Looking Through Their Lenses: An Analysis of Virginia Environmental Nonprofits' Roles and Challenges in Shoreline Management for Coastal Resilience

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LOOKING THROUGH THEIR LENSES: AN ANALYSIS OF VIRGINIA ENVIRONMENTAL NONPROFITS' ROLES AND CHALLENGES IN SHORELINE MANAGEMENT FOR COASTAL RESILIENCE

by

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Approved by:

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ABSTRACT

LOOKING THROUGH THEIR LENSES: AN ANALYSIS OF VIRGINIA ENVIRONMENTAL NONPROFITS’ ROLES AND CHALLENGES IN SHORELINE MANAGEMENT FOR COASTAL RESILIENCE

Taiwo Christianah Olanrewaju Lasisi
Old Dominion University, 2022
Director: Dr. Juita-Elena (Wie) Yusuf

Environmental nonprofit organizations have emerged to attend to the environmental needs of individuals and communities. Some of these needs are usually those that have been neglected, given insufficient attention, or cannot be singularly handled by the government. In advocating for coastal resilience, environmental nonprofits have been identified as actors who address coastal issues like sea-level rise, flooding, and shoreline management.

Shoreline management involves building setbacks and formulating short and long-term defense strategies such as building living shorelines, ripraps, bulkheads, and tree plantings. These strategies formed the basis of coastal defense in coastal zones. Shoreline management is a significant area of focus pivotal for achieving coastal resilience. This research examines the roles and challenges of Virginia environmental nonprofit organizations in shoreline management and their implications for coastal resilience. Putting the “roles” and “challenges” in context, this research seeks to examine the kinds of activities (roles) Virginia environmental nonprofits perform or offer to improve shoreline management for coastal resilience. It also seeks to address the obstacles environmental nonprofits confront or experience in performing such activities (challenges).

This study’s research questions are: (1) What are the perspectives of Virginia environmental nonprofits in terms of functions and roles they play as stewards of shoreline
management for coastal resilience? (2) How do Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in terms of their effectiveness in performing their roles and functions? (3) What factors affect Virginia environmental nonprofits’ functions and roles as stewards of shoreline management for coastal resilience based on their organizations’ interests, experiences, and efforts? These questions pose a need for exploration and analysis of environmental nonprofit organizations’ views on their roles and challenges on the subject matter, with a more explicit aim of identifying the part they play, the problems they face, and the feasible solutions to such problems. Using Virginia environmental nonprofits as a case study, this research examines and analyzes environmental nonprofits’ roles and challenges in shoreline management for coastal resilience.

The study adopts the stewardship theory and structural-functionalist theory. A conceptual framework was also developed to explain how the study’s research questions, theories, literature review, and findings make synergistic connections. The research also employs a qualitative approach with a case study design that adopts triangulation as a data collection method. In this case, interviews and document analyses of environmental nonprofits charting impact questions and data on nonprofit organizations’ websites. Eighty-five environmental nonprofit organizations serve as the population sample of this study. The document analysis was carried out on the available documents provided by these sample organizations. The analyses addressed five standard charting impact questions on the GuideStar and Charity Navigator databases. It triangulated the five standard questions with environmental nonprofit organizations’ reports and other relevant data on their websites. Following this, a snowball sample strategy was used to conduct interview sessions with 15 Virginia environmental nonprofit organizations, comprising 19 representatives.
The study findings from interviews, reports, and charting impact questions analysis brought about themes common to all or most organizations in the triangulated qualitative analysis. The five major and most recurring themes for environmental nonprofits' roles in shoreline management include: (1) shoreline conservation, restoration, and stabilization; (2) community engagement, collaborations, and partnerships; (3) education training, outreach, and advising; (4) mapping and (5) advocacy. These made up the themes that detail environmental nonprofit organizations’ roles in shoreline management for coastal resilience. There are three challenges-related themes identified from the analysis. They include: (1) funding, and vulnerable communities' access to resources; (2) issues with shoreline management practices; (3) permitting process. Based on findings, the study provides implications and recommends how these roles can be enhanced and how the challenges can be further ameliorated.
This dissertation is dedicated to my dear husband, Olanrewaju Blessing Lasisi.

