, 2018 is an example of just how important sea level rise appears to be (see Figures 2.4-2.5). The front page, above the fold story for the day was concerned with storm surge flooding and new plans for the city's sea wall. However, this was not what people saw first. Instead, a cover wrap focused attention on the world of sports; Clemson University and the University of Alabama were playing that evening in the Sugar Bowl.

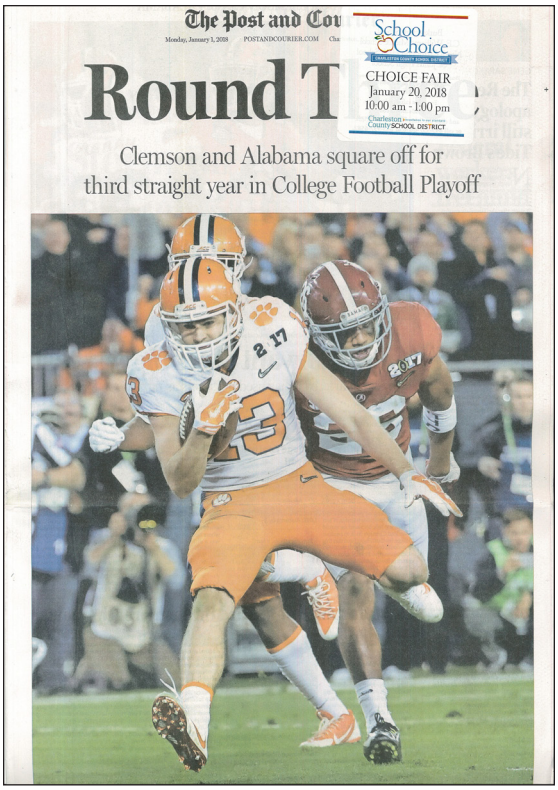


Figure 2.4: Post and Courier cover-wrap, January 1, 2018



Figure 2.5: Post and Courier front page, inside the cover wrap, January 1, 2018

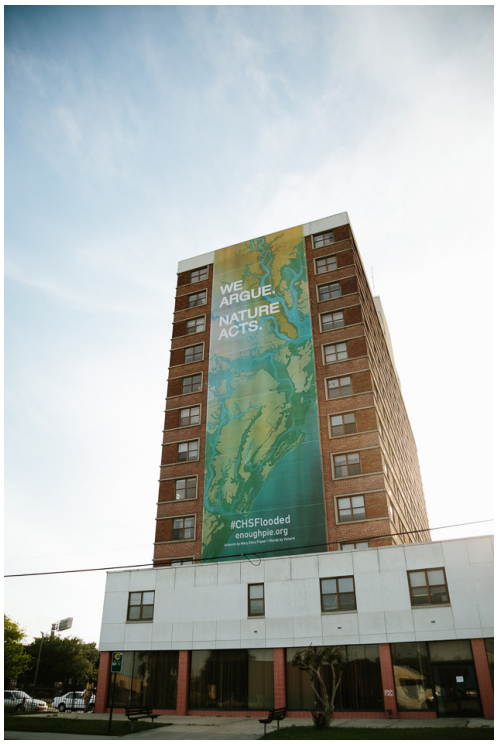


Figure 2.6: Mary Edna Fraser's banner installation for Awakening V: King Tide.

Artists in Charleston

The arts community in Charleston appears to be focusing on the issue of sea level rise and climate change more than local, state or federal government. Enough Pie is a non-profit organization that "helps awaken and connect the stakeholders of the Upper Peninsula of Charleston to shape the development of our community using artistic collaborations, dynamic partnerships, creative placemaking, and civic engagement as tools" (2016a). *Awakening* is an annual arts event held by Enough Pie that features public art throughout Charleston, and hopes to "shine a light on resources, places, people, and issues that deeply affect our community" (2016b). 2017's edition—*Awakening V: King Tide*—featured public art across the peninsula linked with a series of lectures and community events showcasing artists, scientists, and historians.

In affiliation with the event, Enough Pie conducted a survey to understand the community's awareness of flooding (Fly et al, 40). When asked "How informed were you about Charleston floods before this event [Awakening V]?" 45% of respondents answered "Informed" or "Very Informed." In contrast, when asked "How prepared is your household to deal with a flood?" only 19% of respondents answered with "Prepared" or "Very Prepared." This alarming difference in knowledge versus action shows why more action is desperately needed in Charleston to bring this topic to the forefront of conversations – both socially and politically.

One of the largest pieces of public art during *Awakening V* was a 100 foot banner of the coastline created by batik artist Mary Edna Fraser. The banner, shown in Figure 2.6, depicts the new coastline of Charleston with a four-foot rise in sea levels. Text on the banner read "We Argue. Nature Acts." The banner was located on the side of the Joseph Floyd Manor, a low-income retirement community that sits next to I-26 on the north end of the peninsula. During the time that the banner was displayed, Enough Pie estimates that the banner was seen 500,000 times based on data from the Department of Transportation of nearby streets (*City of Charleston Resilience,* 2017). But it is difficult to determine if the banner compelled any action.

In a conversation with Mary Edna Fraser, the author asked her whether she felt that the banner and the other exhibits in *Awakening V* were impactful. Her response was that yes, the art got people talking about flooding, king tides, and sea level rise (Fraser, 2018). When asked whether she thought enough meaningful action was taking place in Charleston, however, her answer was a resounding "No!" Why is it that while the citizens of the city are taking note, there seems to be a gap between knowledge and action? She believes the local government is not reacting fast enough (ibid). Sea level rise is a complex issue that cannot be tackled easily. Fraser feels that the complexity and enormity of the problem prevents meaningful action from taking place (ibid). She was quick to point out that planning has been insufficient to prevent development in flood-prone areas, and historic problems such as insufficient drainage still plague the city (ibid). She is hopeful, however, that Charleston can be a leader in tackling this problem. She feels that with the proper leadership, a city of its size can make progress (ibid). However, time is running out.

In addition to Mary Edna Fraser's work, *Awakening V* featured six other public art exhibits across the peninsula, including a gallery exhibit by John Duckworth at Redux Contemporary Art Center, a case study in Chapter Five. Other art galleries and artists in Charleston are addressing environmental issues including climate change, sea level rise, coastal development, and ocean health. According to Fraser, the arts community in Charleston is determined to keep these issues in the public eye so that the government will hear the call and take progressive steps to deal with the issue.

Next Steps

Sea level rise is the biggest threat to Charleston, and Charleston will be the county most affected by sea level rise in the state. The community is already aware of the problem, but the city has not yet taken concrete steps to prepare for sea level rise. The arts community is already actively addressing climate change and in fact engaging public pedagogy in their efforts to do so. Because of this, Charleston is a prime location to further explore how environmental art can

address sea level rise. Mary Edna Fraser's banner confronted thousands of people with sea level rise on a daily basis. What more can be done to make these seemingly far-off scenarios a daily reality to the citizens and government officials, in Charleston?

The next steps for this thesis are to gain an understanding of public pedagogy and environmental art. Through this study this thesis hopes to create guidelines for how environmental art should function, and provide examples of what public environmental art that addresses sea level rise could look like in Charleston.

CHAPTER THREE

PUBLIC PEDAGOGY

"The problem with divorcing what and how in education is that knowing about things is not the same as understanding them."
– Robert and Michele Root-Bernstein

Early research for this thesis began by trying to understand how people can learn through their interactions with art in a way that is different from learning by traditional methods. Dr. Christina Hanawalt, assistant professor in Art Education at the Lamar Dodd School of Art, suggested public pedagogy as an area of research that might be fruitful. It became a fundamental part of this thesis.

This chapter seeks to provide a foundation of public pedagogy scholarship. As the term public pedagogy has been used widely over the past two decades, this chapter will situate this thesis within the field. Through the literature review, this chapter should answer the question: what potential does the theory of public pedagogy bring to landscape architecture and environmental art?

Public Pedagogy

What is pedagogy? Merriam Webster defines pedagogy "the art, science, or profession of teaching; especially: education." What, then, is public pedagogy? Jennifer Sandlin, Michael O'Malley and Jake Burdick conducted a thorough review of public pedagogy literature (2011a). Their article, published in 2011, illuminates how the term *public pedagogy* has been used in scholarly work. The impetus for their research was "the widespread practice of authors citing the term without adequately explaining its meaning, its context, or its location within differing and contested articulations of the construct" (ibid, 339). All told, the authors included 420 scholarly works in their analysis. The article studied the frequency of use over time since the term *public*

pedagogy was first used in 1894. It then separated the literature into five conceptual categories. These categories were: 1) citizenship within and beyond schools, 5% 2) popular culture and everyday life, 35% 3) informal institutions and public spaces, 15% 4) dominant cultural discourses, 20% and 5) public intellectualism and social activism, 25%. Sandlin et al. further describe the third category as including "informal, yet *institutionalized* sites as spaces of learning, including museums, public monuments, public artworks, cemeteries, and public parks" (348). It is in the public, urban spaces that landscape architects have the opportunity to engage public pedagogy on topical issues such as sea level rise. As such, this thesis is founded upon the ideas and research that have come out of this category of public pedagogy.

Architecture and Experience

Elizabeth Ellsworth has published essays and books on the subject of pedagogy. Her book *Places of Learning: Media, Architecture, Pedagogy* (2005) is a seminal work that is cited in many articles on public pedagogy in spite of the fact that she never uses the exact phrase. Her ideas–that pedagogy happens outside of formal learning environments, that places can be pedagogical, and that experience is critical to learning–work in tandem with the ideas of public pedagogy. One of the most critical connections from Ellsworth's book for this thesis is her idea that space and the design of space can be inherently pedagogical. In her words, "Architecture becomes pedagogical, pedagogy becomes architectural when together they create a fluid, moving pivot place that puts inside and outside, self and other, personal and social into relation" (38).

Ellsworth understands the importance of the experience of a space. In her book she analyzes exhibits and spaces where "the pedagogical force is concentrated in an address to visitors as *bodies* whose *movements* and *sensations* are critical to their understanding of the exhibitions" (42). Ellsworth uses the U.S. Holocaust Memorial Museum as an example of architecture designed to function pedagogically. In her analysis, the placement of exhibits and artifacts, lighting and displays "recede into semidarkness," causing visitors to actively choose

what they want to learn more about. By compelling "viewers to expend deliberate physical, emotional and cognitive effort" to experience the exhibit, the space is "implicat[ing] viewers in sensations and movements that are analogous to the efforts required to remember traumatic histories and knowledges" (42).

Landscape architects are trained to consider user experience as highly as they would formal expression or ecology. The reality is that if a site is not well-suited to human use, it will be neglected, forgotten, or replaced. Each movement through a landscape is calculated, anticipated, and designed for. What if a person turns left here? What if they turn right? How will their experiences differ, how will they be the same? Landscape architects are constantly designing spaces to anticipate user experience. Thought goes into each aspect of the design, from the width of a path, to the surface of a stone, or the texture of a plant. Each choice is intended to instill something within the visitor, whether that is recognized by the visitor or not. This is the same process that has been applied in the design of the Holocaust Museum that Ellsworth describes.

Maya Lin, architect, artist, and environmentalist provides insights into the nature of her work in her book *Boundaries.* While she never uses the term pedagogy, she does recognize her "choice to create works that teach" (2000, 5:04). Her description of what she is trying to provoke in visitors is very similar to what Ellsworth describes occurring in the Holocaust Museum: "I seek to create an intimate dialogue with the viewer, to allow places of contemplation, sometimes an incorporation of history, always a reliance on time, memory, a passage or journey" (2:03) Both Lin and Ellsworth focus on choice and movement through a space as important elements in creating a learning environment.

As Lin goes on to describe how she attempts to teach through her work, it echoes an idea common to public pedagogy: that there is not a singular answer to be found in these works, the way there might be in a classroom setting. Ellsworth and others agree that public pedagogy is about facilitating a dialogue, it is about creating the opportunity for learning and discussion. Public pedagogy is not something to be spelled out. There is no "correct answer" in most of the

instances of public pedagogy that these authors investigate. Instead, the interventions, the performances, the spaces, and the artworks are intended to cause viewers to question. In Lin's words her works "do not force a set opinion or message forward but present facts that allow viewers to come to their own conclusions – creating meditative spaces that seem almost too subtle in their design, yet have a quiet teaching method or approach" (5:03). In Sandlin's words, "critical transformative learning…involves avoiding certainty and encouraging exploration" (2011b, 16). In many ways this is what separates the idea of public pedagogy from pedagogies that occur in formal educational settings.

Art as Critical Public Pedagogy

In addition to studying architecture as pedagogy, Ellsworth also looks to art as an important form of public pedagogy. Many other authors have addressed art as public pedagogy. The following examples of performance art may not, at face value, seem relevant to landscape architecture. Their value lies not in the performative aspect of these works, but in their expression of *critical* public pedagogy. In this context, these performances are being used to critique the existing norms of society and provoke thought and learning in the viewers. Functioning as critical public pedagogy, they are important to understanding public pedagogy, and the role that art can play in critical public pedagogy.

Patrick Slattery, in an article in Jennifer Sandlin's *Handbook of Public Pedagogy* (2010) speaks about the ways in which performance art, especially in a place in which it is unexpected, can be pedagogical. His article describes how he and a colleague "perform" during a lecture to their university class. The professors do not acknowledge that what they are doing is not normal, and the students, not realizing they are witnessing a performance, react in a variety of ways. The professors, both male, over the course of their lecture, move across the front of the classroom towards each other, then casually hold hands, and continue with the lecture as if this was normal. At the end of the lecture, they explain that this was intended to make students question themselves, the situation, and normative cultural values. Through this simple act, they have

perhaps taught students more than they have through lectures or reading assignments all year. Slattery puts it succinctly when he says that "the impact of the arts has a way of deconstructing sedimented preceptors" (33).

Another article examines the public art projects of two graduate students at New York University through the lens of critical public pedagogy (Desai and Darts, 2016). *This is not a Bus Stop*, by Nicole Shulman was an installation piece that called into question the decision to close a relatively busy bus line in an underserved community. Shulman posted notices that declared 'This Is No Longer A Bus Stop,' added images to the glass using adhesive clings, and left log books at the bus stops for people to leave comments. Shulman's work uses the element of surprise to capture people's attention and make them think critically about the privatization of public transportation. If this is not a bus stop, then what is it? Tara Finneran, on the other hand, takes a more interactive approach to her art. Focusing on the issue of surveillance, she created an 'Invisibility Suit' that resembled a pixilated person. Wearing this Invisibility Suit throughout New York, she "attract[ed] considerable attention from people walking by," and was able to spark "conversations about privacy, surveillance, power, technology and control with the general public" (186-187). Through these conversations and interactions, Finneran was able to educate the public on surveillance within the public sphere.

Both of these artists use critical public pedagogy to critique the public sphere. These works are not just educational, but innately political, a position similar to what Gert Biesta has described in his work (2012). In contrast to Ellsworth, who grounds her concepts in educational literature, Biesta argues that public pedagogy should exist at the "intersection of education and politics." His critique of Ellsworth is that if you turn "social and political problems into learning problems…they become the responsibility of individuals rather than…the collective" (693). He differentiates between what he sees as three different forms of public pedagogy in his article: a pedagogy *of* the public; a pedagogy *for* the public, and a pedagogy concerned with *publicness*.

In this third category, *publicness*, it is important for pedagogies to exist in the intersection of education and politics. He argues that most artistic interventions that are analyzed as public pedagogy "often do very little," however, the fact that they exist is still important. He uses the example of "permanent breakfast," which can be understood to be a performance, but is actually just people eating breakfast in public spaces. There is no "agenda" other than to meet and eat breakfast. "They are, however, breakfasts that are explicitly 'out of place' and this makes them potentially important both politically and educationally" (694). His point, similar to Desai and Darts (2016) among others, is that the mere act of making something public, when that is not the norm, is important in itself. The hope is that this intervention would spark thought and conversation about publicness, and the topic at hand, but the existence of the intervention is enough. While the work in this thesis is grounded mostly in Ellsworth's educational literature, the topic of sea level rise is certainly political. To understand Biesta's point, even if the work does not make changes from a political standpoint, the fact that the work exists as a critique at all is still important.

Zorilla and Tisdell chose to focus on the art of Luis Camnitzer in examining art as critical public pedagogy (2016). Their article uses interviews and writings from the artist to understand his creative process. Similar to Maya Lin, Luis Camnitzer is not using the term public pedagogy, yet he describes his work as educational. Similar to Ellsworth's idea that public pedagogy should invite questions, Camnitzer states that "Art is a dialogical process, and the work is only fully completed as a result of that dialogue" (quoted on 274). Ellsworth describes the pedagogy happening in "transitional spaces," and says that pedagogical works (art, architecture, design) "set the viewer, learner, or audience in motion across boundaries between inside and outside" (46). The inside/outside or self/other dynamic is crucial to the process of learning something new. She believes that people cannot learn something new if they do not cross those "boundaries" to see something in a new way. Pedagogy "create[s] the potential to disrupt and refigure both inside and outside – both self and society" (38). Zorilla and Tisdell describe Camnitzer's work similarly:

"Camnitzer attempts to create "dialogue" by creating space for critical thinking and "distortions" in the mind of the viewer" (275). In his own words, Camnitzer uses his art to allow people to contend with things "unthinkable and inaccessible with the use of non-artistic tools" (282). This is an important concept, particularly for imagining things that have not yet occurred. Sea level rise is something that is occurring at such an incremental rate that it is difficult to perceive, and is in some ways "unthinkable and inaccessible."

Public Pedagogy and Landscape Architecture

Just as architects have the power to manipulate space to create sites of public pedagogy, so too, do landscape architects. Though trained as an architect, Maya Lin's work is often more landscape oriented than building-oriented. As stated earlier, her work is clearly pedagogical in nature and experience, and is discussed in detail in Ellsworth's book (2005). The only other landscape architect whose work is discussed in her book is Lawrence Halprin, specifically his work on the Franklin Delano Roosevelt Memorial. However, instead of focusing on how the memorial functions pedagogically, she focuses on Halprin's *approach* to the design. In his own book, Halprin describes the elements of landscapes he wanted to create at the Roosevelt Memorial by describing landscapes that had affected him:

> "There was always something to interact with physically, emotionally, intellectually, or spiritually. These processional paths always offered variations in pace through their design, yet there was always a consistent sense of physical and emotional choreography. Visitors were drawn on through a sequence of experiences…some calm, some intense, and there was a pervasive sense of drama. At the end of such experiences, I felt that in a profound way I emerged deeply changed. I felt that I had come through a focused slice of life that affected me intensely and emotionally" (87).

For Ellsworth, "an experience felt [is] crucial to an understanding" (21). Many of the examples Ellsworth uses to describe architecture and landscape as pedagogical are memorial landscapes. Perhaps this is because memorials have a story to share, while other landscapes and public spaces seem to be more neutral—they are experiential, but do not always have a story to

tell. Art, too, can be perceived as neutral or provocative. This thesis, however, hopes to extend the idea of landscape as public pedagogy to these "neutral" public spaces. By understanding how spaces can be pedagogical, this thesis intends to bring that knowledge into the creation of environmental art for public landscapes.

Environmental Art as Public Pedagogy

This literature review has helped to ground this thesis in the important ideas of public pedagogy. Public pedagogy provides an understanding of how space itself can be pedagogical. Drawing from Ellsworth's work, the environment can be designed such that the movement through the space is pedagogical; visitors learn things on their journey through the space, because the experience itself presents a new way of looking at the world. Furthermore, design interventions can alter the level of intensity and thus the impact of the work. In doing so, landscape architects can begin to use public pedagogy both to critique current designs, as well as to guide future ones.

Gert Biesta's three pedagogies are also important concepts that help to provide an understanding for the environmental art presented in Chapter Six. These works are intended to be pedagogy concerned with publicness. Artistic interventions, according to Biesta, are often ineffective at making any concrete steps towards change. But making the issue public, bringing it literally into the public sphere, is important in and of itself. There may not be any further action than making sea level rise a *public* discussion. The desire to do more than that is present, however, at the very least this is an acceptable outcome for the designs presented later in this thesis.

The literature review in this chapter has guided the selection of several questions that can be used to evaluate whether a site or artwork functions as public pedagogy. These questions are not necessarily conclusive of everything that public pedagogy has to offer, but they have been selected from the public pedagogy literature. These questions, presented in bulleted form below, will be used later in this thesis to evaluate new design applications created for this thesis. They

are questions that helped the author begin to evaluate public art as public pedagogy. These questions should be seen as guidelines, not strict rules that cannot be expanded upon.