Thank you for your motivation, inspiration, and guidance over the years.
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CHAPTER I
INTRODUCTION

Environmental nonprofits worldwide are increasingly seeking ways to maintain and promote resilience and adaptation. Their efforts generally involve environmental service provision, including promoting environmental adaptation and coastal resilience in vulnerable coastal and environmentally challenged communities (Zang & Thang, 2016; Saitgalina, Yusuf, & Olanrewaju-Lasisi; 2022). In the United States, environmental nonprofits have emerged to attend to communities' and individuals' environmental needs and address environmental issues that concern the public. Some of these issues have been neglected, given insufficient attention, or cannot be solely handled by the government (Sadler, & Champney, 2016; Robinson, Shum, & Singh, 2018; Saitgalina, Yusuf, & Olanrewaju-Lasisi; 2022). In advocating for coastal resilience, environmental nonprofits have been identified as actors who address coastal issues, including sea-level rise, flooding, and shoreline management (Peacock, Brody, Seitz, et al., 2010).

Shoreline management involves building setbacks and formulating short and long-term defense strategies that form the basis of coastal defense in coastal zones (Leatherman, 2003; Jennings, 2004). In the last two decades, shoreline management has emerged as one of the central focus areas for coastal resilience. Knowledge of environmental nonprofit activities is crucial in ensuring the proper management of shorelines (Leatherman, 2003; Jennings, 2004).

This research examines the roles and challenges of Virginia environmental nonprofit organizations in shoreline management and their implications for coastal resilience. Putting the "roles" and "challenges" in context, this dissertation research examines the kinds of activities
(roles) Virginia environmental nonprofits perform or offer to improve shoreline management for coastal resilience. It also addresses the obstacles environmental nonprofits confront or experience in performing such activities (challenges), whether they overcome such challenges from time to time or not.

Although environmental nonprofits have been identified in the literature as actors that promote shoreline management for coastal resilience, little research and focus have been given to the actual activities involved in the advancement of shoreline management from the perspective of environmental nonprofit organizations themselves (Bowen & Wells, 2002; Beatley, 2012; Van-Dongeren, Ciavola, Martinez, et al., 2018). Hence, there is a need for the exploration and analysis of their views on their roles and challenges on the subject matter, with a more precise aim of identifying the part they play, the problems they face, and feasible solutions to such issues (Hanna-Attisha, LaChance, Sadler, et al., 2016; Robinson, Shum, & Singh, 2018). Using Virginia environmental nonprofits as a case study, the dissertation research examines and analyses environmental nonprofits' roles and challenges in shoreline management for coastal resilience.

**Research questions and objective**

The study's primary objective explores crucial functions and challenges involved in shoreline management for coastal resilience through the lens of environmental nonprofit organizations considered as environmental stewards. The core goal is to understand their roles or functions, identify environmental nonprofits' problems in managing shorelines, and present
possible ways to tackle such complex social issues considering the increasing need for resiliency in Virginia coastal communities.

Using environmental nonprofits in Virginia as a case study, the research questions for this dissertation are as follows:

(1) What are the perspectives of Virginia environmental nonprofits in terms of functions and roles they play as stewards of shoreline management for coastal resilience?

(2) How do Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in Virginia in terms of their effectiveness in performing their roles and functions?

(3) What factors affect Virginia environmental nonprofits’ functions and roles as stewards of shoreline management for coastal resilience based on their organizations’ interests, experiences, and efforts?

This study uses a qualitative research approach and constructivist methodology for data collection and analysis. The data collection method for examining Virginia environmental nonprofit organizations’ roles and challenges includes 15 semi-structured interviews of nonprofit environmental representatives using a snowball sampling technique and 85 document analyses.

Scope of the study

Time consciousness and research feasibility are significant ingredients of good research (Creswell & Creswell, 2017). Hence, the study is limited to analyzing the roles and challenges environmental nonprofits in Virginia face. The research explores environmental nonprofits' impacts on the shoreline management and adaptation activities in Coastal Virginia and other
parts of the state, spurred by the environmental nonprofits' experiences and activities examined. In this light, the roles and challenges of these nonprofits in shoreline management for coastal resilience are discussed with considerations of proposed solutions to those challenges and their potential impact on coastal resilience in Virginia coastal communities.

**Research rationale and relevance**

Research has shown that only a sixth of the world’s coastlines remain in their natural state, and human activity has degraded coastal areas worldwide (World Economic Forum, 2022). The ecosystem forms a healthy life and well-being basis, emphasizing four interrelated environments, natural, social, cultural, spiritual, and built environments (Lee, 2002). The built environment that encompasses manufactured historic and modern structures in communities, parks, transformation systems, etc., is considered vulnerable to coastal flooding, making it a growing global concern (Yusuf et al., 2019).