- Is movement through the space an important part of the design?
- Does the design evoke sensations that are critical to understanding?
- Do people expend deliberate effort to experience the art?
- Is there a journey or passage that takes place for the viewer?
- Does the viewer have a choice in how they experience the art?
- Does the design create an opportunity for dialogue?
- Does the design create an opportunity for learning?
- Does the design make people question “the norm”?
- Does the design make people see things in a new way?
- Does the design avoid certainty and encourage people to explore the topic on their own?

CHAPTER FOUR

ENVIRONMENTAL ART AND THE TOOLS OF ENGAGEMENT

"Art is a lie that makes us see the truth."
-Pablo Picasso

This chapter seeks to explore the history of environmental art, and develop a definition of environmental art for this thesis. A range of environmental art works will be surveyed to understand how artists engage people through their artwork. By studying these works, a series of tools of engagement artists use to engage and educate the public through their works are identified and defined.

Environmental Art

The term "Environmental Art" encompasses a wide variety of art. In the 1960s and 1970s, environmental art was intended to "immerse the viewer in the work and…engage the world outside the museum and the gallery" (Pacquement and Williams, 1996). Environmental art of the time experimented with different media, explored the auditory and tactile qualities of what was considered art, and began to disrupt the idea of the gallery as a blank slate, choosing to experiment with the space itself. This type of environmental art expanded the understanding of what was considered "art" and questioned the role of the gallery. Gradually, this came to be known as "Installation Art." With that shift, environmental art came to be "associated with artists who pursue environmental and conservationist agendas" (Ibid).

"Earth Art" is frequently associated with environmental art. Earth artists created their works in the natural environment, and intended for them to change with time, revealing natural processes at work. "During the 1960s earth artists such as Robert Smithson often addressed entropy and decomposition in ways that suggested a dynamic between natural processes and artistic composition, and their contemporaries often attempted to make these elements more

central to their work (Pacquement and Williams).” Earth Art, a type of environmental art, is focused on bringing natural processes into the art itself, and revealing parts of the natural environment that may be otherwise invisible.

Yet another term that overlaps environmental art is “Eco-Art.” In an interview on Vimeo, Stacy Levy, an artist from Pennsylvania, describes her work as eco-art. “Eco-art [tries] to do something about a particular problem that’s out of sight. Seeing if art can actually help solve that problem” (2013). Levy describes the difference between environmental art and eco-art as an issue of activism. Environmental art by artists like Andy Goldsworthy is more about appreciating the beauty and processes of nature, than it is about solving a problem. Eco-art, then, takes a more activist stance on the environment. Sea level rise appears to fit most closely with this definition of eco-art. Sea level rise is a problem that is out of sight at the moment, and this thesis seeks to reinforce that art can help to educate people about the issue, and bring awareness to it.

Given that the term “Environmental Art” can include such a wide variety of artworks, what should it mean for this thesis? Since sea level rise is the environmental process of concern, the artwork being studied here must be *educational*. Environmental Art in this thesis shall be defined as art that seeks to educate the audience on a specific environmental topic.

Learning Through Art

The research for this thesis began by investigating what it is about art that makes people feel things more fully, and understand things in a way different from the understanding that comes from non-artistic media. By learning how art was able to connect to people in new ways, this thesis hoped to then apply that knowledge to the creation of works on the subject of sea level rise.

As the research progressed, philosophy, psychology, and neuroscience came to the fore as the principal fields for understanding this art-body-mind connection. However, none of the theories studied, including those by Immanuel Kant, Carl Jung, David Hume, and Clive Bell

appeared to have a definitive answer (Chatterjee, 2014). The mystery of art still remained a mystery.

Table 4.1: Environmental Art

Art Work	**Artist**	**Location**	**Year**
7000 Oaks	Joseph Beuys	Kassel, Germany	1982-1996
Revival Field	Mel Chin	St. Paul, MN	1991-present
The New York Earth Room	Walter De Maria	New York, NY	1977
The Meadow	Herman De Vries	Eschenau, Germany	1986 -
Tree Mountain	Agnes Denes	Finland	1982
Wade in the Water	John Duckworth	Charleston, SC	2017
Elevated Wetland	Noel Harding	Toronto, Canada	1998
Word Strings	Virginia King	Noosa Reserve, Australia	2009
Reaching Out	Gickmai Kundun	Noosa Reserve, Australia	2009
Pink Level	Stacy Levy	Spring Mills, PA	2010
Ridge and Valley	Stacy Levy	State College, PA	2009
Folding the Chesapeake	Maya Lin	Washington, DC	2015
Systematic Landscapes	Maya Lin	Seattle, WA	2009
What is Missing?	Maya Lin		2009
Connect the Dots	Mary Miss	Boulder, CO	2007
High Waterline	Eve Mosher	New York, NY	2007
Effra Redevelopment Agency	Platform	London	1992
Sea Change	Aurora Robson	Charleston, SC	2017
Pool of Virgin Earth	Alan Sonfist	Lewiston, NY	1975
Flow City	Mierle Ukeles		1983-2001

Having exhausted these avenues, the research took a different turn. Rather than trying to understand the theories behind why people are affected by art, studying the art itself became a promising avenue. By analyzing how artists were making their works impactful, and understanding how they tried to engage audiences, the author hoped to find answers. This proved to be a more successful research strategy. By evaluating environmental art through the internet,

books, and articles, the idea that there were "tools of engagement" began to form. These were tactics artists used to make their work intriguing and memorable. Through analysis of many works of environmental art, these tools began to emerge. The four categories that surfaced in this particular survey and analysis were surprise, interaction, immersion, and revelation. Table 4.1 indicates all works analyzed for this survey.

Surprise

Surprise was the first *Tool of Engagement* that emerged. Research for this thesis originally began with eco-revelatory design. There was something lacking in the discipline of landscape architecture though, in the works displayed on the pages of *Landscape Journal's* Eco-Revelatory Design special issue, which is the most comprehensive work published on the subject. Perhaps it was the time difference – what seemed revolutionary in the 1990s, seemed perfectly commonplace 20 years later. But the author was not the only one to critique these works. An article by Robert France criticized many of the projects displayed in the journal, but found hope in a few (2000). Noel Harding's *Elevated Wetlands*, more art than landscape architecture, seemed to succeed where other designers fell short (ibid). The sculptural pieces of the *Elevated Wetlands* are situated along the polluted Don River north of Toronto, nestled between two busy highways (see Figure 4.1). As large, imposing sculptures, they stand out in the meadow-like setting, giving off "an enigmatic presence" (Bennett 2000, 72). In describing the *Elevated Wetlands*, the words "entranced," "intriguing," "enigmatic," "eye-catching," and "playful" are used. After studying more environmental art, it became clear that the common thread between many of the pieces was *surprise*. Art works that used *surprise* as a tool for engagement were surprising in form, scale, material, or placement, in a way that made them stand out from the rest of their surroundings to easily catch the attention of passers-by.

Upon further research, there proved to be scientific evidence to support the use of surprise to promote learning. Daniela Fenker, and other researchers published a scientific paper on how novelty promotes recall (Fenker et al. 2008) and in a *Scientific American* article, she

describes it thus: experiencing “a novel situation within a familiar context” means viewers “will more easily store this event in memory” (Fenker and Schutze 2008). The effects were shown not simply to be temporary effects, as participants in their study showed better long-term recall in addition to temporary recall. While this study focused on recall of words, Fenker suggests that “novelty seems to promote memory,” (Fenker and Shutze 2008).

Connect the Dots by Mary Miss is another art installation that uses *surprise* to capture the attention of the public (Figure 4.2). Located in Boulder, Colorado, this installation featured blue polka dots that the artist placed throughout the city. The dots represented the 100-year flood, and made visible to residents what was at risk with such a flood, in spite of the fact that a flood of that magnitude has not occurred in living memory. Eco-artist Stacy Levy also employs *surprise* as a tool in her installation titled *Pink Level* (Figure 4.3). In this piece, Levy wrapped bright pink surveyors tape around trees to highlight the projections of sea level rise in her area. Floating Land is biannual arts festival held in the Noosa Biosphere Reserve in Australia. In 2009, the theme was Rising Seas, and much of the art was focused on the implications and impacts resulting from sea level rise. Artist Virginia King successfully used *surprise* in her installation, *Word Strings* (Figure 4.4). This installation featured “phrases that suggest past and present loss, combined with references about environmental neglect, global warming, the plunder of the oceans, rising seas, endangered coral reefs and storm wreckage (King, 2009). These phrases hang from trees and float on the water, forcing visitors to contemplate the stark realities of these phrases on the beautiful natural environment that surrounds them.

Two things unite these artworks. First, each work uses something visually surprising to jar the viewer out of their “routine” enjoyment of the natural or built environment. Second, they all reveal an underlying truth. Once the surprise of seeing pink trees, or words floating in the lake has engaged the viewers, there is still more to this art. One wonders, “Why are the trees pink?” or stops to think about the implications of bleached coral reefs. In each case, there is some deeper meaning behind the visually arresting art.



Figure 4.1: *Elevated Wetlands* by Noel Harding in Toronto, Canada, 1998



Figure 4.2: *Connect the Dots* by Mary Miss in Boulder, Colorado, 2007



Figure 4.3: *Pink Level* by Stacy Levy, Pennsylvania, 2009



Figure 4.4: *Word Strings* by Virginia King, Noosa Reserve, 2009

Interaction

Through the survey of environmental art, one piece that stood out very quickly was Eve Mosher's *High Waterline* (Figure 4.5). It seemed to be one of the most interesting pieces of art that dealt with issues of flooding and sea-level rise, because of its ability to directly impact so many people in a very tangible way: through *interaction*. In this art performance, Eve Mosher drew the 10-foot elevation line around the island of Manhattan in chalk. On her journey, she interacted with ordinary people and was able to engage them in conversations about her art, and the vulnerability of the island to flooding.

In addition to Mosher's work, there were several other pieces which used *interaction* as the main tool of engagement. Stacy Levy's *Ridge and Valley* relief sculpture provides a unique opportunity for people to interact directly with their watershed (Figure 4.6). By carving a to-scale replica of the local watershed, Levy was able to create an interactive tool for the Arboretum at Penn State. The watershed forms a plaza that rainwater runs through, representing the watershed in miniature. In Levy's words the map provides "a way for people to find their watershed address," and in doing so, begin to see "the underpinnings of our world" (Levy 2009).

Platform is a unique environmental arts organization that has worked with artists on a number of different topics. In 1992, they focused on the River Effra in London with a project called *Effra Redevelopment Authority* (Figure 4.7). Conducted like a marketing campaign, the project brought media attention, hosted public meetings, and created a proposal to redevelop the piped and channelized River Effra. The project was one of several by Platform that brought attention to the fact that London sits in a tidal basin. As their website states, "Dreams become real when spoken" (Platform). The more attention the River Effra received, the less likely it was to be forgotten. When the interactive art was gone, the river remained, and the dream of turning it back into a real river stayed alive through the individuals who carried this dream forward. *7,000 Oaks* by Joseph Beuys is another example of interaction (Figure 4.8). Beginning in 1982, the artist planted 7,000 oak trees in the city of Kassel, Germany. Beuys believed that the project would

"raise ecological consciousness – raise it increasingly, in the course of years to come" (quoted in Kastner and Wallis 1999, 263). The project was a years-long endeavor that touched many peoples' lives through the tree-planting ceremonies, and through their daily interactions with the trees in the city.

Looking at these works, it was clear that *interaction* was another important public Tool of Engagement artists use. While some might call it "performance art," interaction is the term used for this thesis, because the key to engagement is less the performative aspect of the art, and more the fact that the artist interacts personally with the public. In other words, this is art that invites or requires the public to engage with the artist/expert/facilitator.

The Whitechapel Gallery in London, publishes a number of artist books and art catalogues, and has published a seminal series called the Documents of Contemporary Art. Each book focuses on a different topic of contemporary art from Boredom to Systems, Failure to Materiality. One volume focuses on Participation. The introduction, by Claire Bishop touches on a number of critically important ideas. When explaining the artists who were chosen to be in the volume, Bishop is quick to note that while these art works may be seen as "performance art," this is only superficial. The real reason they have been chosen was "their emphasis on collaboration, and the collective dimension of social experience" (10).

In situating the reader in the history of participation, Bishop explains that in the 1960s, "physical involvement [was] considered an essential precursor to social change" (11). That concept, however, and the idea of a "collective presence" has shifted over the years such that "as an artistic medium…participation is arguably no more intrinsically political or oppositional than any other" (12). She goes on to explain, however, that "one of the main impetuses behind participatory art has…been a restoration of the social bond through a collective elaboration of meaning" (12). This is reminiscent of Biesta's concern for *publicness*, and the idea that public pedagogies invite questions rather than suggest concrete answers. The key here, and the importance to environmental art, is that through interaction, artists and the public can create a



Figure 4.5: Eve Mosher distributing information about sea level rise to curious people while she creates the HighWaterLine.



Figure 4.6: A child plays with the water flowing through Stacy Levy's *Ridge and Valley* installation at the Arboretum at Penn State.



Figure 4.7: Storefront for the Effra Redevelopment Agency in London.



Figure 4.8: Joseph Beuys planting an oak tree for his project *7,000 Oaks*, Kassell, Germany.

public understanding, and begin to engage in conversations around the issue of sea level rise. The art itself may not give solutions or answers, but it can certainly pave the way for a public, open discussion of the issue.

Immersion

Through the survey, there were a number of works that seemed to be impactful in a different way from the others. These were mostly gallery exhibitions that enveloped visitors and allowed them to see the world in a new way. It wasn't necessarily revealing something hidden, but seeing or experiencing something in a new way.

For example, Maya Lin's Systematic Landscape exhibit allowed visitors to walk through scaled topographies of real landscapes. By presenting vast, but still scaled-down versions of landscapes and watersheds, Lin allowed people to immerse themselves in them and experience them in a new way. The real-life landscape is too big for most people to comprehend as a whole, but when it is scaled down to the size of a gallery room, it allows people to see it in its entirety, to walk through it, under it, between it. In this way they begin to see connections they may not have been able to comprehend before. Lin says of one of her installations: "I wanted to create a sense of place: not an object inserted into a space but a work that physically would become a part of the site" (2000). This feeling of being enveloped in something, rather than an outsider viewing an art object, became *immersion.*

Much of Maya Lin's work falls into the category of immersion, including her exhibit *Folding the Chesapeake* (Figure 4.9). In this exhibit for the Renwick Gallery, Lin used clear marbles to map the watershed of the Chesapeake, folding the tendrils of tributaries up the walls, enclosing visitors within the watershed. Her "What is Missing?" website is "a global memorial to the planet" (Lin 2009). Through this platform, Lin catalogues the extinctions of species and habitats. The website includes written memories from people around the globe, clips of birdsong, historic photographs of now extinct species, information on conservation efforts currently underway, and timelines of events for specific ecosystems. Artist John Duckworth curated the

exhibit *Wade in the Water* in Charleston which focused on sea level rise (Figure 4.10). The show incorporated technology, photography, and auditory experiences to create a truly immersive experience for the visitor.

Works that fall into the *immersion* category tend to be gallery exhibits or integrate technology with the art. Visitors experience the art as if they were a part of it, as if that boundary between them and the art disappears. They *experience* the art rather than *view* it. Rather like going into a movie theater, when the lights dim and your surroundings suddenly drop away, and you become immersed in the experience.

Revelation

Revelation in many ways is a term that comes more from the landscape art side of environmental art. It is a technique that landscape architects have successfully used, and eco-revelatory design sought to expand. Revelation, quite simply, is the act of revealing. This can mean revealing a natural process, a hidden consequence, or highlighting an object often unseen or unnoticed in the natural environment.

While many of eco-revelatory designs, including land reclamation and stormwater management, might succeed in actually revealing a hidden process, they do not necessarily do so in a manner that is easily understood. In contrast, artists such as Mierle Ukeles have succeeded using *revelation* as a tool. Mierle Ukeles is the artist-in-residence for the New York City Department of Sanitation. In her position, she has staged many pieces of performance art seeking to reveal to the city the hidden or forgotten importance of maintenance. She has also been heavily involved in turning the Freshkills Landfill, one of the largest in the world, into the Fresh Kills Park now that it has been closed.

Ukeles's *Flow City* was a design that was intended to reveal the process of waste management to the public (Figure 4.11). The location was the Sanitation Department's Marine Transfer Station, where waste was processed before being sent to the Fresh Kills Landfill. By inviting the public into her designed space, she was allowing them to see a process that was



Figure 4.9: “Folding the Chesapeake” exhibit by Maya Lin, made of marbles for the Renwick Gallery, Washington, DC, 2015



Figure 4.10: Diptych from “Wade in the Water” by John Duckworth, 2017, Charleston, SC



Figure 4.11: Artist’s sketch of the *Glass Bridge* in *Flow City*, 1983-2001

usually hidden. Through this revelation, she hoped to bring attention to the fact that each and every one of us is implicated in the problem of waste management. Her work not only reveals, but "generates a kind of grassroots activism that is directed towards involving community members in representing and constructing meaning for environmental issues that are generally invisible" (Kastner and Wallis 1998, 39).

The Tools Together

In trying to understand how the tools of engagement were related to one another, the author produced several iterations of tables and diagrams. Going into this mapping process, it was clear that there was overlap between some of the tools of engagement. Most of the environmental art that was analyzed did not use one tool exclusively. Initially, the author listed the primary and secondary tools of engagement for each piece of art that was considered. Listing a tertiary method was considered, but decided against. The reasoning behind this decision was that this exploration was intended to show how artists were trying to "hook" people with their art. What are the first things that make people stop and notice the art? It was only after mapping the art in a more visual way that it became clear how each of these tools interacted. The diagram shown in Figure 4.12 shows the relationship between the different tools of engagement.

The results are somewhat surprising, as more overlap between each of the different tools was expected. After analysis, instead of having four separate tools of engagement, this thesis has discovered one critical tool: *revelation*. The remaining three are used often as the initial tool to capture the audience. Once their attention is focused on the art, *revelation* is used to elucidate the environmental issue at hand. *Revelation*, in other words, was the underlying commonality between most of these works of environmental art. Revelation might be an important component of the art, but it is not usually the *primary method* for engaging an audience. Revealing something hidden is quite often necessary to understand an environmental issue. If the issues were easy to see and understand, then they might be more easily fixed. But revelation alone can be difficult to attract and keep a visitor's attention. Each of the other methods are used as the primary tool for

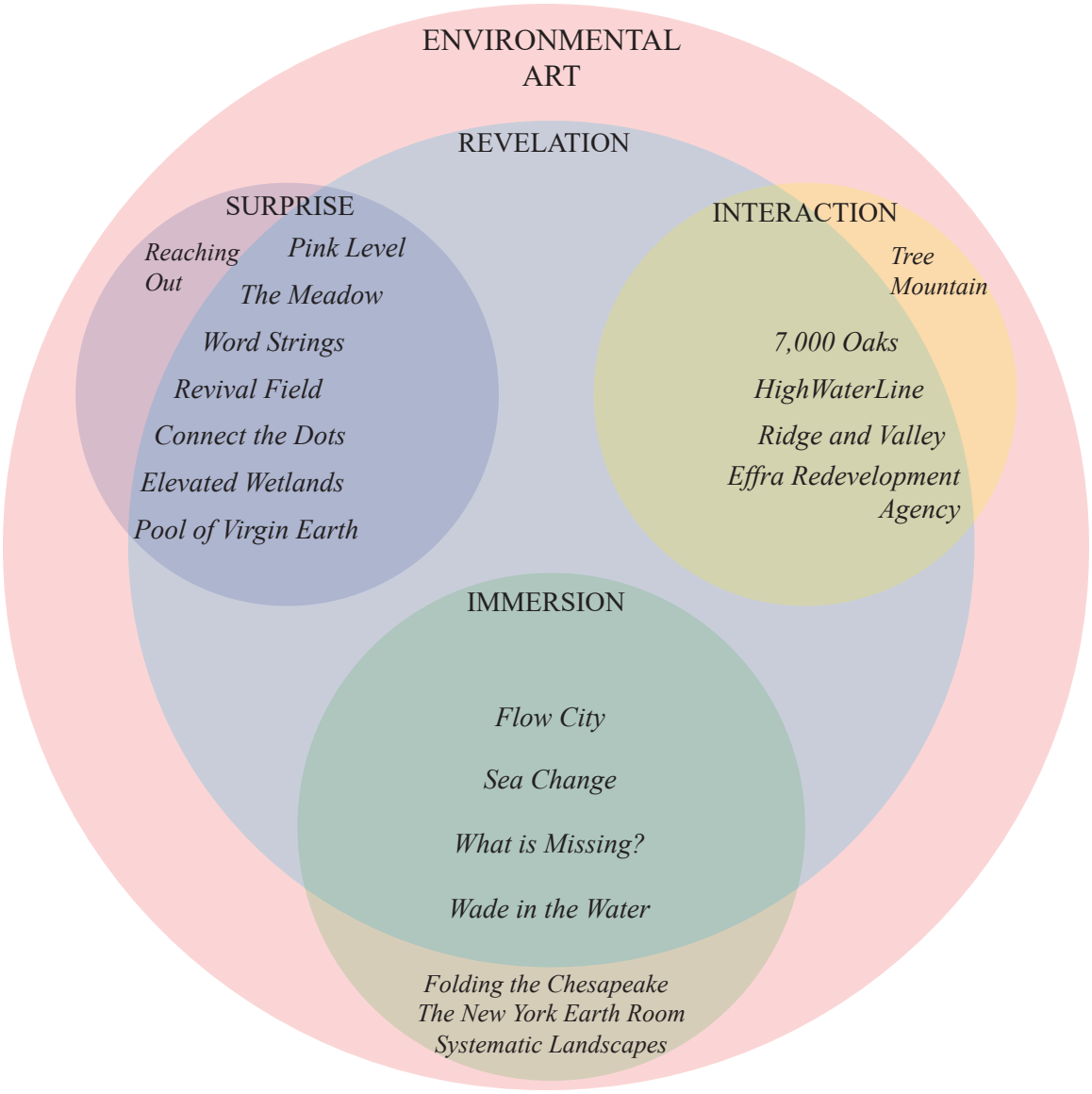


Figure 4.12: Euler diagram showing the relationships between the tools of engagement in environmental art

engagement, and only after visitors are drawn to the art, do they begin to understand what is being revealed.