The United States is not excluded from these trends. For example, in 2012, one of the highest coastal flooding and disaster was recorded in United States history (National Climatic Data Center (NCDC), 2013). Numerous weather and climate disaster events across the United States, including Hurricane Harvey in 2017, cumulatively caused 103 deaths and cost over $160 billion in damages (National Climatic Data Center (NCDC), 2013). Coastal hurricanes continued to happen in the United States, with Hurricane Matthew serving as the most recent in Virginia, with an estimated 546 deaths and $1.9 million in damages in 2016. Hurricane Matthew became the worst disaster to hit Haiti since the 2010 earthquake, and the U.S. had more than 40 deaths and damage estimated, with over $10 billion in damages. Hurricane disasters have continued to
increase following these hurricanes, including Hurricane Florence and Hurricane Michael in August and October 2018, respectively, Hurricane Season in 2019, Hurricane Ida in 2021, and recently, the Hurricanes Alex, Fiona, and Walter in 2022, to mention a few (NCDC, 2013; NOAA, 2022; Austin American Statesman, 2022). Scholars have argued that coastal risks due to sea-level rise events are likely to increase due to two effects: 1) climate change that intensifies the hazards of sea-level rise and coastal flooding, and 2) the ongoing coastal development that increases the impact of such events. Without coastal resilience, flood damage to U.S. coastal areas will increase (McGranahan et al., 2007; Van-Dongeren, Ciavola, Martinez, et al., 2018).

Although environmental nonprofits have been identified in the literature as stakeholders that promote shoreline management for coastal resilience, there is a gap in the examination of theoretical and practical activities and challenges involved in the advancement of shoreline management from the perspective of environmental nonprofit organizations (Bowen & Wells, 2002; Leatherman, 2003; Jennings, 2004; Peacock et al., 2010; Beatley, 2012; Van-Dongeren et al., 2018; Yusuf et al., 2018). Hence, the study explores nonprofits' roles and challenges and feasible solutions to such challenges of environmental nonprofits in Virginia. Since environmental nonprofits deal with shoreline management issues in coastal communities, their perspectives on diverse challenges in enhancing coastal resilience and their impact on coastal adaptation are essential.

In other words, the study seeks to understand the activities Virginia environmental nonprofits do to manage shorelines in Virginia coastal communities and promote coastal resilience. Also, the study presents an opportunity to examine some of the pitfalls nonprofits
encounter in their shoreline management work for coastal resiliency. The end objective of the study is, through research using the lens of the environmental nonprofit, to recommend solutions that can help ameliorate the shoreline management problems environmental organizations experience while understanding their roles and practices for maintaining shorelines in coastal communities.

**Organization of the study**

Chapter I introduces the study to provide an overview of environmental nonprofits and what they are. It also puts the dissertation research in context, pointing out the relationship between nonprofits, shoreline management, and coastal resilience. This is followed by a description of the study's purpose and significance, a summary of the research questions; an overview of the research scope; and the relevance and rationale of the dissertation research.

Chapter II gives a rudimentary overview of the literature regarding nonprofit organizations, the distinction between environmental and non-environmental nonprofits, the history of environmental nonprofits, and who they are. The study explains the concepts of shoreline management and coastal resilience and the intersections between environmental nonprofits and shoreline management. It also describes the nature of shoreline management in Virginia, including shoreline activities revolving around the coastal communities in Virginia.

Chapter III comprises a detailed discussion of the study's theoretical framework, the Stewardship, and Structural Functionalist theories. The theories are adopted to explain the importance of the rationale for environmental nonprofits' roles in shoreline management for coastal resilience in the Commonwealth of Virginia.
Chapter IV describes the study's research design, which encapsulates the study methodology, and research methods such as the data source, unit of analysis, and sampling strategy. Chapter IV also contains the definition, conceptualization of the research beneficiaries, the role of “the other” as necessary for a qualitative study, and a detailed description of the data analysis procedures. Putting “the other” in context as concerned with qualitative research explains the exploration of the experiences of people who needed to be heard amongst many voices and whose needs, values, experiences, and perspectives require attention. These categories of people are referred to as “the other” in qualitative and advanced qualitative research.