Conclusion

This chapter identified several tools of engagement that environmental artists use to capture their audience—surprise, interaction, immersion, and revelation. Through this analysis, *revelation* was shown to be an important piece in the majority of the art works in this thesis. As such, the argument that revelation was one of the tools of engagement was under question. Using the diagram shown in Figure 4.12, revelation becomes the underpinning for the rest of the tools of engagement. It is often not the primary method for engaging the public, but it is present in almost all of the works studied. Thus, revelation becomes a *teaching* tool rather than a tool of *engagement.* This is especially true for the subject of sea level rise, in which the *potential* of the flooding is something that must be revealed for the public to understand the implications.

The tools of engagement and their relationship to one another is important to understand so that they can inform future environmental art. Through a deeper understanding of the tools of engagement, a framework can be created. This framework can then be utilized to guide the creation of environmental art, and to analyze the efficacy of these concepts. The following chapter will use case studies to more closely examine tools of engagement in order to create a more rigorous framework for each of the tools of engagement.

CHAPTER FIVE

SURPRISE, INTERACTION AND IMMERSION: CASE STUDIES

Introduction

This chapter is intended to bring a deeper understanding of each of the potential tools of engagement discussed in the previous chapter. Taking one example from each of the categories – surprise, interaction, and immersion, and revelation – this chapter will analyze each of the methods in depth. This analysis will help to illuminate how the art engages the audience, how the work educates, and to explore if there are any additional tools used to engage the public. The knowledge gleaned through these descriptive case studies will then be used to guide the designs in the following chapter. The case studies used in this chapter are *Flow City* by Mierle Ukeles, *Elevated Wetlands* by Noel Harding, *High Waterline* by Eve Mosher, and *Wade in the Water* by John Duckworth.

Revelation

As mentioned in the previous chapter, revelation was initially one of the tools of engagement. However, through the process of analysis and creating the diagram of environmental art (Figure 4.13), it became clear that revelation was less a tool of *engagement*, and more a tool for *teaching*. Most of the art that originally fell under "revelation" proved not to fit the definition of environmental art that this thesis uses. The only remaining work was Mierle Ukeles's *Flow City*. Originally, this was classified only under *revelation*, and therefore it was to be used as the case study for this tool of engagement.

Upon further consideration, it is both revelation and immersion. It was not first considered immersion because it was so different from the other pieces in the immersion category. Instead of creating an immersive environment for viewers the way that John Duckworth

or Maya Lin did, Ukeles simply invited the public to experience a place that is usually off limits. She did not *create* the environment, she merely created the means to experience it. Regardless of its shifting categorization in this thesis, the art work itself is exceptional, and should be studied more depth. As such, it will remain as a case study in this chapter.

Case Study 1: *Flow City* by Mierle Laderman Ukeles

Mierle Laderman Ukeles, an artist residing in New York City, has been working as the artist in residence for New York City's Department of Sanitation since the 1970s—an unpaid position. After having a child, Ukeles struggled to reconcile what she felt were two completely separate parts of herself: the mother, and the artist. In 1969, she wrote the *Manifesto for Maintenance Art*, in which she declared her maintenance work to be art. This extended beyond the household, and included many performances and exhibits before she became the official artist in residence for the Department of Sanitation. Through her work there, she has tried to bring attention to the ever-growing problem of waste management, and to make people understand the consequences of our disposable culture.

The Fresh Kills Landfill was closed in 2000, but was at one time the largest landfill in the world. In fact, it was not only the largest landfill, but one of the largest man-made structures in the world (McShane 2001). During the 1980s when Ukeles was creating the idea for *Flow City*, her work was motivated by these negative connotations. The fact that we can today think of Fresh Kills Park as an exciting possibility and venture for the field of landscape architecture, is no doubt in some way related to Ukeles' tireless work. *Flow City*, conceived of in 1983, was "the first ever permanent public-art environment planned as an organic part of an operating waste-management facility" (Ukeles, 1992, 13). In conjunction with a renovation of the Fifty-ninth Street Marine Transfer Station, Ukeles was able to successfully propose a public-access space that invited viewers to see waste management in action. See Figures 5.1-5.4 for images.

This is the ultimate act of revelation: revealing not just a product, but a process. As Megan McShane says in her analysis, "[Ukeles] calls our attention to the vast amounts of waste



Figure 5.1: Ukeles at the 59th Street Marine Transfer Station, New York City.



Figure 5.2: Rendering of the *Media Flow Wall*.



Figure 5.3: Rendering of the *Glass Bridge* and *Media Flow Wall.*

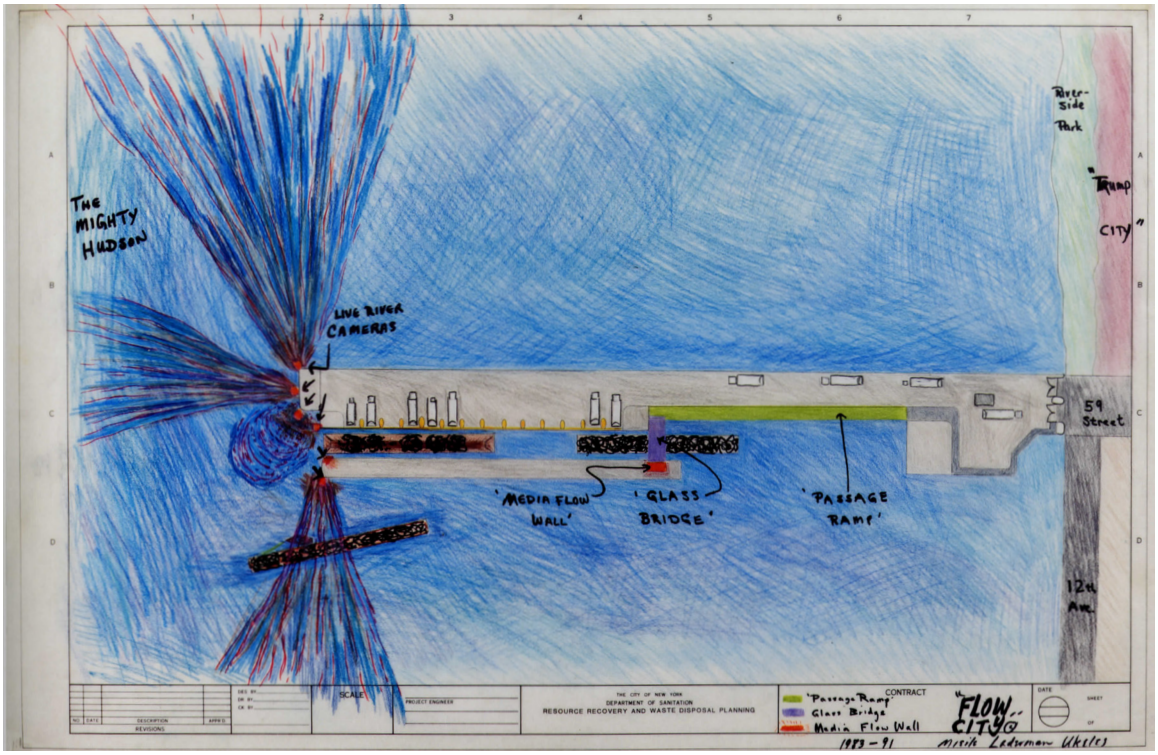


Figure 5.4: Ukeles' conceptual "construction document" for *Flow City*.

proliferating by the tens of thousands of tons per day at Fresh Kills, a sad, eventual repository for the depleted resources of the Earth. And perhaps, most subtly, she calls our attention to the casual indifference with which we, as those who create the waste, are prone to see the garbage dilemma" (352). For Ukeles, this revelation is very important. By allowing people to "watch all of the things they worked so hard to buy go to waste" she hopes to inspire change in the people responsible for this vast stream of waste: us (Kastner and Wallis 1998, 263). The Marine Transfer Station is an important choice for the location, not only because the renovations allowed for Ukeles to design the public-access space, but because of the sheer volume of waste being processed there. Located in midtown Manhattan on the banks of the Hudson River, it is the "site of the transfer from truck to barge of three thousand tons of New York waste every day" (Ukeles, 1992, 13).

The public-access area of the Marine Transfer Station is broken into three areas: the *Passage Ramp*, the *Glass Bridge*, and the *Media Flow Wall*. The sequence is designed to immerse the public in the process of waste treatment. The *Passage Ramp* is a tunnel 248 feet long created from recycled materials. "The rich surface, reminiscent of an Abstract Expressionist painting, is baroque in its color, texture, and complex layering. Shimmering metal from the can scraps, combined with colored ribbons of plastic, tire shreds, and soda bottles, envelop the space with an artificial arrangement of artificial materials" (McShane 2000, 354). Here, Ukeles is transforming trash into treasure. From the heap that most would call trash, Ukeles is able to examine the "extreme diversity in different materials" and create something beautiful. Ukeles wants visitors to feel the same way as she does, and create a connection between people and the materials of the *Passage Ramp*.

The next section of *Flow City* is the *Glass Bridge*. Located at the top of the ramp, the *Glass Bridge* allows visitors to see the city, the river, and the garbage being dumped from truck to barge. "As the barges are loaded, the visitors will see them passing beneath their very feet, under the *Glass Bridge*. They will be able to watch all of the things they worked so hard to buy go to

waste. I call it the 'Violent Theatre of Dumping'" (quoted in Kastner and Wallis 1998, 263). It is here, in the *Glass Bridge*, that people see the "extreme diversity" of materials being dumped onto barges. After showing visitors the beauty that could be in the *Passage Ramp*, the *Glass Bridge* shows the sad reality.

After crossing the 40-foot bridge, visitors come to the *Media Flow Wall*, "a 10 x 18 foot crushed glass wall with twenty-four monitors set into it" (ibid, 263). These monitors play a mixture of pre-recorded information, as well as live footage of the Fresh Kills landfill, and the Hudson River. This visual montage is intended to "enable visitors to pass 'through' this physical point in order to get a broader understanding how this kind of place links up with the systems of the planet" (Kastner and Wallis 1998, 263).

Ukeles successfully reveals the process of waste management, and calls attention to the fact that each individual person is responsible for contributing to the problem. Each area of *Flow City* is designed to reveal something different about the process: the ramp reveals an alternative use for the materials being trashed; the bridge reveals the vast quantity of waste being produced; the wall reveals the connections between the waste and the landscape.

Ukeles used revelation successfully to uncover the connections between an ecological problem, and the people causing it through her work at *Flow City*. But is this possible with climate change? Climate change and sea level rise are both processes in which it is difficult to see a direct connection between cause and effect. In addition to revelation, Ukeles' *Flow City* immerses the visitor in the vast quantities of New York City's waste. By allowing people to be literally surrounded by it, she creates the Fresh Kills Landfill in miniature – a place most people could not (and likely would not) access independently.

Surprise

As a tool of engagement for environmental art, surprise uses an unexpected element in the art to catch the attention of passersby. This can mean that something is surprising in form, scale, color, material, or placement, among many other possibilities. The art works evaluated in

the survey in the previous chapter included many different examples of what these surprising elements could look like: pink-wrapped trees in the forest, big blue dots around a city, a blooming, fertile patch of land in the middle of a desolate landscape. All of these had something in common: something was out of place in the most startling way that made people curious. Curiosity is what draws people in to investigate further. In most cases, these artworks tended to use revelation as a teaching tool. Surprise was the key to curiosity and engagement, but once people were hooked, they were introduced to something deeper through the process of revelation. Noel Harding's *Elevated Wetlands* are a prime example of surprise as a tool of engagement. It will be studied here in detail to gain a deeper understanding.

Case Study 2: *Elevated Wetland* by Noel Harding

The *Elevated Wetlands* are located in Toronto along the Don Valley Parkway, a major thoroughfare connecting downtown Toronto to the suburbs. Standing tall on either side of the six-lane highway are Noel Harding's intriguing creations. As commuters drive past throughout the day they are "treated to an eye-catching display – vivid white shapes that, in the right season, overflow with abundant greenery" (Bennett, 72). What are these strange shapes? "A lot of people think they look like diapers. Some say elephants, or molars" says Harding (Land Lab) (See Figures 5.5-5.8). To fully understand what they are, drivers must pull off the freeway into the linear park that runs alongside it, and do a little bit of exploring.

In collaboration with the Canadian Plastics Industry Association, Harding began his work without intending to create what he ended up with. What he did know was this: the site for the installation would be along the Lower Don River Trail; the project was intended to "change people's perspectives about plastics;" and he wanted to "raise a silhouette of nature against the urban landscape" (Bennett, 75). From an artistic perspective, "Harding doesn't set out to teach or inform or even to reveal. His utmost concern is with form and the ideas they embody" (87).

His inspiration was a simple drawing of a soil section. His curiosity was peaked, and Harding began to study how plants are capable of bio-remediation, and the important role



Figure 5.5: *Elevated Wetlands* by Noel Harding, east side of the Don Valley Pkwy, Toronto.



Figure 5.6: Elevated Wetlands by Noel Harding, west side of the Don Valley Pkwy, Toronto



Figure 5.7: *Elevated Wetlands* by Noel Harding, east side of the Don Valley Pkwy, Toronto.



Figure 5.8: Section view of *Elevated Wetlands* by Noel Harding showing plant selection, and connection between sculptures

wetlands can play in the remediation of a river like the Don. The Don is an urban river that drains into Lake Ontario, and has a long history of pollution from industry, agriculture, and urbanization. Bennett describes the work of the artist succinctly: "Through…attentive study, the artist transforms what is mundane and common into something unique and beautiful" (87). In this case, Harding studied the process of water filtration in wetlands, and transformed it into the *Elevated Wetlands*.

Knowing that the "silhouette of nature" that he would highlight was wetland water filtration, Harding began extensive research, development and testing. From the unshaped clay of his idea, Harding sculpted the visually arresting forms that make up *Elevated Wetlands*. It was only after he had created the forms that he realized the plastic would not be able to support the weight of soil for the wetlands. Thus began one round of collaboration. Harding wanted to use a plastic soil medium in the sculptures that would reduce the weight and allow the plants to grow hydroponically. He worked closely with ecologists to test that the plastic soil would work well for the plants, especially under the extreme conditions of Toronto's winter.

Meanwhile, Harding worked closely with landscape architect Neil Hadley to select the correct species of plants for the sculptures. They also collaborated on the siting of the sculptures, and the wetlands that would receive the water after cycling through the sculptures. Together, they decided that each of the sculptures should represent a different wetland zone: from alpine, to woodland, to lowland forest (see Figure 5.8). In addition to the plants representing the wetland zones, by necessity, each of the containers includes plants known for removing pollutants specific to the Don River. After much collaboration and testing, the *Elevated Wetlands* were installed. To the commuters on the Don Valley Parkway, the "molars" stand proudly against the sky sporting their floral crowns. What they reveal to the close observer is a way to help clean the Don River.

Powered by solar panels, the "molars" take water from the river and let it flow through the wetlands sitting atop each of the sculptures. As the water flows through each container, it is filtered by the plants. After the containers, the water enters a constructed wetland before finally

returning to the Don River free of pollutants (France 2000). These man-made creations mimic the natural process of filtration that wetlands perform for watersheds. By dismantling this process – literally removing the process from the earth and elevating it for all to see – Harding successfully reveals filtration.

Harding was able to achieve what many eco-revelatory designs failed to do: he captured people's attention. Through the surprising form, color, and size of his sculptures, Harding was able to create an interesting piece of public art. Only after this initial hook do Harding's pieces begin to reveal to the audience the functions of wetlands. France, in his article criticizing eco-revelatory design, says of *Elevated Wetlands:* "This design is what a successful natural history/revelatory design project can be: primarily a work of art" (39). Dawn Danby, a friend and colleague of Harding said of him: "He thought theatrically about how to get the public engaged with things and to get them experiencing art embedded in public spaces…He was always thinking about the experience, always creating a kind of lyrical expression" (Micaleff 2016). With *Elevated Wetlands* he was able to accomplish all of these tasks.

Interaction

Interaction as a tool of engagement means that through the creation of the artwork, there is a human connection that takes place and allows for conversations about the specific environmental issue. Most of these pieces could be called performance art because there is often a performative aspect to them. There were also pieces, for example, *7000 Oaks* by Joseph Beuys that were more concerned with community involvement than the act of creation. In fact, if *7,000 Oaks* had been carried out by the city, it would not likely be considered art, but rather the city fulfilling a civic duty. The act of inviting the public to interact with the artist was the key to this art. Eve Mosher's *HighWaterLine* is a great example of interaction. As such, it is an appropriate choice for this case study. However, it is especially relevant for this thesis because it deals with climate change and sea level rise.

Case Study 3: *HighWaterLine* by Eve Mosher

In 2006, Eve Mosher was motivated to do something about climate change. She felt that there was not enough action being taken to ensure that the public understood the possibilities of what climate scientists were saying (HighWaterLine). Mosher, who was primarily a studio artist at the time, decided to use her art to show people how climate change would affect the city of New York. Though an artist, Mosher has a background in architecture, which she feels contributes to her work in the public sphere. "I try to think creatively about the use of space, both public and private, and how that space might be used to connect people, places and things. My training taught me to look at what is there and what is in between (the void), and how each of those types of spaces can be used to influence movement, emotions and actions" (Mosher 2011).

Mosher's performance piece, *HighWaterLine* was created over several days first in Brooklyn, and then in Lower Manhattan. During this time, she drew the 10 foot elevation around neighborhoods, covering almost 70 miles in chalk, using a cart used to mark lines on baseball fields (see Figures 5.9 and 5.10). By walking the streets throughout Brooklyn and Manhattan, Mosher was able to interact with a diverse group of people. As she drew the line through parks and neighborhoods, curious people asked what she was doing, providing the opportunity for dialogue. In an interview about *HighWaterLine*, Deborah Balk of the City University of New York says that the performance of the piece in the public realm is crucial to the success of the project. "The artist comes to the individual as opposed to the individual going to the artist. It removes the selection bias of getting people interested in the subject go to it. She becomes available to everyone" ("HighWaterLine" 2011).

In parks throughout her route, Mosher chose to make a slightly more permanent line than the chalk. She created "illumination beacons" to mark the 10-foot elevation. These were made of clear plastic tubing that give off a blue glow at night. The act of installing these beacons piqued the curiosity of park-goes (see Figure 5.11). In the process of installing the illumination beacons, Mosher created more opportunities for interaction and conversation. After the installation, they



Figure 5.9: Eve Mosher draws the 10-foot elevation around Brooklyn and Manhattan in chalk.



Figure 5.10: The chalk line splits a house in two.



Figure 5.11: Mosher installs an illumination beacon while children watch.

became interesting focal points for the park. In videos of the space, people can be seen taking photos of the glowing beacons, entranced by their glow.

One of the most important things that Mosher hopes to do through her interaction is to connect with people on an emotional level. She says that "the emotional connection is what will affect the greatest long-term impact" (Mosher 2011). As mentioned earlier, the emotion connection and the tangibility of evidence is something Bill McKibben felt climate change activists need desperately. For Mosher, allowing people to see how their home could be impacted (Figure 5.10) is one way to create that emotional connection. When asked 'Why New York?' Mosher responded: "Because I live here…I love the city…and I wouldn't want to lose one inch of it to climate change. And it's my home. I'd like to protect it" ("HighWaterLine" 2011). She hopes to instill this protectiveness in the broader public too.

In addition to interacting with the public on a personal level, Mosher emphasizes the importance of revealing this scientific information to everyone. Making science easy to understand, and non-confrontational is one of the goals of her work. She says, "It's not about *scaring* people, but informing them about this information. And giving them the tools to do something about it" ("HighWaterLine" 2011). When she talks to curious observers, she distributes pamphlets that provide information on sea level rise, and the actions that can be taken to prevent the worst-case scenario from becoming a reality.

As discussed earlier in the chapter, this piece of environmental art uses more than one method of engagement. The primary method is engagement, but secondarily there is revelation. The act of engaging the public without revealing the 10-foot elevation would be significantly less impactful. Ed Morris, director of the Canary Project, said of her work, "She is drawing a line that you can see. And therefore it helps people visualize climate change, localize it, that is it makes it felt as a real impact to people's lives, as opposed to some remote phenomenon" ("HighWaterLine" 2011). By creating a tangible manifestation of a contour on a map, people can easily see if their home, work, or school would be impacted by climate change (Figure 5.10).

Perhaps the best part of this project is that it is transferable. Mosher created a piece that was impactful in her community, and she encourages others to do the same. What started as a single piece of public performance art in New York has since been recreated in Miami, Philadelphia, Del Ray Beach in Florida, and Bristol, England. As she saw people wanting to create their own *HighWaterLine* in their cities, Mosher created a downloadable PDF called the "HighWaterLine Action Guide." This guide allows people to create their own version of the *HighWaterLine* project. Rather than simply copying her New York example completely, the guide encourages people to involve their local community in the planning process. Through this collaboration, the community can decide what the *HighWaterLine* should look like in their city. The PDF provides concrete steps that people can take to bring the project to fruition in their community.

Mosher's project has proven to be a wonderful example of the power of interaction. Videos of the installations show people engaging with this project, and show how information is shared through this method. It also shows the importance of revelation working in tandem with interaction. Used together in the right way, these two tools can be an extremely successful way for art to educate the public on the issue of sea level rise. Finally, the ability of this ephemeral project to be re-interpreted elsewhere is promising. Climate change and sea level rise will not only *affect* people the world over, but it will also require a concerted global effort to make a change. By creating something that is replicable, Mosher has given the climate activist community a powerful tool for engaging the public.

Immersion

The last in depth case study illuminates *immersion*. Through immersion, usually in a gallery setting, the artist creates an experience. Rather than art being an object to be observed from the outside, the visitor is surrounded by the art in such a way as to feel immersed in it. This type of work can engage multiple senses at the same time: sight, sound, smell, touch, taste,

vestibular, and proprioception. John Duckworth's *Wade in the Water* exhibit, which engages many senses in an immersive experience, will be studied in depth.

Case Study 4: *Wade in the Water* by John Duckworth

The Charleston-based nonprofit organization Enough Pie was mentioned earlier as an example of an organization promoting public art as a way to engage people on social issues. Their annual event, Awakening, was in its fifth iteration in 2017, when the focus was on king tides, and the threat of flooding to Charleston. There were public art installations, gallery exhibits, lectures, and artist talks throughout the city during the month-long event. John Duckworth, a local artist, created the exhibit *Wade in the Water* for this event. The exhibit featuring the work of several artists, was located at the Redux Gallery, and was free to the public.

For this exhibit Duckworth collaborated with photographers John Gaulden and Garrett Budds, singer Ann Caldwell and the Magnolia Singers, and many others including Austin Schulz, Quentin Baxter, Lee Barbour, Kevin Harrison, Nameless Numberhead, and community members. The space for the exhibit is enormous—an old roller skating rink—and visitors, sporting headphones, use an app on their iPhones which triggers different audio tracks as the visitors move through the space (Parker 2017). The app, created by Echoes, is incredibly finely tuned for accurate indoor locating. Different locations throughout the vast space have audio tracks attributed to them, and as visitors move through the gallery, the voices rise and fall, as if they were walking past ghostly versions of the people singing and speaking. The first thing that the visitors hear upon entering the space is "Wade in the Water" sung by gospel singers Ann Caldwell and the Magnolia Singers ("Digital Resources" 2017). Amazingly, the singers recorded in the space, so that visitors hear the entirety of the recording as they approach, but can also pass the spots where each person stood and hear the individuals as if they were weaving through the group of singers in real life.

Once visitors reach the center of the room, they pass through a curtain and see diptychs of photographs from Garrett Budds and John Gaulden. Gaulden's images are from flooded

Charleston, mostly taken when Hurricane Matthew hit in October 2016. Budds images are from a polar exploration, and show images of the Antarctic. Duckworth chose the images carefully so that there is visual similarity between the photographs. This careful juxtaposition is used to reveal the connection between what happens in Antarctica and what happens in Charleston (see Figures 5.12 – 5.14).

The final part of *Wade in the Water* is another auditory journey. As visitors wander the final space in the gallery, they move through the recorded voices of Charleston residents. The recordings vary in nature from personal tales, to chanting, to scripted essays on topical issues. Again, the app allows visitors to hear these people as if they are approaching them in real life. As they approach the location, the voice grows, as they walk away from it, the voice fades. At the end of this journey, visitors are allowed to contribute their own voices to the mix if they so choose.

Duckworth's exhibit is primarily an immersive experience. It creates a new world for visitors to explore, and the audio tracks allow people to block out the rest of the outside world. However, Duckworth, too, uses revelation in this exhibit. While immersion remains the primary tactic, Duckworth aims to reveal the connection between the melting polar ice and rising waters in Charleston. Through this revelation, Duckworth hopes that people understand that everything is connected, and that action must be taken if people want to prevent Charleston from being lost to the sea.

In many ways, the gallery setting is perfect for an immersive experience because the artists can shut out the rest of the world. However, landscape architects are highly attuned to creating spaces that provide different experiences at different times of day, different times of the year, and at different locations within a space. In the public realm, where landscape architects and public environmental art would work, the existing ambient conditions can distract a visitor from being fully immersed in a site.

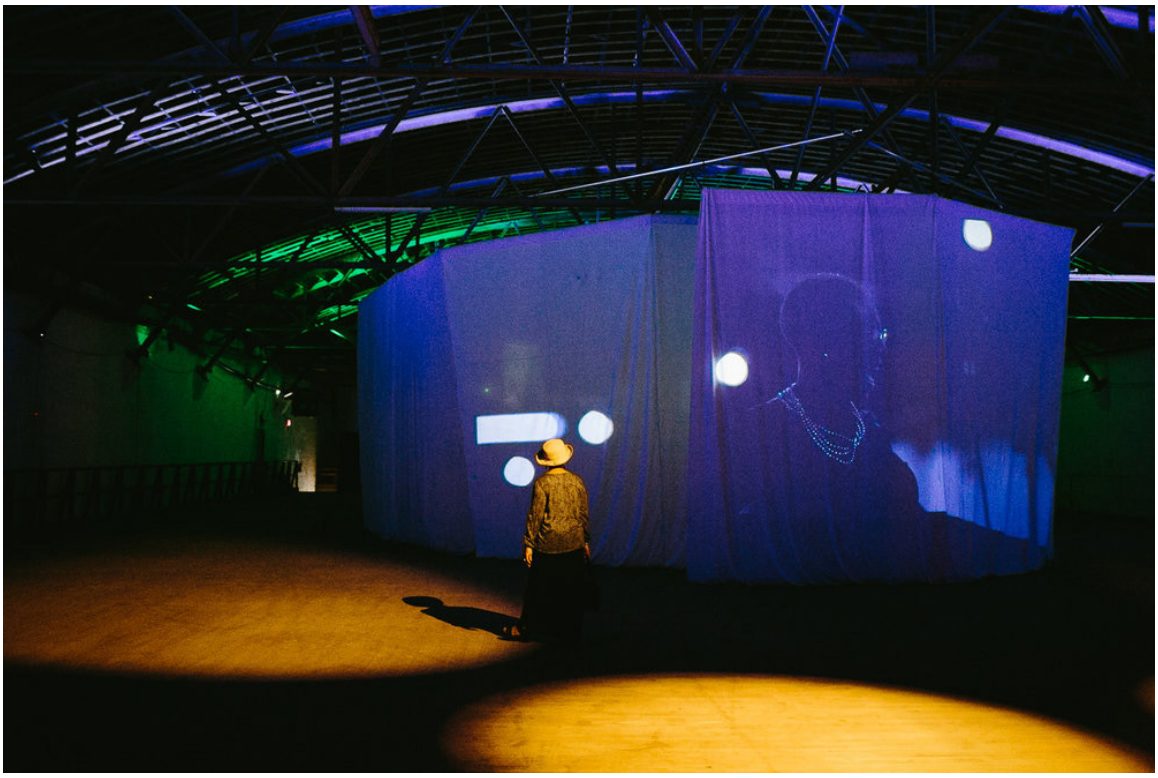


Figure 5.12: A visitor explores the space. Images of the gospel singers are projected onto the curtains, *Wade in the Water*, Charleston, 2017.



Figure 5.13: Inside the curtains, a child watches the diptych images, *Wade in the Water*, Charleston, 2017.

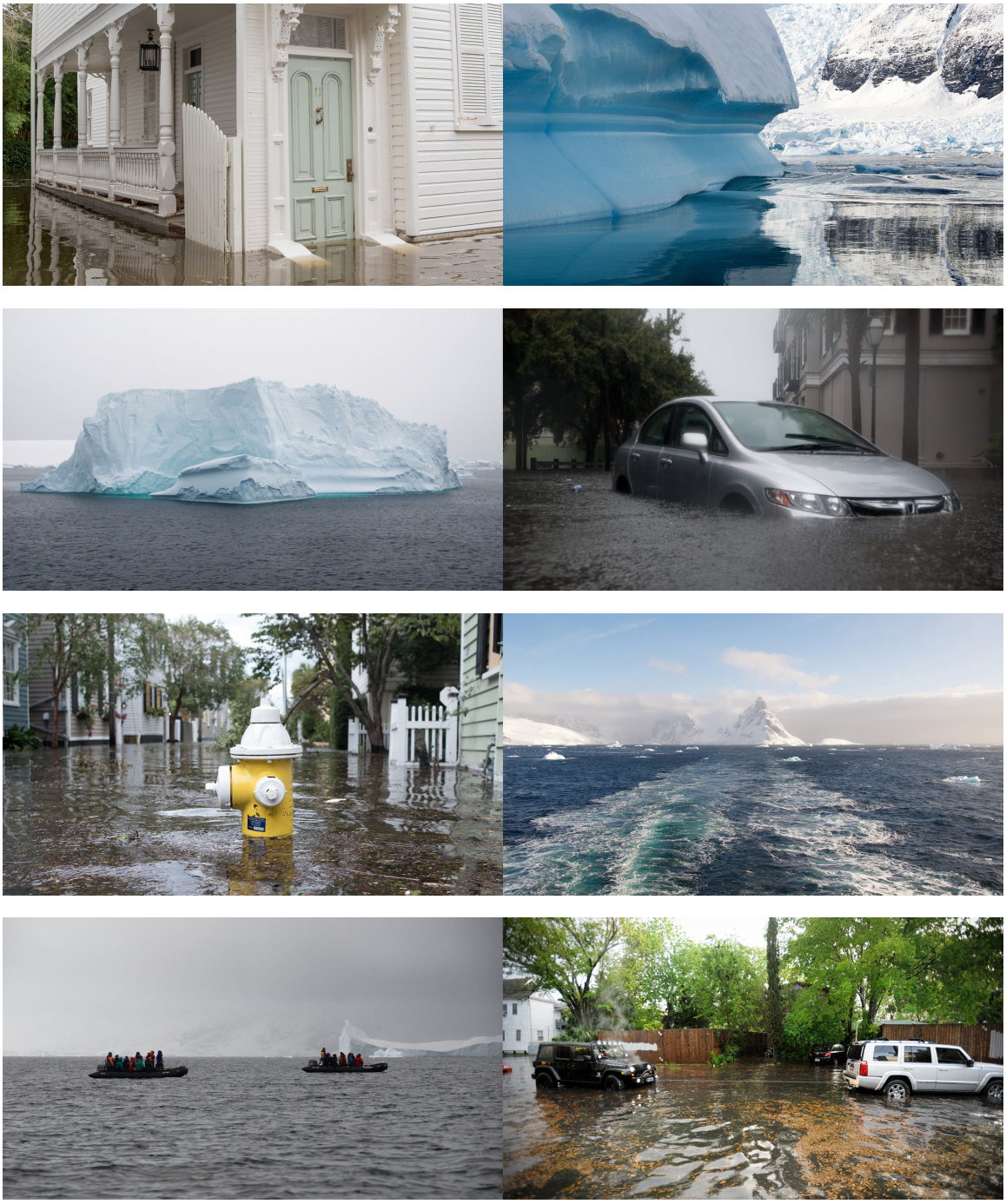


Figure 5.14: Examples of paired photographs of Charleston and Antarctica, *Wade in the Water*, Charleston, 2017.

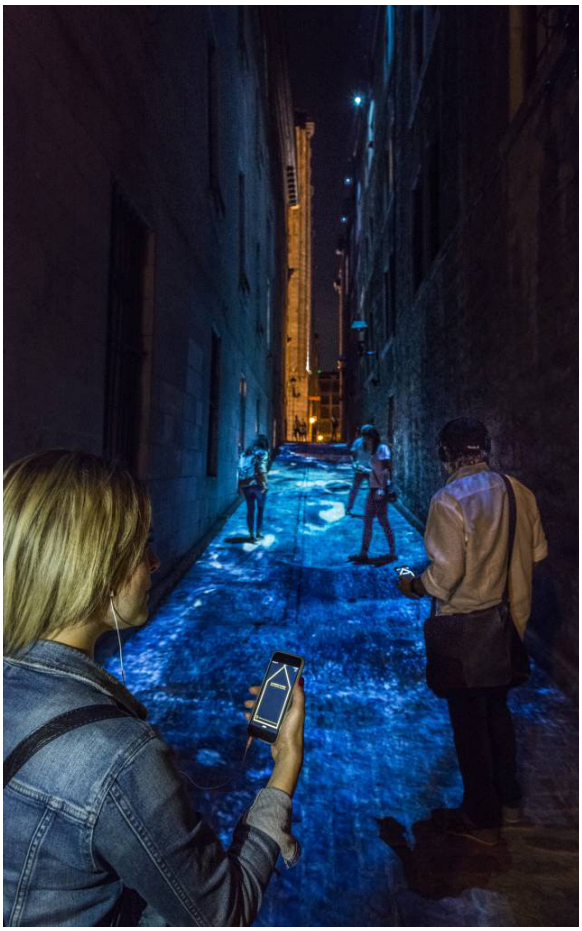


Figure 5.15: Cité Memoire app in use

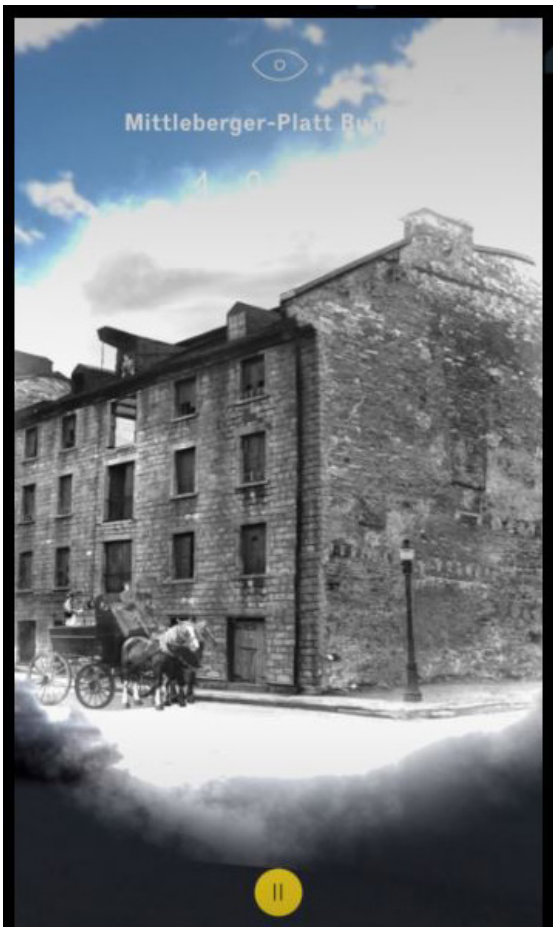


Figure 5.16: Cité Memoire app screenshot



Figure 5.17: Projection on trees that accompanies the app, Montreal, Canada.

The use of sound and technology are interesting components of this exhibit. Similar technologies are being explored in the field of landscape architecture. Part public art, part history tour, *Cité Mémoire* in Montreal uses technology to engage the public in exploring the city (see Figures 5.15-5.17). The app guides people through the city as recordings of historical tales play through their headphones. Meanwhile, projections on trees, buildings, and the ground create a new visual experience of the city.

Public Pedagogy

These case studies provide a deeper understanding of how artists use the tools of engagement. Through the analysis of each work of art, the author hoped to discover if there were additional tools of engagement being used, or how the tools might interact with one another. Ultimately, these works showed how important revelation was as a teaching tool in all four examples.

Table 5.1: Public Pedagogy Criteria and Case Studies

	Flow City	*Elevated Wetlands*	*HighWaterLine*	*Wade In The Water*
Is movement through the space an important part of the design?				
Does the design evoke sensations that are critical to understanding?				
Do people expend deliberate effort to fully experience the art?				
Is there a journey or passage that takes place for the viewer?				
Does the viewer have a choice in how they experience the art?				
Does the design create an opportunity for dialogue?				
Does the design create an opportunity for learning?				
Does the design make people question “the norm”?				
Does the design make people see things in a new way?				
Does the design avoid certainty, and encourage people to explore the topic of sea level rise on their own?				

The next step in the analysis of these works is to analyze them based on the public pedagogy criteria from Chapter Three. How well do these works perform as public pedagogy? Table 5.1 illustrates how each piece ranked based on this set of ten questions from Chapter Three. In the table, a colored block next to the question means yes, the art satisfies this criteria of public pedagogy. A blank entry means that it does not.

The results of this analysis are that *Wade in the Water* scored the highest of all work, fulfilling all ten of the criteria. *Flow City* fulfilled nine, and *HighWaterLine* each fulfilled eight, while *Elevated Wetlands* only fulfilled six of the ten criteria. This is perhaps because while *Elevated Wetlands* is environmental art, it is primarily piece of public sculpture that most people do not experience fully. There is a deeper level of engagement for those who leave the highway to explore the park, but they are intended to impact the drivers.

Conclusion

This chapter took an in-depth look at four works of environmental art. The intent of these descriptive case studies was to understand why each of these pieces was so successful in capturing an audience, and in communicating the central idea. Each work was successful for different reasons. Mierle Ukeles was able to reveal something to visitors that was usually hidden behind closed doors. More importantly, she was able to link that hidden process to the landscape, so that visitors could see cause and effect side by side. Noel Harding was able to capture curiosity through his surprising forms. Eve Mosher brought her work to the streets, enabling her to reach a broader audience than many of the other works studied. And John Duckworth engaged multiple senses to make the experience memorable.

While it was unexpected that *Wade in the Water* and *Flow City* scored higher than the others, it is understandable. Both of these works emphasized movement through space as an important aspect of the experience. For both projects, the spaces itself was pedagogical the way that Ellsworth described in her book. In each work, visitors were treated to new experiences, to new ways of seeing the world, but there was no “answer,” no final “conclusion” to be drawn from

the exhibits. Visitors were encouraged to explore new understandings on their own based on their own experiences in the space. The downsides to these two exhibits: they were not fully in the public sphere. Public access was free and open, but they did not fulfill Biesta's notion of "publicness" in pedagogy.

Ellsworth's book, *Places of Learning*, clearly emphasizes the importance of movement through space. In order for a space itself to be pedagogical, this is a critical design component. Yet it is not present for *Elevated Wetlands*, created as an object d'art more than as an experience. Does this mean that there is no place for works like *Elevated Wetlands*? No—there will always be a place for environmental art. That it exists at all is still important, as Biesta noted, even if it "does very little" to address the issue at the heart of the matter (2012, 693). However, if environmental art is to be the *most* effective, then treating spaces as pedagogical needs to be a critical part of the design.

Having studied the tools of engagement more in depth, the following chapter will build upon this, and provide a series of design options for Charleston. These designs are guided by the tools of engagement studied in this chapter, and will be evaluated based on the public pedagogy framework that was utilized here to analyze these works.