Chapter V provides and discusses findings on roles and challenges for environmental nonprofit organizations’ service delivery and policy for shoreline management. The study used a case study method of environmental nonprofits to explore the roles and challenges of Virginia environmental nonprofits in managing shorelines. The findings were also discussed using the NODE XL data visualization technique to explain the study findings in relation to the study research questions and literature. Chapter VI is the final chapter of the research and details the study summary, recommendations, and implications, both in theory and praxis, based on the study findings. The chapter also discusses the study’s contributions to the knowledge of public administration and environmental policy field, the study's limitations, and areas for future research.
CHAPTER II
LITERATURE REVIEW

The nonprofit sector

The purpose of nonprofit organizations is to meet the needs of the individuals and communities they serve (Young, 1999; Taylor et al., 2019). Salamon and Anheier (1992) described them as the third sector, distinguishing them from the public and private sectors. This third sector, also known as the nonprofit sector, is sometimes referred to as the voluntary, charitable, tax-exempt, independent, and non-governmental sectors (Salamon & Anheier, 1992). According to Salamon (1994), the nonprofit sector underwent significant growth in the 1960s. It has since expanded because of the citizens' efforts to partake in their governance through grass-root service and, more specifically, because the public sector struggled to deliver needed services independently.

Recent research has shown that approximately 1.6 million tax-exempt nonprofit organizations, including all nonprofits classified under 501(c) status registered as 501(c)(3) public charities or private foundations, endeavor to meet the social and environmental needs of individuals and communities they serve (Independent Sector, 2021). Though nonprofit organizations are highly involved in providing various social services and promoting welfare and sustainability, they often do this in different capacities (Young, 1999; National Center for Charitable Statistics at the Urban Institute, 2013; Birungi, 2019; Taylor et al., 2019). For instance, in terms of their capabilities, roles, and contributions, nonprofits can be classified into "other nonprofits" and "environmental nonprofits.” The latter is the onus of this research. Other
nonprofit organizations voluntarily seek to meet the needs of individuals and communities lacking adequate or sufficient social services or welfare, such as food, shelter, healthcare, and education (Young, 2000). On the other hand, environmental nonprofits generally involve organizations that provide coastal and environmental services to environmentally vulnerable communities and communities to promote coastal resilience, environmental sustainability, and adaptation in such communities (Zang & Thang, 2016). Some of the issues they seek to address include sea-level rise, shoreline management, fishery protection, and ocean preservation (Zang & Thang, 2016; Taylor et al., 2019).

**History of environmental nonprofit organizations in the United States**

Many environmental nonprofit organizations in the United States have been around for over 50 years (e.g., Chesapeake Bay Foundation). Small local organizations have been around for some time. The concept and emergence of these organizations are postulated as necessary to support environmental issues that the government and the private sector fail to support (Taylor et al., 2019). The burst of the environmental nonprofits in the 1970s and surrounding environmental justice organizations' advocacy led to environmental protection laws. Several environmental justice scholars regard the North Carolina and Warren County protests over the location of a landfill which had about 40,000 cubic yards of soil contaminated with cancer-causing chemicals in a poor black farming community in Warren County, as launching the United States environmental movement (Bullard, 1999, 2000; Bowen & Wells, 2002). Numerous civil rights institutions, like the Southern Christian Leadership Conference, and United Church of Christ Commission were part of the leaders of the first environmental justice movements, which gave
birth to other environmental movements (United Church of Christ Commission for Racial Justice, 1987).

These organizations' protests gained national media attention. They were regarded as part of the first environmental nonprofits and advocates to raise public awareness concerning the United States' environmental issues (Agyeman, Bullard & Evans, 2002; Jenkins, 2006; Hasenfeld & Garrow, 2012). Some of the issues they raised were the need to assist and maintain sustainability and resilience in environmentally challenged communities, the lack of community access to environmental policymaking, and adaptability equity. They also raised issues of the historically rooted tendency for corporations and governments to segregate in quick facility provision, excluding low-income and minority communities from the dominant environmental movement, which all fostered the rise and advocacy of these environmental nonprofit organizations (Cole & Foster, 2001).

By the early 1980s, when environmental justice protests became widely spread in disadvantaged communities nationwide demanding environmental justice, the national government under President Jimmy Carter's administration placed importance on environmental agendas (Taylor, 2000; Downey, 2006). The environmental justice movement has benefitted from several successes of environmental nonprofits in recent years.