CHAPTER SIX

EXPLORATION OF DESIGNS FOR CHARLESTON

"Creativity is allowing yourself to make mistakes. Design is knowing which ones to keep."
— Scott Adams

This chapter will use design to continue the exploration of public pedagogy and the tools of engagement. These designs were inspired by the survey of environmental art conducted in Chapter Four. The author generated conceptual sketches to illustrate art installations based on the three tools of engagement: surprise, interaction, and immersion. In order to parse through the different tools of engagement, the concepts generated in this chapter are separated into these three categories. None try to achieve surprise, interaction and immersion at the same time. It was conducted this way in order to attain a deeper understanding of each of the tools. Each of the ideas was then analyzed to determine which design embodied the tool of engagement the best. They were then analyzed based on the public pedagogy criteria to determine which design would be the most effective from a pedagogical standpoint. Based on this analysis, there are three final designs that were refined further. Each of these works attempts to address the issue of sea level rise in the City of Charleston, and each of them uses *revelation* as a teaching tool.

Site Selection

An initial analysis was conducted for the peninsula of Charleston to identify which sites held the most potential for environmental art. This analysis identified the location of public parks, schools, colleges, and universities, as well as busy corridors that receive the most vehicle and pedestrian traffic (see Figures 6.1 and 6.2). The next step in the design process was to narrow site selection by identifying the target audience for each design (see Figure 6.3). This process will be discussed in further detail below.



Figure 6.1: Map of the Charleston peninsula identifying important areas of the city.



Figure 6.2: Map of the Charleston peninsula identifying potential sites for environmental art.



Figure 6.3: Map of the Charleston peninsula identifying the location of selected sites for this thesis

As public officials were determined to be a target audience for the art, Charleston's Washington Square was identified as a location for potential art installations. City Hall sits at the corner of Broad and Meeting Streets, known colloquially as the "Four Corners of the Law." The other buildings at this intersection include the Charleston County Municipal Court, a Federal building, and St. Michael's Anglican Church. Both Broad Street and Meeting Street are busy commercial corridors for commuters, peninsula residents, and tourists. Washington Square is a small park that spans a block, has entrances on Broad Street, Meeting Street, and Chalmers Street, and surrounds city hall on two sides. See map in Figure 6.4. Washington Square was selected as the site for art installations guided by surprise. This was the tool of engagement chosen for this site because it seemed most logical for the target audience: busy officials who would be jolted from their everyday routines.

On Saturday afternoon, February 10th, the author conducted site analysis in the park itself. This included sketches, written observations, and photographs showing use. This was insightful for this thesis, because it showed the wide variety of users in the park: there were tour groups who came through; tour guides who spent their time between tours enjoying the park; couples who brought lunch and ate on the benches; people who simply walked through; and one man who remained in the park throughout the entire period of observation (see Figure 6.5). This analysis proved that in addition to being directly adjacent to City Hall, the adjacent park is also well used by the public, and would be a good potential location for environmental art.

Marion Square, the second site location was selected based on the initial analysis, local knowledge, and on-site observation. The square is located in the center of the Charleston Peninsula. It is surrounded on three sides by busy, commercial streets: King Street, Calhoun Street, and Meeting Street (Figure 6.6). During the initial analysis, some parks were in prime locations, but were situated in predominantly tourist destinations. The author hesitated to select a site that would mostly attract tourists rather than members of the Charleston community because

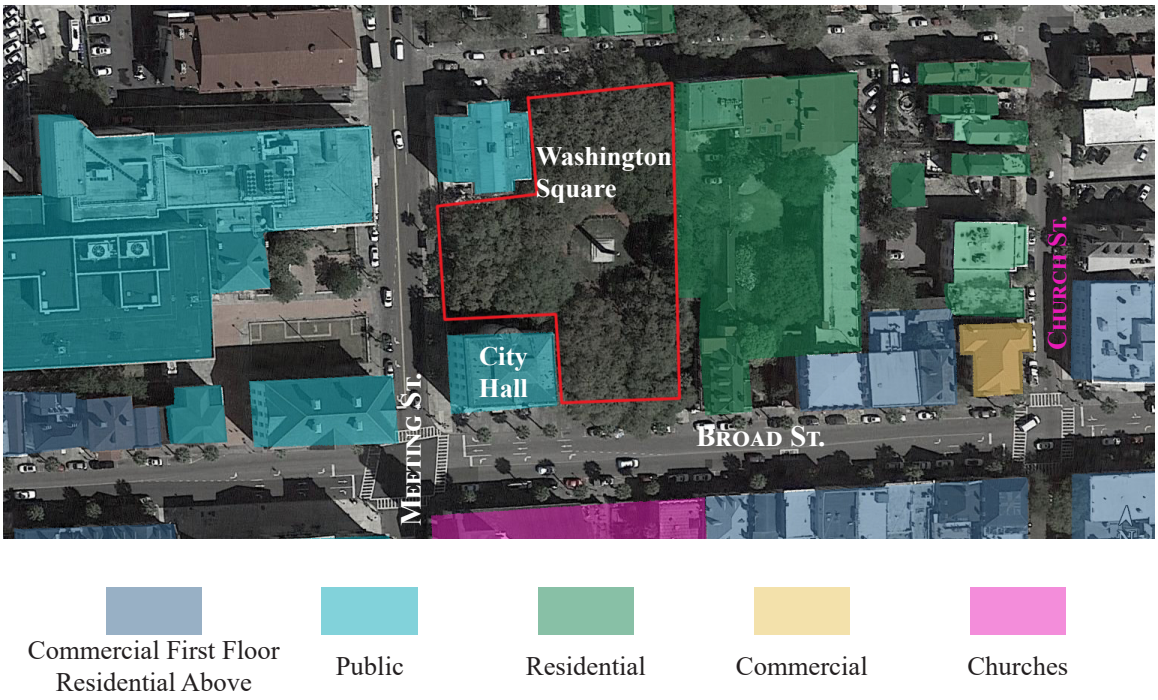


Figure 6.4: Map of City Hall, Washington Square, and surrounding area.



Figure 6.5: Image taken on Broad Street showing City Hall on the left and Washington Square on the right.



Figure 6.6: Image taken on Meeting Street showing one entrance to Washington Square. Bus stop and bike rental kiosk directly outside gate.



Figure 6.7: Image taken from entrance to Washington Square, showing St. Michael's church across Broad Street.



Figure 6.8: Looking into Washington Square Park from Broad Street.



Figure 6.9: Panoramic image of Washington Square Park.



Figure 6.10: Image from within Washington Square showing City Hall on far right.



Figure 6.11: Image taken in park of entrance onto Chalmers Street, showing connection to residential areas.

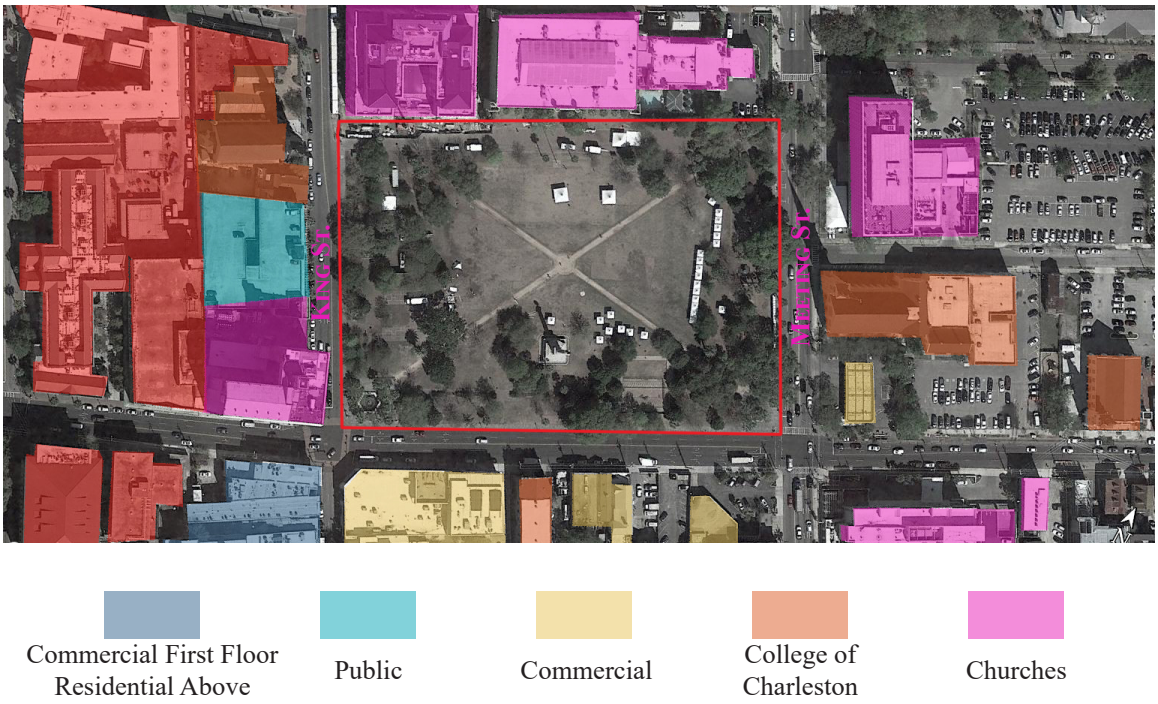


Figure 6.12: Map of Marion Square and surrounding area.



Figure 6.13: Image taken at intersection of King Street and Calhoun Street looking towards Marion Square.



Figure 6.14: Image of fountain in Marion Square at corner of King Street and Calhoun Street.



Figure 6.15: Image looking into Marion Square from north-west corner on King Street. Paved area on left used for farmers market.



Figure 6.16: Image taken from northern edge of Marion Square looking into center of park.



Figure 6.17: Image taken from sidewalk on Meeting Street looking into park.



Figure 6.18: Image taken within park looking east, Calhoun Street shown in far right.



Figure 6.19: Image of Marion Square from eastern side of park showing paved area used for farmers market.



Figure 6.20: Panoramic image of interior of Marion Square showing tents set up for the Southeast Wildlife Exposition.

the intent of the art is to educate the public, specifically those who will be affected by sea level rise.

While Marion Square is surrounded by hotels, and is certainly in a touristy area of town, it is probably equally used by locals. The park hosts the weekly Charleston Farmers Market eight months of the year, and has a holiday light display that always attracts a local crowd. Additionally, the park is a location for any big festival or event held in downtown: the Southeastern Wildlife Exposition, the Spoleto Performing Arts Festival, and the Charleston Food and Wine Festival, for example. Site observation on Saturday, February 10th confirmed the mix of users. The park is rather large: approximately six acres, so there were many different areas for people to congregate. There were college students playing Frisbee on the lawn, street performers at the intersection of King and Calhoun Streets, homeless people, restaurant workers taking a quick break, couples eating ice cream on the benches, and people just passing through (see Figure 6.7). Based on this analysis, Marion Square was determined to be a potential location for environmental art. The size of the park means that there is ample space for a large installation, and the site would attract a variety of people.

Surprise

Art that uses *surprise* as a tool for engagement should be surprising in form, scale, material, or placement, in a way that makes them stand out from the rest of their surroundings to easily catch the attention of passers-by. The site selected for surprise was Washington Square and City Hall. The reason for targeting public officials was to focus their attention on the real threat of sea level rise. Many of the works in Chapter Four that used surprise were able to quickly capture people's attention, compared to the other categories. For public officials, the idea that their attention could be caught on their walk into work, or on their lunch break was an important consideration for using surprise at Washington Square. The initial ideas that were generated for the surprise category are seen below in Figures 6.8-6.11.

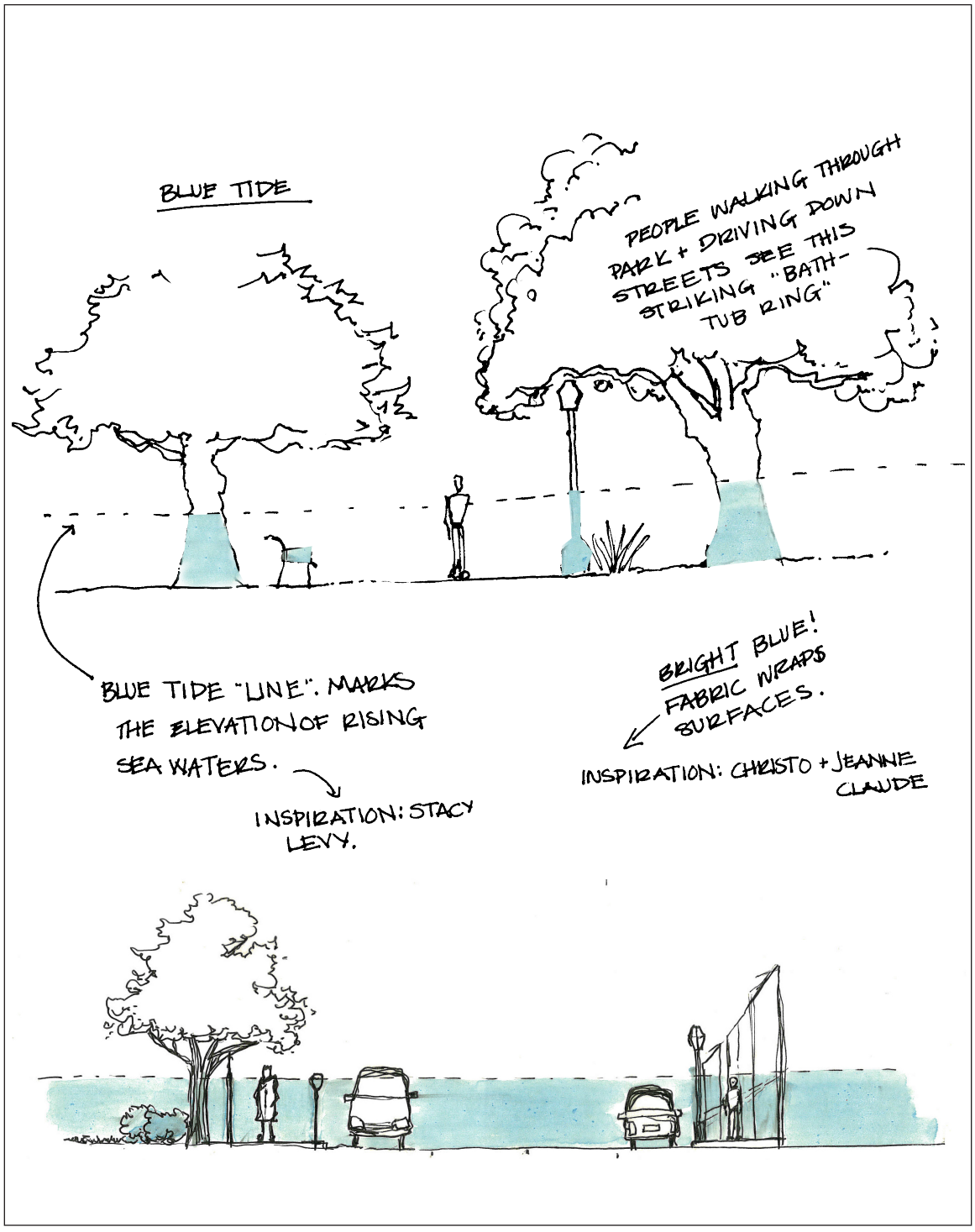


Figure 6.21: Concept graphics for *Blue Tide*.