Although traditionally, a movement built upon grassroots organizing and activism is a characteristic of other social action movements, environmental justice advocates have been able to secure official government responses to their demands (Agyeman, Bullard & Evans, 2002; Downey, 2006). Consequently, the environmental movement of environmental nonprofit
organizations of the 20th and 21st century has evolved into a large, diverse, and well-financed global community increasingly required to prove its worth in the United States and worldwide.

Today, numerous diverse environmental nonprofit organizations exist in the United States (National Center for Charitable Statistics, 2019). Some include the Environmental Defense Fund, The Nature Conservancy, and Chesapeake Bay Foundation. These environmental nonprofit organizations worldwide have been classified into religious, environmental, and multipurpose environmental nonprofit organizations (Taylor, 2000). Some environmental nonprofit organizations focus on providing basic needs like food and shelter and physically assisting communities to revitalize and rejuvenate after environmental hazards occur. Others advocate for equity in governments' emergency responses to communities suffering from societal issues that pose environmental risks such as food injustice, climate change, and rising sea levels leading to natural disasters. In contrast, others have a combination of both (National Center for Charitable Statistics, 2019).

**Who are Environmental nonprofits?**

Environmental nonprofits are organizations that enhance environmental adaptation and sustainability by typically looking for unmet environmental needs of communities and individuals and committing resources to help address these environmental issues that concern the public (Sadler, & Champney, 2016; Hanna-Attisha et al., 2016; Robinson, Shum, & Singh, 2018). Explanations for environmental nonprofits in advancing adaptation and sustainability generally fall into three main categories namely, economic, political (Young, 1999; Steinberg, 2006; Suárez, 2009; Smith & Gronbjerg, 2006), and environmental (Lee, 2002; Downey, 2006;
Francis, 2017; Merriman-Goldring, 2017; Robinson, Shum, & Singh, 2018). While these categories are divergent and attend to separate issues, they are not mutually exclusive but somewhat interconnected. Environmental nonprofits emerge in this light to serve groups or populations not covered adequately or sufficiently by the government’s services. This occurs primarily because of the public sector’s limited access or attention to addressing environmental issues in diverse communities in need (Suárez, 2009).

Though United States environmental nonprofit organizations have existed for nearly a century (Taylor et al., 2019), by 2014, they had doubled to over 20,000 environmentally focused nonprofits operating in the United States (Guidestar, 2014; Guidestar, 2020). These nonprofit organizations are a visible sub-sector in their contribution to sustainability and resilience and receive government and private funds to promote their activities (Bortree & Seltzer, 2009; Lu, 2016). As of 2014, over half of these nonprofits had annual revenue under $500,000 (Guidestar, 2014; McCaskill & Harrington, 2017), and a small fraction of these nonprofits (262 of them) had annual revenue over $5 million (McCaskill & Harrington, 2017).

For environmental nonprofits, the resources they depend upon are the same as those of non-environmental nonprofits, including government funds and the contribution of donors to fund the activities necessary to achieve their mission. Pfeffer and Salancik (2003) stated that other profit management practices typically emphasize seeking a diverse base of funding streams. Receipt of government grants and contracts usually entails participation in a Request for Proposal (RFP) process where nonprofits respond to government funding requests for proposals. There is generally minimal need to engage a larger group of stakeholders to pursue these funds
These funds are then used for mission-based activities to promote resilience and environmental sustainability in environmental nonprofit organizations (Auger, 2010; Maxwell & Carboni; 2014; Taylor et al., 2019).

**The concept of coastal resilience**

Resilience as a concept is posited to predominantly emerge in the last two decades as a pivotal new way of thinking about coastal communities and coastal planning. In Holling's writings on ecological resilience, the early 1970s is often considered the precursor of discussions regarding resiliency and how it applies to social and natural ecosystems. According to Holling, resiliency is "the capacity of a system to absorb and utilize or even benefit from perturbations and changes that attain it, and so persist without a qualitative change in the system's structure." (Holling, 1973, p. 9).

Resilience, as a word, was coined from the Latin word “resilire.” This means “to jump back” or "rebound." It is commonly referred to as the ability to easily or quickly rebound or bounce back from a crisis or disturbance (Paton, 2006). Resilience is also defined in the literature as the measurement of the capacity of a community to deal with and manage adversities and, while doing so, reach a higher level of functioning (Kulig, cited in Pooley, Cohen, & O'Connor 2006, 163), how fast a system recovers from failures (Emergency Management Australia, 1998), and the capability to draw upon “social, personal, and natural resources to manage the consequences of disasters” (Paton, McClure, & Bürgelt; 2006:106).

The fifth annual report of the Intergovernmental Panel on Climate Change defines resilience as:
"The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation" (Intergovernmental panel on climate change, 2014, p 5).

When addressing the resilience of coastal regions and communities, the core themes of flexibility, adaptability, and durability are prominent in diverse planning and management literature. As a concept, coastal resilience has been defined by Masselink and Lazarus as the “capacity of the socio-economic and natural systems in the coastal environment to cope with disturbances induced by factors such as sea-level rise, extreme events, and human impacts by adapting while maintaining their essential functions.” (Masselink & Lazarus, 2019, p. 10).

In the cases of climate change, coastal resilience has also been characterized as “the capacity of a given system to withstand or adapt to chronic, continuous disturbances, such as sea-level rise, flooding, a shift in prevailing wave conditions, or a negative sediment budget.” (Piégay, Chabot & Le Lay, 2018 cited in Masselink & Lazarus, 2019, p. 9). A broader definition of coastal resilience incorporates a coastal system's ability, ranging from an ecological, geomorphic, socio-economic, or a combination, to bounce back from a significant coastal disturbance, such as a storm event. (Masselink & Lazarus, 2019).

Beatley (2012) emphasizes that coastal resilience goes "beyond reactive steps to prevent or handle a coastal problem. It takes a holistic approach to what makes a community resilient, including such factors as social capital and sense of place." (p. 12). The National Oceanic and Atmospheric Administration (NOAA) affirmed that resilience is fundamentally thought to have three components: society, economy, and environment. These components must all be healthy
and robust for a resilient community (NOAA, 2010). Consequently, the pivotal role coastal ecosystems can play in terms of the environmental component in improving coastal resilience is of growing interest (Sutton-Grier, Wowk, & Bamford, 2015). In recognizing different coastal disturbance types, a working definition of coastal resilience should consider the necessity of viable functions, such as intact sediment transportation pathways and physical space, to give room for change and variability (Marani, D'Alpaos, Lanzoni, et al. 2007; Marani, D'Alpaos, Lanzoni, et al., 2010; Kirwan & Megonigal, 2013 as cited in Masselink & Lazarus, 2019).

Environmental nonprofits and coastal resilience

Diverse researchers have argued that coastal risks due to sea-level rise events are likely to increase due to two effects of climate change: the hazards of sea-level rise and coastal flooding, and coastal development will continually improve the impact of such events. Without coastal resilience and management by diverse resilience professionals such as environmental nonprofits, flood damage in U.S. coastal areas will likely improve (McGranahan et al., 2007; Van-Dongeren, Ciavola, Martinez, Viavattene, Bogaard, Ferreira, & McCall, 2018).

"Communication" has been classified as one of the strategies environmental nonprofits use for improving resiliency and sustainability. Environmental nonprofit communications are crucial for their success as organizations and the broader move toward coastal protection (Corbett, 2006; Merriman-Goldring, 2017). In her book, Corbett, a scholar who specializes in environmental communications, mentioned that "it is communication that sparks people to join environmental groups and communication that urges them to take action, renew membership,
and give money to solve environmental problems" and advance sustainability (Corbett, 2006; 293).

In advocating for coastal resilience, environmental nonprofits have been identified in the literature as central actors in framing environmental problems (Corbett, 2006; Goffman, 1986; Merriman-Goldring, 2017). In this sense, framing refers to how nonprofit leaders, employees, and volunteers use specific framing (language, imagery, etc.) to help people interpret and make sense of the information provided (Goffman, 1986). The framing of environmental nonprofits uses a core mechanism that affects action in the nonprofit sphere and influences governmental policies and public debate (Corbett, 2006; Merriman-Goldring, 2017). Corbett (2006) argued that "frames facilitate communication because they carry a great deal of symbolic meaning" and help organize and structure diverse concerns for environmental sustainability (Corbett, 2006; p. 308). Moreover, the framing done by environmental nonprofit organizations is significantly newer, and more grassroots nonprofits have been argued to be comparatively progressive because it pushes governmental organizations that tend to be more static and bureaucratic into action (Corbett, 2006; Merriman-Goldring, 2017).