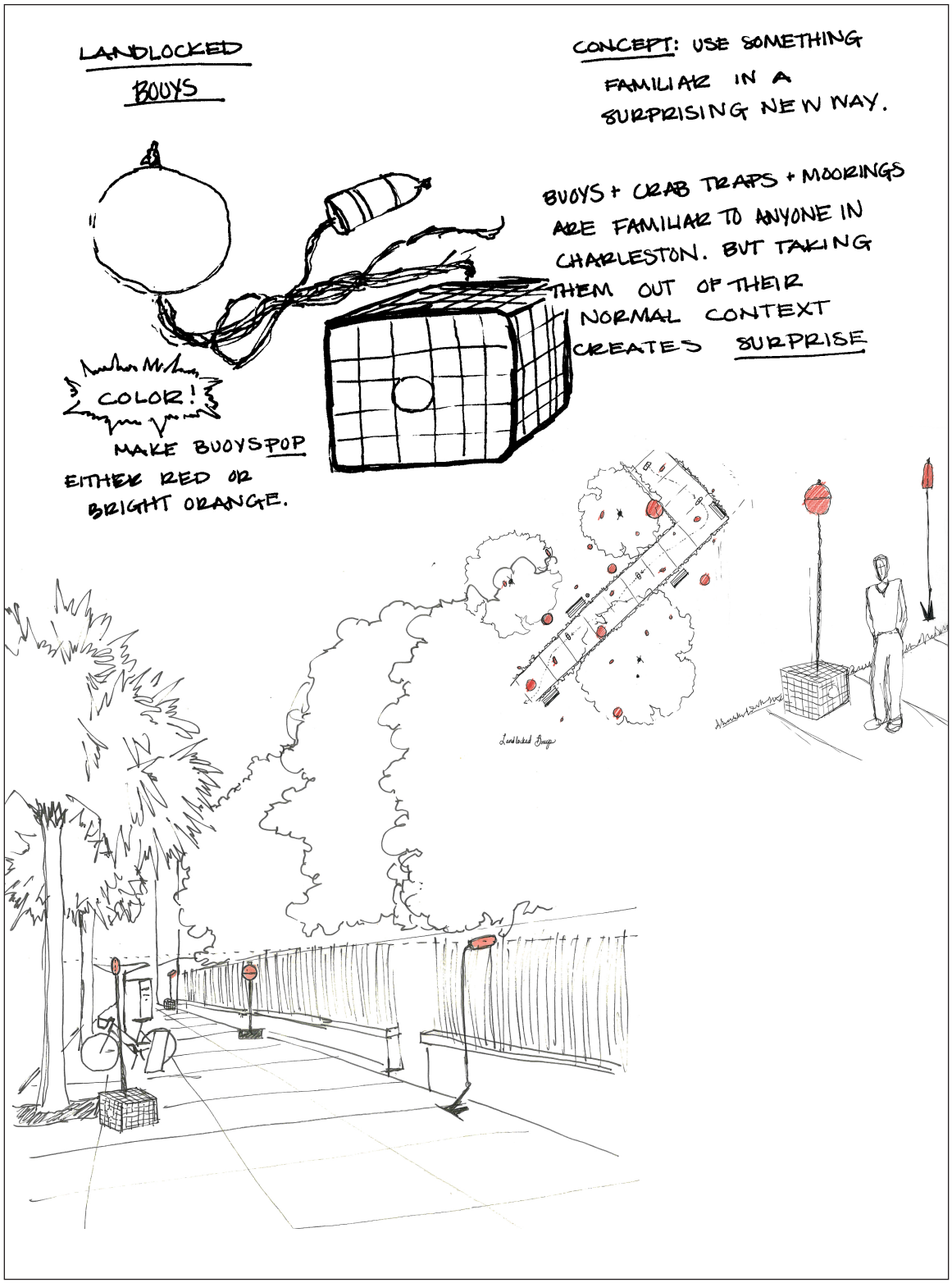


Figure 6.22: Concept graphics for *Landlocked Buoys.*

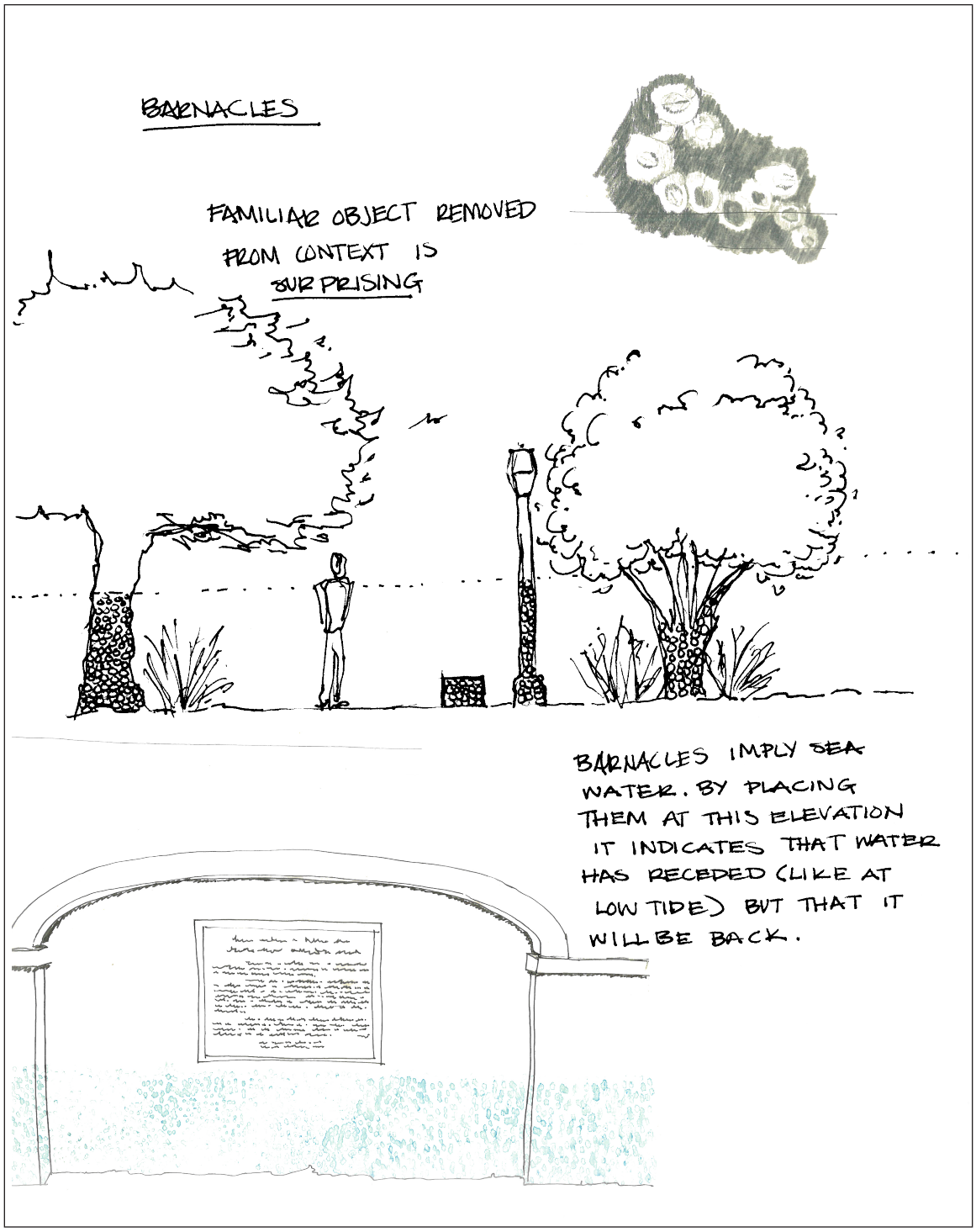


Figure 6.23: Concept graphics for *Barnacles.*

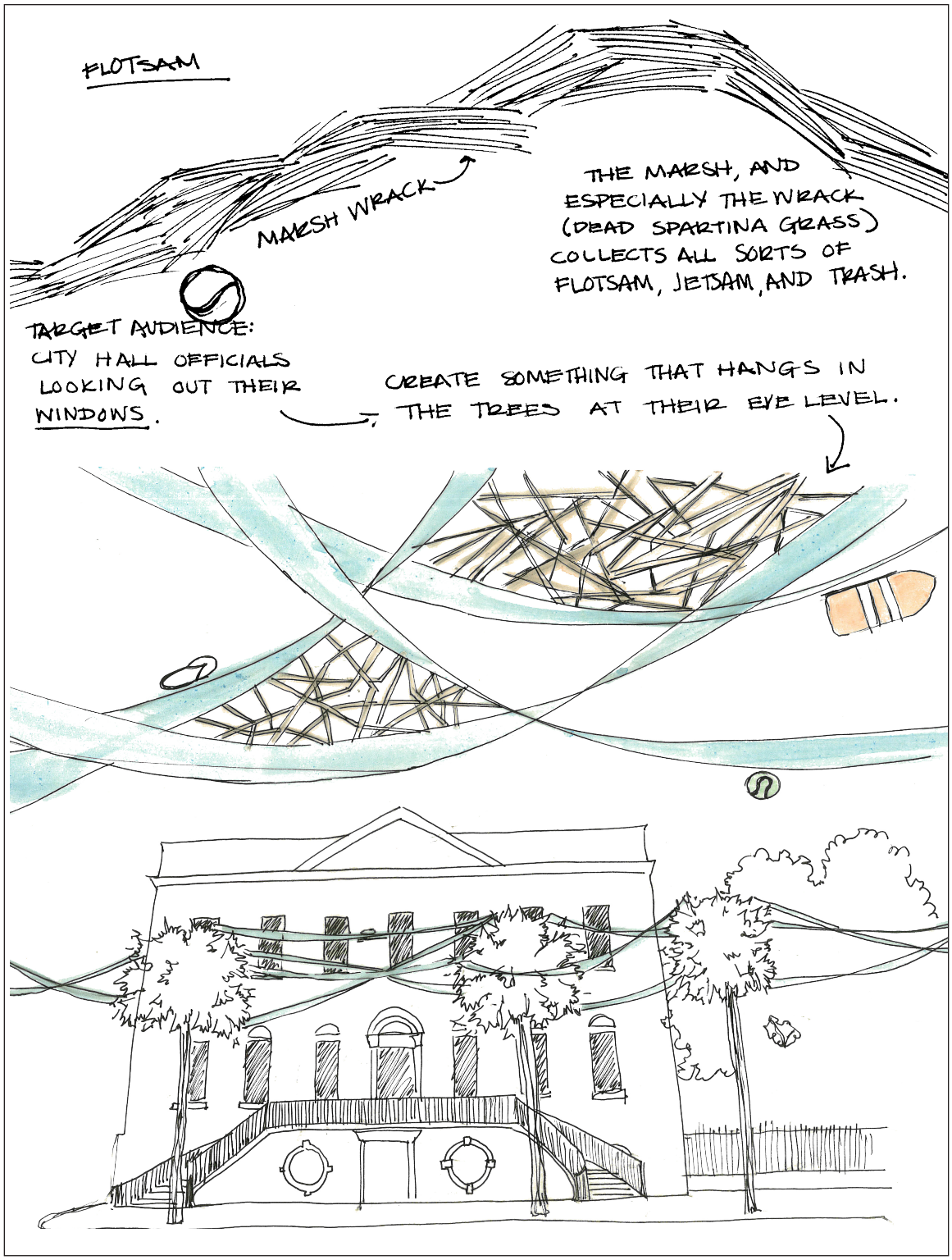


Figure 6.24: Concept graphics for *Flotsam.*

The *Blue Tide* concept seen in Figure 6.8 was inspired by works by Stacy Levy, and Christo and Jean-Claude. The idea was to pick a specific elevation and wrap everything below that elevation in blue: trees, benches, monuments, gates, parking meters, streetlights, buildings etc., thereby revealing the threat of sea level rise. This is intended to be surprising because of the strong colors that attract the attention of pedestrians and drivers. As people approach the site, they can see that something is happening here, but are unsure what it is. Those curious would be able to read a small informational sign explaining the purpose of the art.

Figure 6.9 shows the *Landlocked Buoys* concept. This design was inspired by *Word Strings*. The idea was to use buoys in an unusual (surprising) way to reveal the potential threat of sea level rise. In Charleston, buoys, moorings, crab traps and anchors are common sights, but no common in the context of a downtown park. For this concept, the park and streetscape would have buoys standing upright with ropes and moorings attached. The intent was to make people feel as if they were walking through the harbor, except that all of the water had been removed, revealing the potential of sea level rise.

Barnacles, seen in Figure 6.10, intends to reveal sea level rise by using a familiar form completely out of place: barnacles. Everyone in Charleston is familiar with barnacles, and how at low tide they reveal where the water sits at high tide. Using a material that appears to be barnacles, this concept aims to reveal a specific elevation by covering surfaces below it in barnacles.

The final idea generated for surprise is *Flotsam* (Figure 6.11). This concept was targeted specifically towards City Hall officials. In order to capture their attention during the day, while they are at work, this art installation was conceived of by imaging ways to get their attention through the windows of their offices. Ribbons of blue, sculptures of marsh wrack, and miscellaneous flotsam would be hung from the trees of Washington Square, and along Broad and Meeting Streets. The installations would be situated to be visible from the windows of City Hall.

Each of these concepts were no more than a few sketches with several sentences explaining the application. Both *Blue Tide* and *Landlocked Buoys* appeared to be the most surprising of the concepts generated. It was only after looking at these artworks through the lens of public pedagogy that *Landlocked Buoys* appeared to be the most successful design using surprise. Table 6.1 shows the comparative analysis of public pedagogy. It uses the same method of scoring as presented in the previous chapter. *Landlocked Buoys* scored highest, with 8 of 10 points, closely followed by *Blue Tide* with 7. *Barnacles* scored only 5 points, and *Flotsam*, 4. In light of this evaluation, *Landlocked Buoys* was the design chosen to refine further.

Table 6.1: Surprise and Public Pedagogy

	Blue Tide	*Landlocked Buoys*	*Barnacles*	*Flotsam*
Is movement through the space an important part of the design?				
Does the design evoke sensations that are critical to understanding sea level rise?				
Do people expend deliberate effort to experience the art?				
Is there a journey or passage that takes place?				
Does the viewer have a choice in how they experience the art?				
Does the design create an opportunity for dialogue?				
Does the design create an opportunity for learning?				
Does the design make people question “the norm”?				
Does the design make people see things in a new way?				
Does the design avoid certainty, and encourage people to explore the topic of sea level rise on their own?				

Interaction

When environmental art uses *interaction* as a tool of engagement, the art invites or requires the public to engage with the artist, expert or facilitator. There were many potential sites

for the interactive piece in Charleston: the steps of the U.S. Customs House, Marion Square, schools, or simply the entire city itself. Each of the ideas used a different place as the location for the art installation, and it was only after analysis that the final location was chosen.

The concept for *The Maze*, seen in Figure 6.12, was to create a space that captured the "how did we get here?" question of sea level rise. *The Maze* is an interactive artwork that allows people to "choose their own adventure." It provides a series facts, but allows people to choose what to do with them. Their decisions determine their path through the Maze. For example, at a juncture in the path, the visitor may come across a sign that says: "*2050: Charleston experiences 1 foot of sea level rise. 3,695 people forced to abandon their homes. If the City of Charleston continues with business as usual, TURN LEFT. If the City of Charleston successfully lobbies state and federal governments to decrease carbon emissions: TURN RIGHT*." The center of *The Maze* is the worst case scenario for sea level rise, whereas if people make the "correct" decisions along the journey they never make it to the middle. As an interactive experience, the artist, or expert will be available to talk to people about the installation, and there will be information available to distribute to those interested. This piece is inspired by the desire to make people feel uncomfortable. This discomfort, this friction, can create a space where learning can occur.

The second concept, seen in Figure 6.13, is an enactment of the *HighWaterLine*. Eve Mosher's *HighWaterLine* piece has been re-enacted in several different cities. There was so much interest, in fact, that she created a guide called the *HighWaterLine Action Guide*. This is a downloadable PDF that aims to help facilitate projects in other areas. By creating this framework, Mosher allows communities to participate in something similar to what she has done, but make it unique for each city. She encourages people to explore new ways of visualizing a water mark, and provides examples of work by other environmental artists. Doing this in Charleston would allow local organizations to get involved, and would then bring the artwork to the streets to engage with the public. Because of the impact that these projects have had across many different communities,

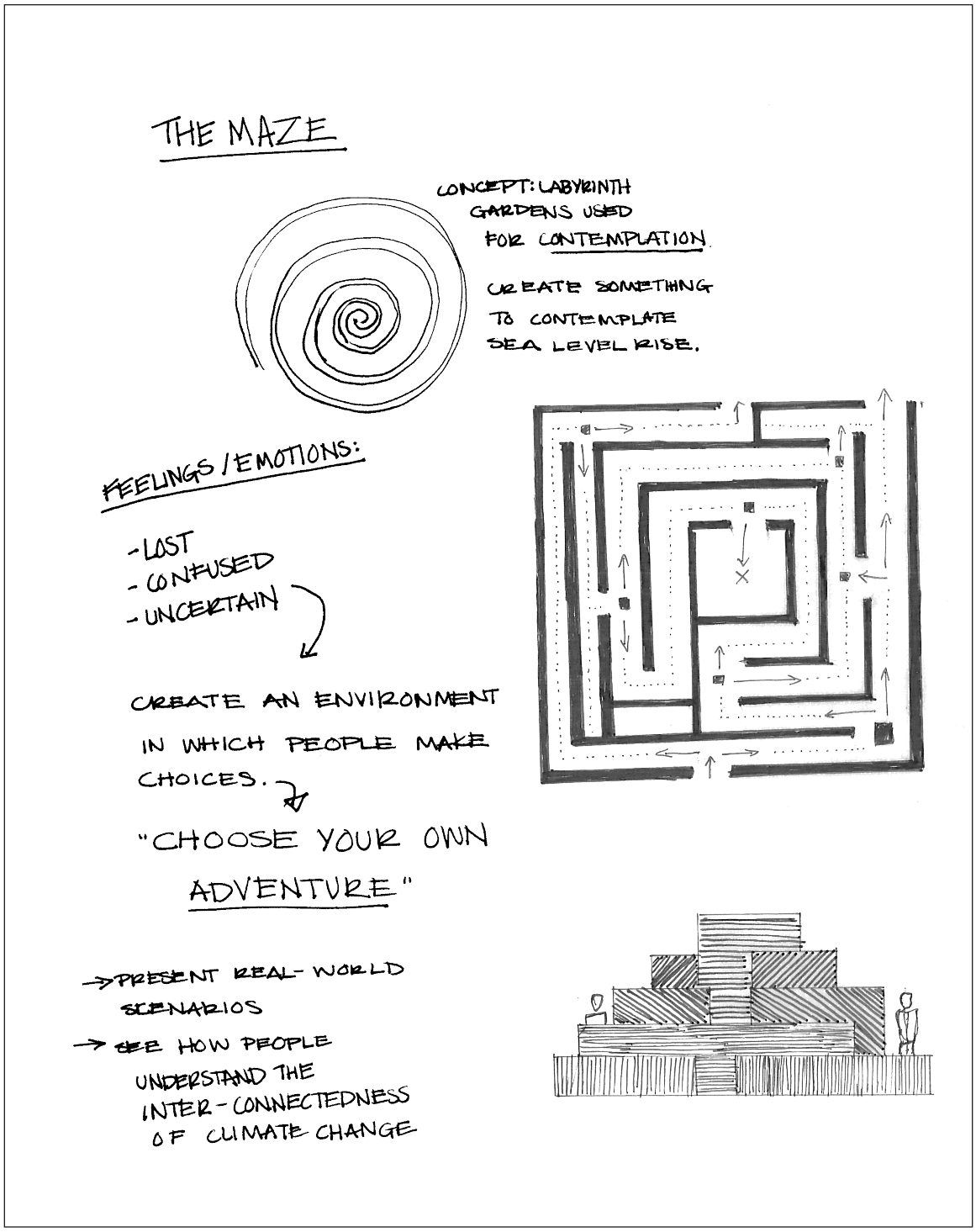


Figure 6.25: Concept graphics for *The Maze.*

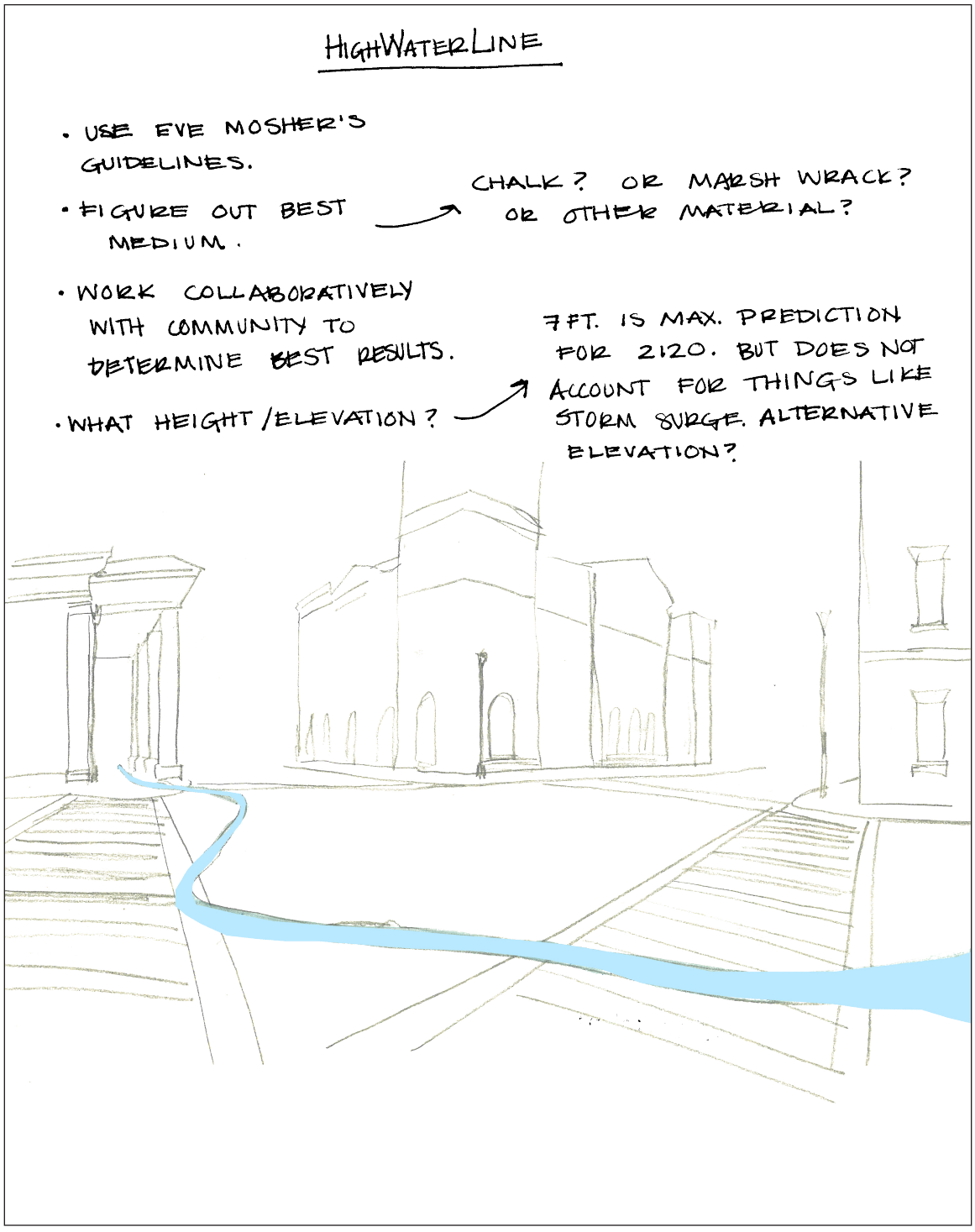


Figure 6.26: Concept graphics for *HighWaterLine.*

the author feels it is important to propose this as a feasible and suitable concept for the Charleston area.

The final concept is *Lost and Found* (see Figure 6.14). This piece is a combination of art and education. The inspiration for this concept stems from the idea that teaching schools and children can be a great disseminator of information. Schools have access to a broad community network, and children can take information home to their families after learning something at school. Through this network, this concept hopes to bring a target a greater audience. This project includes a model of the city that will be taken to schools throughout the Charleston area. In schools, a scientist, or expert on climate change will talk to the children about the science, and what can be done to prevent this from happening. To make the interaction more personal, students can mark where they live in the model to see how their homes are affected. Using the city model, the expert can flood the city to show how sea level rise is predicted to affect the city. At the conclusion of the program, children will be recorded telling the artist what their favorite part of the city is. They will also be asked to draw a picture of something that they would not want to lose.