Environmental nonprofits have further extended many of their activities online. David Suárez, a scholar who specializes in nonprofits and civic engagement, noted that "with the rise and the development of the Internet, the use of websites provides a novel opportunity for nonprofits to scale their social impact and expand their purpose" (Suárez, 2009; p. 267), and reach a far broader audience more efficiently. Coastal nonprofits in Virginia, such as the Chesapeake Bay Foundation (Virginia Chapter), Wetlands Watch, Alliance of the Chesapeake
Bay, etc., report environmental ills on their websites and other internet platforms and use this as a tool for communicating to the public (McGee, 2019). Providing this kind of information and framing are foundational strategies that environmental nonprofits use to fuel their actions. These actions include advancing sustainability through environmental advocacy, education, science, policy, litigation, and restoration. In turn, the stimulation of these actions in the nonprofit environmental sphere influences government policy formulation and public awareness (Corbett, 2006; McGee, 2019).

Nonetheless, over the past 20 years, the United States federal government has been intransigent in its response to climate change by diverse public commentators (Greenberg & MacAulay, 2009). Many environmental nonprofit organizations in the United States are specifically known for helping with coastal resilience advocacy (e.g., River Association and Nature Conservancy Virginia Coast Reserve) due to recurring issues like flooding and sea-level rise. These environmental nonprofit organizations’ campaigns have been the sources of pressure on the U.S. government at the local, state, and federal levels (Greenberg & MacAulay, 2009; Hall & Taplin, 2010; Dodge & Ospina, 2016; Guo & Saxton, 2018).

In planning for coastal resilience, Beatley (2012) argues that in preparing for coastal management in the future, resilience needs to be adopted in affected communities in the face of such threats. However, many government reports have also argued to focus almost exclusively on the built environment, leaving behind the social, environmental, and public health issues central to everyday life and the long-term coastal resiliency of these communities (Bautista, Osorio & Dwyer, 2015).
Another study supports the need for coastal infrastructure, "an approach (which combines both healthy coastal or natural ecosystems, and built coastal systems) that values smaller, decentralized kinds of energy, water, and transport more suited to the serious physical conditions coastal communities will likely face, with the implicit notion on taking steps to build adaptive capacity, to be ready ahead of a crisis or disaster" (Beatley, 2012; p. 4). This is to build long-term coastal resiliency and protect the U.S. coasts from extreme events (Beatley, 2012; Pelling, 2010). Some scholars have further argued that sustaining coastal resilience through coastal infrastructure yields three fundamental approaches: the natural infrastructure approach, managed realignment approach, and a hybrid approach (Arkema et al., 2013; Rodriguez et al., 2014; Bautista, Osorio & Dwyer, 2015; Sutton-Grier, Wowk, & Bamford, 2015; Guo & Saxton, 2018).

**Natural infrastructure approach**

In considering a natural infrastructure approach, natural features that can provide storm protection include salt marsh, oyster and coral reefs, seagrasses, barrier islands, and dunes. When such natural habitats are combined, the argument is that more protection is provided for coastal communities because they can restore or create barrier islands, which are succeeded by oyster reefs and salt marsh. The natural approach benefits coastal protection, which includes water quality improvements, carbon sequestration and storage, fishery habitat, and recreational use. It can also provide these benefits to coastal communities during storm events and at all times. Rodriguez et al., 2014; Sutton-Grier, Wowk, & Bamford, 2015).

In ecosystem restoration, the ecosystem grows stronger with time as it gets established using a natural infrastructure approach and the potential to self-recover after a storm or forcing
event while keeping pace with sea-level rise. The approach is usually cheaper to construct and can survive smaller storms with minor damage than built infrastructure, potentially self-repair. (Sutton-Grier, Wowk, & Bamford, 2015; Guo & Saxton, 2018). Nonetheless, permitting natural projects can be more complex than built projects and other approaches (Arkema et al., 2013; Rodriguez et al., 2014; Sutton-Grier, Wowk, & Bamford, 2015).

Managed realignment approach

In the management realignment approach, the main aim of the natural coastal infrastructure is to protect built infrastructure for a longer lifespan and yield increased benefits for storm protection. The managed realignment approach sees the possibility of moving sea walls farther away from the ocean edge and closer to the coastal communities. It allows for natural infrastructure within the sea wall and the ocean edge (Sutton-Grier, Wowk, & Bamford, 2015; Guo & Saxton, 2018).

The managed realignment approach is advantageous when considering how expertise already exists on how to design and build such approaches and the decades of experience with implementing the approach. Also, it provides an understanding of how other approaches function and poses readiness to withstand a storm event as soon as they are constructed (Arkema et al., 2013; Rodriguez et al., 2014; Sutton-Grier, Wowk, & Bamford, 2015; Guo & Saxton, 2018).