The second step of *Lost and Found,* is the public art installation. At the end of the school year, once the artist and scientists have been to many schools throughout the community, the artist will create a sculpture of marsh wrack in Marion Square. Marion Square was chosen as the location for this piece because it is centrally located, and because it provides a large enough area for the installation. Choosing a topographic elevation that runs through the park, the artist will create a “high tide” sculpture out of marsh wrack. Marsh wrack typically includes miscellaneous pieces of trash, or lost items that have found their way to the ocean. In this artistic inspiration, drawings from the school children will be placed in the marsh wrack. These are the “Lost” items, and children are encouraged to bring their families to the exhibit to “Find” them. Additionally, an interactive map of the city would be projected in the park. As the recordings of the children’s

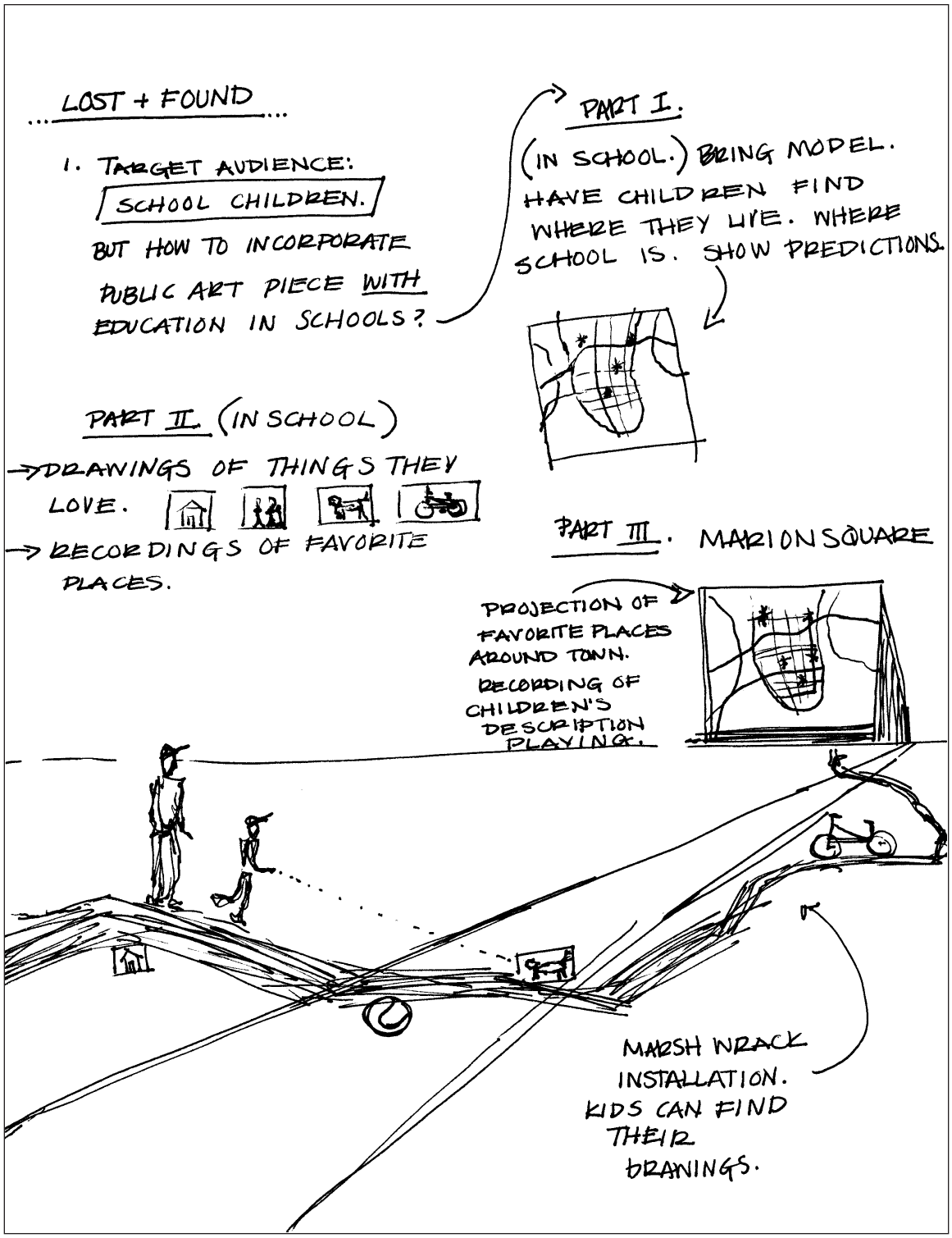


Figure 6.27: Concept graphics for *Lost and Found.*

favorite location plays, the map would highlight where those areas are located, and show how they would be affected by sea level rise.

When analyzing these three concepts for the effectiveness of *interaction*, *HighWaterLine*, and *Lost and Found* appear to be the strongest concepts. Both of these pieces involve the artist or expert going into the community, rather than letting the community come to them, as in *The Maze*. In order to select which of these concepts should be refined further, each piece will be analyzed using public pedagogy research (see Table 6.2). The analysis concluded that *The Maze* and *HighWaterLine* scored 8 of 10 points, while *Lost and Found* scored 10 of 10. Thus, the *Lost and Found* concept was chosen as the concept to refine further.

Table 6.2: Interaction and Public Pedagogy

	The Maze	*HighWaterLine*	*Lost and Found*
Is movement through the space an important part of the design?			
Does the design evoke sensations that are critical to understanding sea level rise?			
Do people expend deliberate effort to experience the art?			
Is there a journey or passage that takes place?			
Does the viewer have a choice in how they experience the art?			
Does the design create an opportunity for dialogue?			
Does the design create an opportunity for learning?			
Does the design make people question “the norm”?			
Does the design make people see things in a new way?			
Does the design avoid certainty, and encourage people to explore the topic of sea level rise on their own?			

Immersion

The final category for environmental art for this thesis is *immersion*. Art that used immersion as a tool of engagement created immersive experiences for the visitor in which the art was something they felt a part of, rather than viewing the art as an outsider. Based on the survey of environmental art in Chapter Four, as well as the case study of *Wade in the Water*, there were several key approaches that the immersive pieces presented in this chapter tried to touch on. Each of the pieces attempted to create a new environment, and to stimulate as many of the seven senses as possible.

All of the works surveyed in Chapter Four, with the exception of *Flow City*, were gallery exhibits. However, for the designs for Charleston the author chose to conceive an immersive art experience in the public realm. The blank slate of a gallery is certainly more conducive to creating an immersive experience, than the less-controlled area of a public park. However, the gallery is without question a more exclusive place, and for this reason, each of these immersive experiences is sited in Marion Square. In addition to being centrally located, and having street frontage on three main thoroughfares in downtown Charleston, Marion Square also has an expansive lawn area on which to site the immersive pieces.

The first concept for immersion, seen in Figure 6.15, is inspired by spider webs, and that climate change is an interconnected "web" that is difficult to extricate ourselves from. Much like a fly caught in a spider web, the world is caught in the web of climate change, and there is no easy way out. There are many variable, or many strings, that hold everything together. The *Water Web* mimics this "helpless" feeling in that it is easy for someone to work their way into the web, but not as easy for them to get out. *Water Web* is an interactive art installation that uses strips of fabric to create "water" throughout the park. The fabric would be a different heights in different areas of the park to represent the different possibilities of sea level rise. Each area would be equipped with speakers that play recordings of water lapping at the sea wall on the battery.

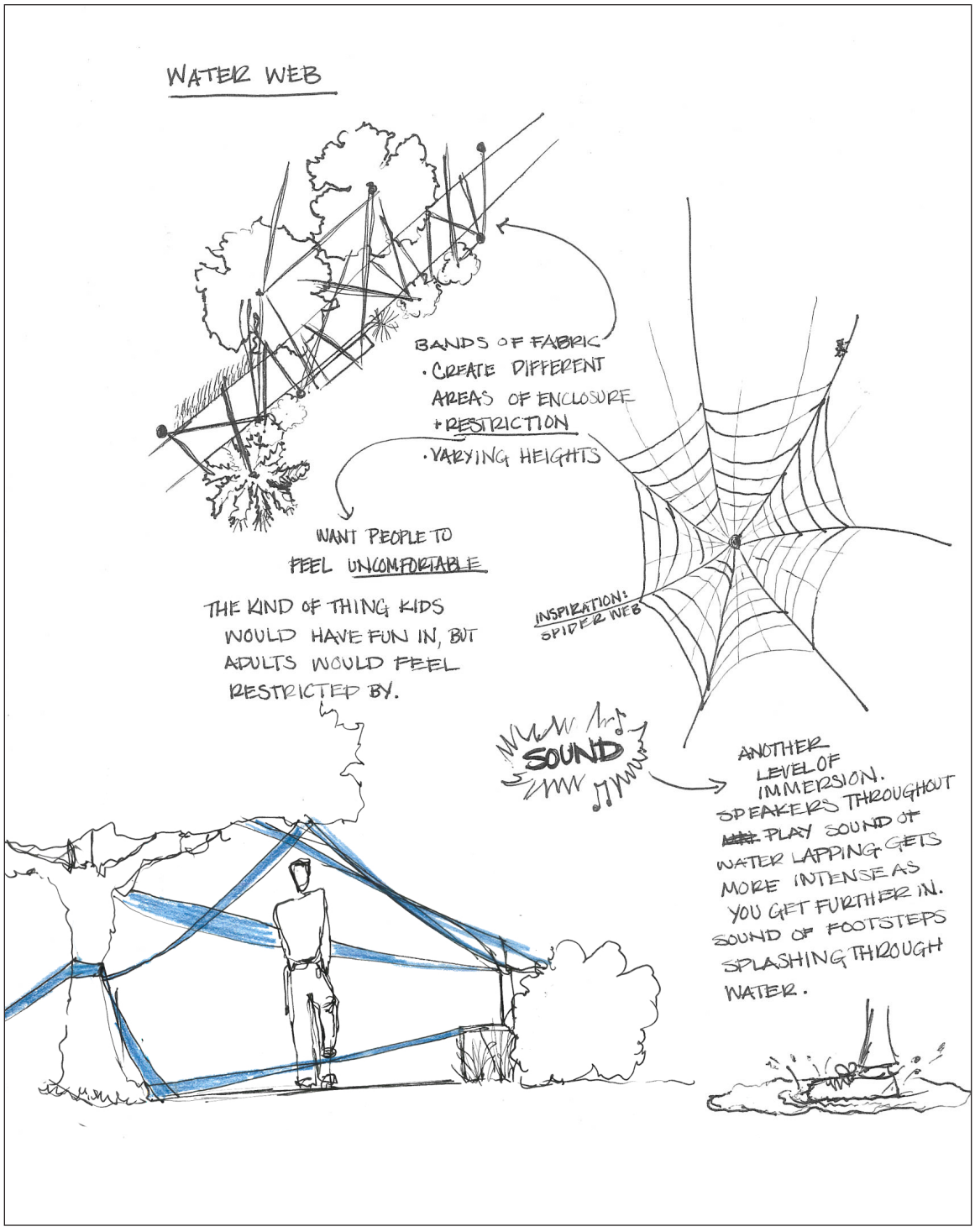


Figure 6.28: Concept graphics for *Water Web.*

Elevated Cityscape is inspired by *Systematic Landscapes*, in that it re-creates the city in miniature (see Figure 6.16). The model of the city is broken apart into sections that people can walk between. The entire model is on an elevated platform that will slowly fill up with water. This will show the evolution of sea level rise predictions over the coming century. People are allowed to be in the model as the water rises if they choose to be. Simultaneously, there is a room underneath the platform that is open to visitors. The walls and roof are made of a clear plastic material. As the model fills up overhead, water also begins to run down the walls of the room, creating an enclosed "water room."

The third concept for immersion is the *Pole Landscape*, seen in Figure 6.17. This landscape draws upon Peter Eisenman's Memorial to the Murdered Jews of Europe in Berlin. Using a grid in the same way that Eisenman's memorial does, *Pole Landscape* uses PVC pipes that are commonly used in shrimping to create a Lowcountry memorial. There are three axes in this memorial: x, y, and z. The Z-axis, the height of the poles, represents the predicted height of sea level rise. The X-axis represents time by decade covering the next century. The Y-axis is separated into the different scenarios for sea level rise: worst case scenario to best case scenario. In this way, people can explore the varying outcomes that are possible for Charleston, and understand what each of them means in a visceral way.

The final concept, *Water Funnel*, is shown in Figure 6.18. For this concept, there are two walls which represent current sea level rise. At the beginning the walls are one foot high, representing the one foot that seas have already risen in Charleston. As visitors progress along the passageway, time is demarcated on the ground plane, and the walls rise around them, culminating in a 7-foot wall at the end. Similar to *Water Web* there would be speakers installed in the walls. At the beginning of the journey, there are the gentle sounds of waves lapping the shore. As the visitor moves through the space, the sound of the water changes, with visitors ultimately hearing underwater sounds, as they move into areas with deeper water.

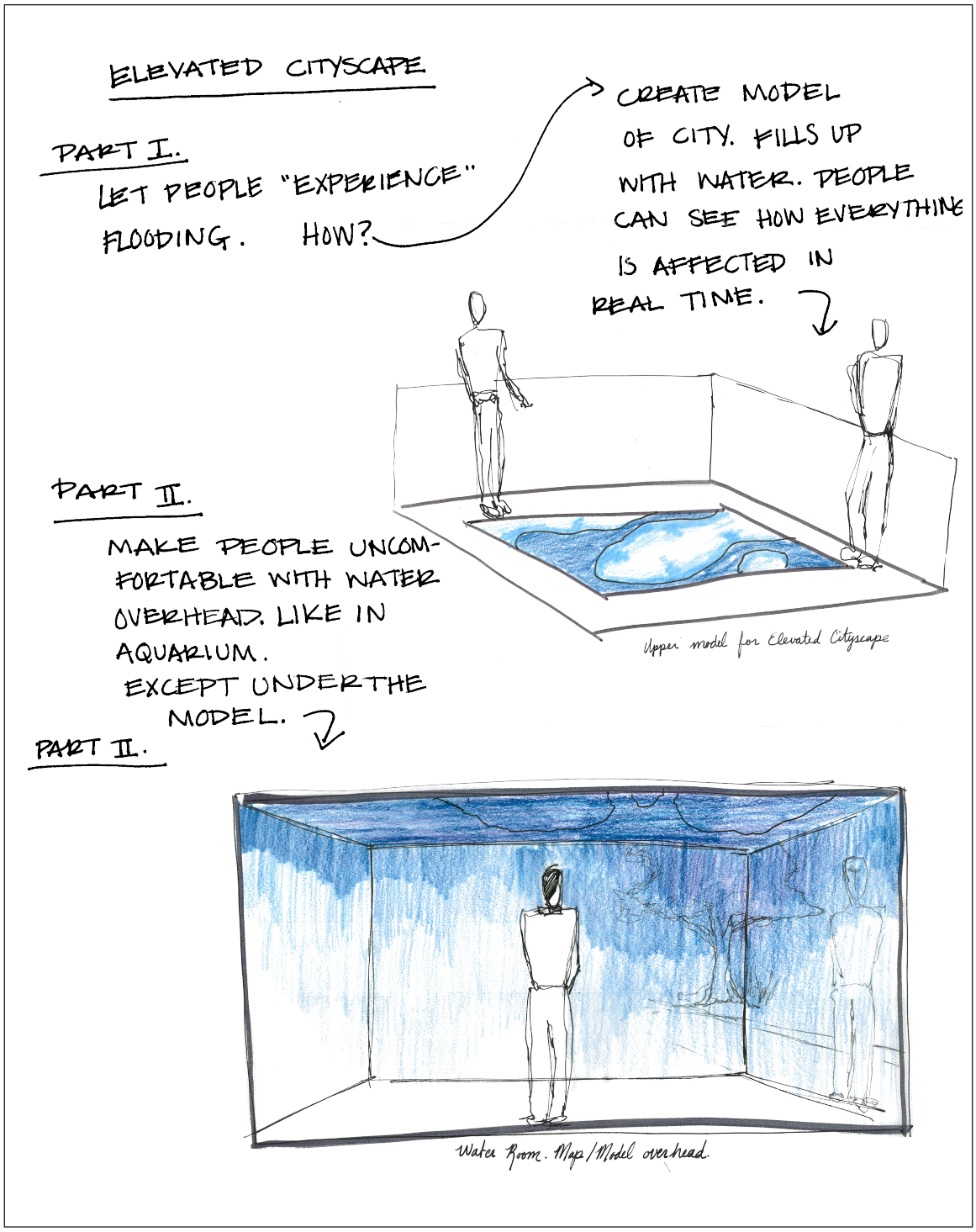


Figure 6.29: Concept graphics for *Elevated Cityscape.*

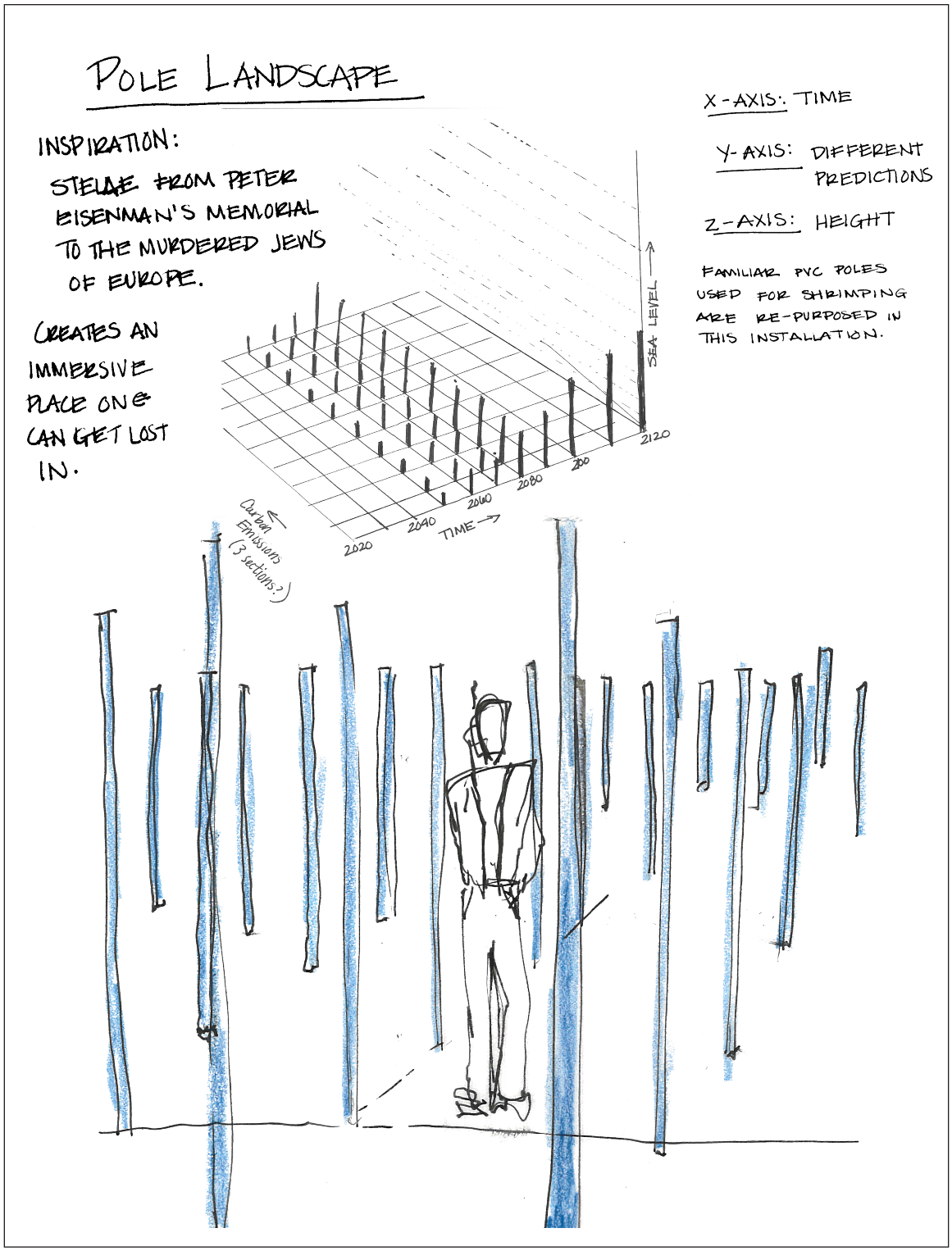


Figure 6.30: Concept graphics for *Pole Landscape.*

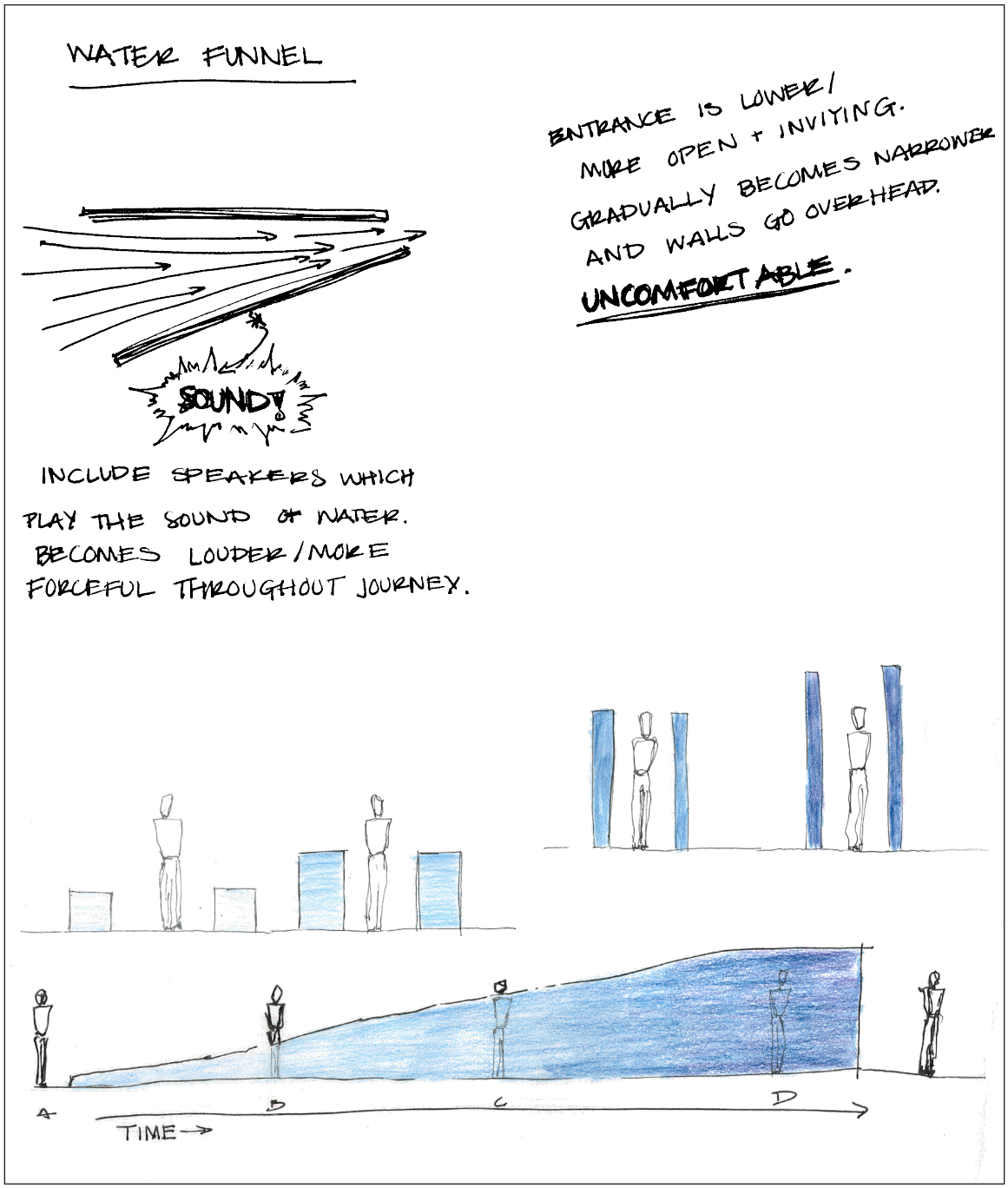


Figure 6.31: Concept graphics for *Water Funnel.*

Table 6.3: Immersion and Public Pedagogy

	Water Web	*Elevated Cityscape*	*Pole Landscape*	*Water Funnel*
Is movement through the space an important part of the design?				
Does the design evoke sensations that are critical to understanding sea level rise?				
Do people expend deliberate effort to experience the art?				
Is there a journey or passage that takes place?				
Does the viewer have a choice in how they experience the art?				
Does the design create an opportunity for dialogue?				
Does the design create an opportunity for learning?				
Does the design make people question “the norm”?				
Does the design make people see things in a new way?				
Does the design avoid certainty, and encourage people to explore the topic of sea level rise on their own?				

Table 6.3 displays the public pedagogy analysis for each of the immersion concepts. The outcome of this analysis is that *Elevated Cityscape* and *Water Funnel* both scored the highest for public pedagogy engagement. Table 6.4 was created in order to best evaluate how each of these immersive concepts achieves immersions. In this chart, the seven senses are listed in the first column, and each concept is evaluated on whether or not it targets each of the senses. In this analysis, both *Water Web* and *Water Funnel* appear to stimulate the most senses. Each engages viewers through their senses of sight, hearing, touch, and movement. Seeing as *Water Funnel* had a slightly better score for immersion, it is the concept chosen to be further refined.

Table 6.4: Levels of Immersion

	Water Web	*Elevated Cityscape*	*Pole Landscape*	*Water Funnel*
Sight				
Smell				
Taste				
Hearing				
Touch				
Vestibular				
Proprioception				

Designs Chosen for Further Development

Each of the designs for environmental art presented in this section represent final concepts that have been selected after analysis for public pedagogy and the tools of engagement. The graphics show these designs presented in further detail than the initial sketches, but are still not "final." While they have been designed for specific locations, and there are suggestions for materials to be used, these are simply ideas. They should be used to guide future implementation, but the act of taking these ideas and making them a reality will inevitably include tradeoffs. These suggestions should be heeded, but the most important aspect of the design is that it function best as public pedagogy and environmental art. If the suggestions made in this thesis prove to be a hindrance to this end, then they should be altered accordingly. Figures 6.19 – 6.21 show the refined graphics for *Landlocked Buoys*, *Water Funnel*, and *Lost and Found* respectively.

Analysis of the Tools of Engagement

In the process of analyzing environmental art for its effectiveness in engaging public pedagogy, this thesis reached an unexpected conclusion: that immersion and interaction are the best tools of engagement when the art is understood as public pedagogy. It was only after conducting the analysis on the environmental art proposed in this chapter that this conclusion was reached. While scoring the art within each tool of engagement for public pedagogy, the art in the surprise category was consistently ranking lower than the interactive and immersive art. This was unanticipated, yet when each of the tools of engagement is re-evaluated, it is understandable.



Figure 6.32: Refined sketches for *Landlocked Buoys*

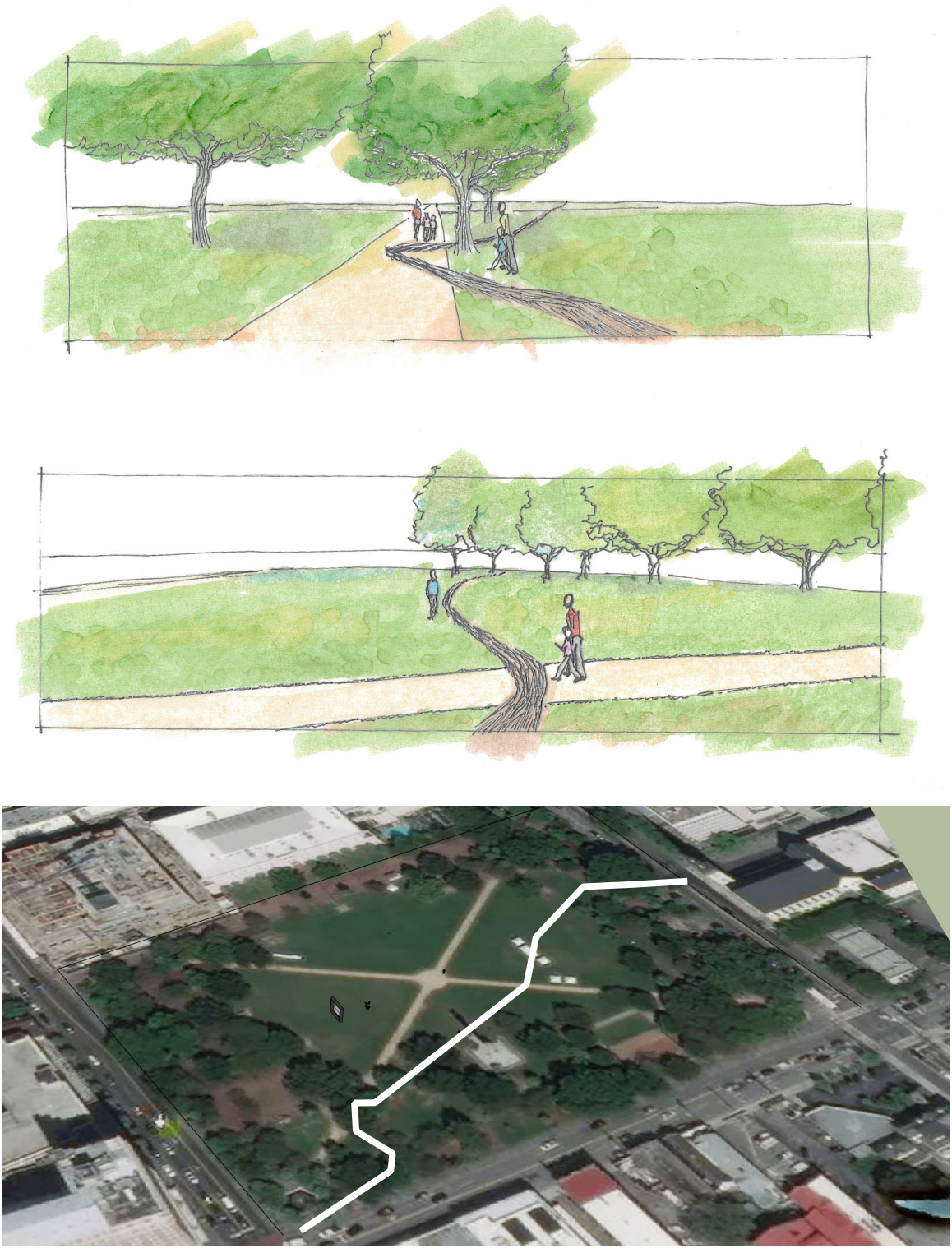


Figure 6.33: Refined sketches for *Lost and Found*

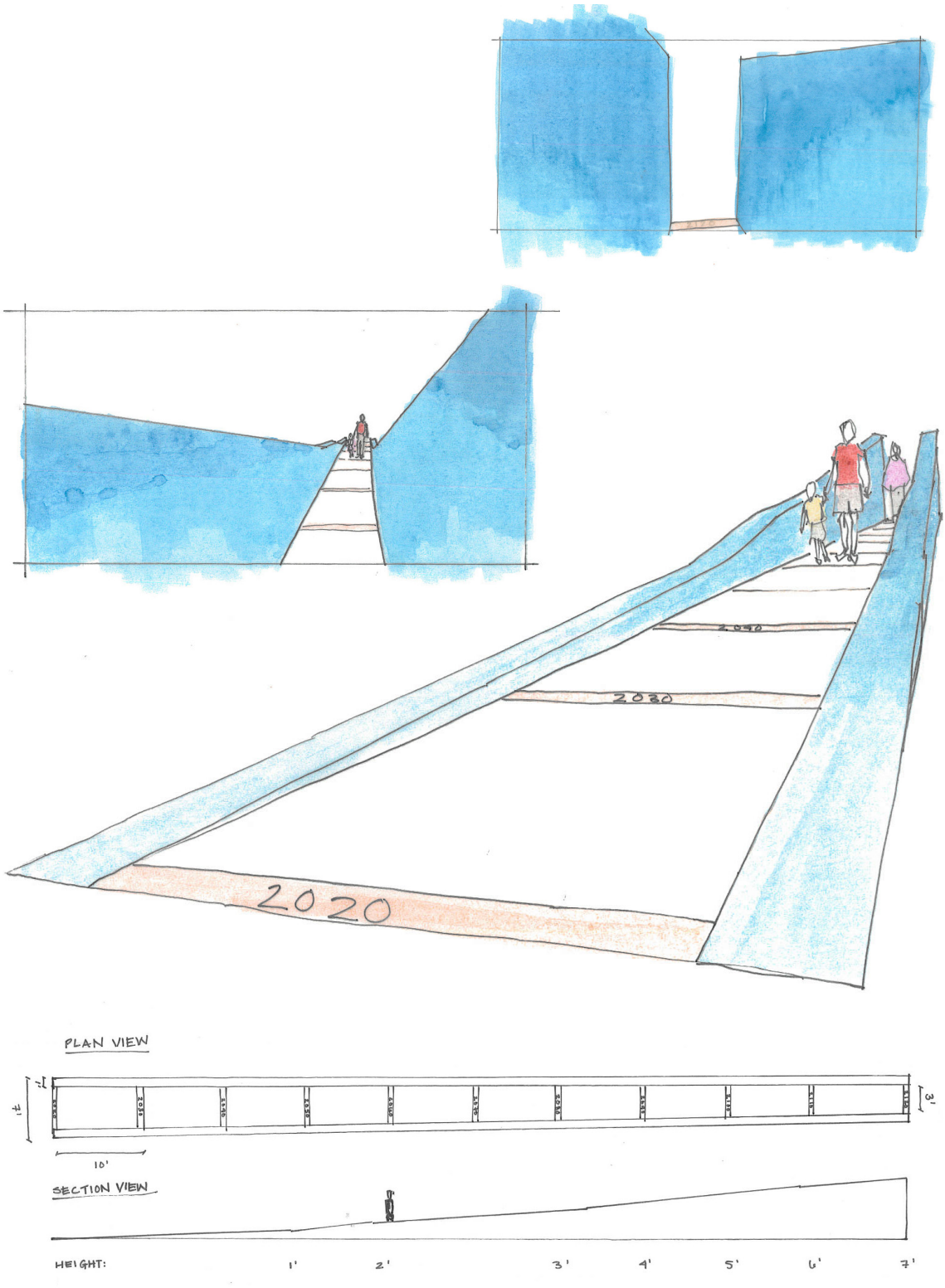


Figure 6.34: Refined sketches for *Water Funnel*

Much of the art using surprise as a tool of engagement does not focus on movement through space and embodied learning as primary methods of communication and education. For Ellsworth, both of these are critical components to understanding "Places of Learning."

Conclusion

A two-tier framework was utilized in this chapter to create these designs. First, the designs were guided by the tools of engagement from environmental art. Using the one of the tools of engagement, paired with revelation, eleven designs were created. Secondly, these designs were analyzed using the public pedagogy criteria from Chapter Three. This evaluation let to the refinement of three ideas. These concepts were created to test the framework, and understand whether landscape architects could use the framework to create spaces that engage the public with sea level rise.

This chapter helped to answer the question: "What would environmental art on the topic of sea level rise look like for Charleston?" The concepts presented here are only a handful of possibilities, and do not represent all options that could work to achieve this end. For each of these works, revelation is used as a teaching tool to reveal the imminent threat of sea level rise. These selected works seek to use different tools of engagement to capture the public's attention in the hope of engaging them in a discussion around sea level rise. Each of these concepts were designed with Charleston in mind. There are clearly some things specific to Charleston like the relationship between City Hall and Washington Square. However, like *HighWaterLine*, most could be implemented in other coastal cities as well. This neither diminishes, nor enhances, the power of these environmental art pieces to act as public pedagogy.

The second question addressed in this chapter was: "How can landscape architects use these tools of engagement to influence environmental education in the public realm?" By using the tools of engagement to guide designs, landscape architects or artists can create spaces that engage the public. Landscape architects can gauge the effectiveness of communication and learning by evaluating their designs through the public pedagogy criteria.

Each of the works that are presented in this chapter are temporary installations—something with which landscapes architecture does not often engage. There are precedents for temporary landscapes; the Bagel Garden (1979) by Martha Schwartz, the ongoing PARK(ing) Day event, and instances of tactical urbanism show that landscape architecture can be successful here. Ultimately these works are only concepts, and there are certainly many more possibilities for environmental art engaging with sea level rise. There may, in fact, be possibilities for permanent installations that were not addressed here.

These designs have not been put through the rigorous test of implementation, and are intended to guide further research on this subject. The author hopes that these works can provide ideas for implementation, which could then be used to provide quantitative data on the effectiveness of environmental art. Alternatively, by sharing these ideas with the public through a newspaper article, a public presentation, or exhibit, these concepts still have the power to be "tested" in the court of public opinion.

CHAPTER SEVEN

CONCLUSIONS

The guiding research question for this thesis was: How can landscape architects engage public pedagogy through environmental art to address the issue of sea level rise? The discipline of landscape architecture is engaged in designing landscapes that are resilient to climate change, yet it does little to educate the public on how climate change could be mitigated. This thesis hoped to bring together an understanding of environmental art and public pedagogy. In doing so, landscape architecture could use this knowledge to create spaces intended to educate the public on important issues such as sea level rise.

Chapter Three sought to understand public pedagogy so that it could be used to analyze environmental art. Chapter Four studied environmental art in order to understand the tools that artists used to capture the attention of the public. This analysis resulted in three tools of engagement: surprise, interaction, and immersion. These tools of engagement were studied in more depth in Chapter Five, which provided a framework for the design in Chapter Six. Chapter Six was the culmination of the research for this thesis: it used the tools of engagement to create ideas for environmental art that addressed sea level rise in Charleston. These ideas were then analyzed using the public pedagogy framework to discover that interaction and immersion were more effective tools of engagement from a public pedagogy standpoint.

These results were unexpected, but not unexplainable. The author began analyzing environmental art with four tools of engagement: surprise, interaction, immersion and revelation. Only after analysis was it discovered that revelation was present in almost all of the art, and was not a *tool of engagement*, but rather a *teaching tool*. Additionally, the author did not expect that certain tools of engagement, while being meaningful to environmental art, would not hold up to the public pedagogy analysis. Surprise was determined to be less effective for public pedagogy

because it does not emphasize movement through space, sensations, and embodied learning—all critical to public pedagogy—the way that interaction and immersion do. The choice to look only at environmental art that sought to educate may have affected the tools that were discovered here. By looking at a broader selection of art, more tools of engagement may be discovered.

In the nebulous, early phases of this thesis, research was focused on eco-revelatory design. However, the author felt that eco-revelatory design was not always successful at achieving what it intended to do. Yes, many of the works *revealed* a process. But did this revelation matter? Did it encourage people to think more deeply about underlying environmental problems? By studying artists and environmental art, this thesis tried to understand what was missing from those eco-revelatory designs. Through understanding how artists were successful where landscape architects were not, this thesis hoped to create guidelines that could be used by landscape architects in the future. What was lacking in many of the designs was *engagement*. Many of the designs featured in the 1998 Special Issue of Landscape Journal utilized *revelation*, but did not use one or more tools of engagement that would make the public interested in the first place. Additionally, the designers may have been designing to *reveal*, but they were not always successful at educating the public about that revelation. As the tools of engagement were studied and refined, it became obvious that it was rare for revelation to work alone. Instead, this thesis categorized it as a teaching tool because it worked so well with the other tools of engagement. The examples of art and landscape as public pedagogy that were studied in Chapter Three show that many artists intend for their work to spark discussion, curiosity, and learning among those who view it. If landscape architects could combine the intent to educate with one of the tools of engagement, *and* revelation, they might be far more successful creating landscapes that raise ecological awareness.

The term critical public pedagogy was investigated in Chapter Three. It was the author's hope that the design explorations from Chapter Six would, indeed, be critical of the cultural norm surrounding climate change. By forcing people to acknowledge the real and immediate

consequences of sea level rise, these designs were striving to challenge the normative thinking that things would work themselves out. By providing observers with information and concrete steps they could take to address sea level rise, the designs were intended to provide an alternative to the often-cited phrase: but what can *I* do about that?

Landscape architects are rarely involved in controversial issues. Sea level rise is not controversial to many people, and landscape architects are increasingly designing with rising seas in mind. Landscape architects, however, rarely try to educate through their work This thesis strongly takes the position that landscape architects should not shy away from difficult or controversial issues. Because of the collaborative and creative nature of the profession, and because of the public nature of much of the work, landscape architects are uniquely equipped to work together with other professionals to address issues like sea level rise that will have a major impact on the places in which we live, work, and play.

This thesis has provided a framework to guide the creation of environmental art, or landscapes, that engage public pedagogy, and successfully engage the public. However, there are still questions that remain to be answered.

What new knowledge would be gained through implementation and analysis? How would the concepts here change if they were actually implemented? How successful would they be as educational tools? It is the author's hope that future research will take the framework of public pedagogy and tools of engagement to implement pieces of environmental art. After implementation, these works should be studied to understand how effective the art is as public pedagogy. Further research needs to be conducted to evaluate landscapes and environmental art to learn more about how and why they work as public pedagogy.

As mentioned in Chapter 6, each of these concepts was generated using a single tool of engagement to guide the design. For the sake of clarity, this chapter chose to focus on each as an individual. Other possibilities for art may certainly exist wherein the tools are combined to greater effect. Or, the concepts presented here could potentially be modified to incorporate

several tools of engagement. The results from this study may, of course, change when using the tools together. However, that is room for further research that was beyond the scope of this thesis.

All of the designs that explored the use of public pedagogy and the tools of engagement are installations in urban landscapes, but were not landscapes themselves. How would these tools or the public pedagogy framework change if these conditions were changed? Would landscapes designed as environmental art be as effective at engaging public pedagogy? Are temporary installations more successful as public pedagogy? These are all directions for future research.

This thesis is just the beginning for exploring landscape architecture as public pedagogy. Testing the framework is an important way to understand if the knowledge generated by this thesis can be used to guide future designs. Through further research, the author hopes that the frameworks presented here can be expanded, amended, and refined. There may be more tools of engagement that were not discovered in this research, and the framework questions for public pedagogy may also change with further research.

In addition to the further research the author hopes that this thesis sparks, there are a few more concrete goals that can be achieved. By sharing ideas presented here with the public in Charleston, the author hopes that it will initiate a public discussion and debate around sea level rise. This can be used to spur the local community into action. The author hopes that new ideas for the role of public environmental art can be discussed and generated. Even without full implementation of these ideas, there may still be opportunities for this thesis to produce action and change in the Charleston community.

Above all, this thesis seeks to motivate landscape architects to engage with pressing environmental issues, not just through design solutions, but by creating landscapes that educate. In the words of environmentalist Sylvia Earl:

> "We still have a really good chance to make things better than they are. They won't get better unless we take the action and inspire others to do the same thing. No one is without power. Everybody has the capacity to do something."

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