The shortfall of the managed realignment approach is that it is difficult to adapt to changing conditions such as the sea-level rise and weakens with time because it has a built-in lifetime (Rodriguez et al., 2014; Sutton-Grier, Wowk, & Bamford, 2015; Guo & Saxton, 2018). The approach can also cause coastal habitat loss, which negatively impacts the ecosystem.
services nearby coastal ecosystems provide. This can lead communities to increased loss of life or property because the approach tends to lead to sustaining more damage during small storm events than natural approaches and provides no benefits in good weather (Rodriguez et al., 2014; Sutton-Grier, Wowk, & Bamford, 2015; Guo & Saxton, 2018).

**Hybrid approach**

The hybrid approach combines the natural infrastructure approach and the managed realignment approach. In this approach to improving coastal resilience, built infrastructure, such as removable sea walls, is combined with created or restored natural infrastructures, such as salt marsh and oyster reefs (Bautista, Osorio & Dwyer, 2015; Sutton-Grier, Wowk, & Bamford, 2015; Guo & Saxton, 2018).

The other option, which is realignment-oriented, includes raising houses on stilts. The built infrastructure is used as additional or supplementary protection when a large storm is expected. In contrast, the natural coastal infrastructure is a critical protection guard. The natural infrastructure provides key storm protection benefits for when small or medium storms are expected (Rodriguez et al., 2014; Bautista, Osorio & Dwyer, 2015; Sutton-Grier, Wowk, & Bamford, 2015).

Ultimately, the impacts of climate change are already being felt in coastal communities in the United States. Learning how to live with these impacts is a priority for human development. In this light, it will be straightforward to see coastal resilience as a narrowly defensive task of protecting vulnerable communities' core assets or functions from climate change risks (Pelling, 2010). There is a need for more profound engagement in coastal resilience, with the view of
climate change risks as a result and driver of social and natural systems and the importance of the proactive consideration of such interactions (Pelling, 2010; Beatley, 2012). These interactions can be drawn from a pool of environmental and coastal resilience experts and professionals through their diverse perspectives to understand better the roles they play and challenges they face in advancing coastal resilience, an environmental strategy (Pelling, 2010; Beatley, 2012).

**Coastal resilience and Virginia master planning regions**

Virginia is witnessing the adverse effects of climate change, and the state has been working with numerous agencies, including environmental nonprofit organizations, to improve resilience. The intensity, duration, and frequency of rainfall events in Virginia have been increasing across its coastal areas, and these increases are expected to continue (NOAA, 2021; Intergovernmental Panel on Climate Change, 2021). Flood risks along coastlines intensify, demonstrated by more frequent, enduring, and severe nuisance flood events caused by rain, wind, lunar high tides, storms, or any combination of events (NOAA, 2021; Intergovernmental Panel on Climate Change, 2021). Research shows that areas vulnerable to flooding will become permanently inundated in the next fifty years. Many solutions designed to solve today’s problems will not apply to the increased resilience challenges Virginia will face as the climate trends continue (Sweet et al., 2018; NOAA, 2021; Intergovernmental Panel on Climate Change, 2021; The Nature Conservancy, 2021; US Bureau of Economic Analysis, 2021).
Virginia coastal resilience: Communities’ vulnerability and capacities

Research has shown that Virginia communities’ capacities to mitigate coastal resilience have been reduced or hindered by high fiscal stress. For instance, Hampton roads have high fiscal stress ranges in Franklin, Hampton, Newport News, Norfolk, and Portsmouth and below-average fiscal stress in other areas like Chesapeake. This denotes that even if political or donor support exists, many communities in Hampton roads will still likely struggle to generate additional local revenues from their current tax base to fund resilience efforts (Sweet et al., 2018; Lang, 2020; NOAA, 2021; US Bureau of Economic Analysis, 2021).

The capacity to plan and fund resilience efforts varies significantly across Virginia regions. While most jurisdictions have demonstrated some ability to plan for coastal resilience, few have begun implementing robust coastal adaptation plans because some have minimal capacity to implement resilience planning efforts given limited resources. Most jurisdictions in different Virginia regions have also considered the capacity to fund adaptation projects a significant challenge, primarily due to high costs of large-scale resilience projects (Lang, 2020; NOAA, 2021; US Bureau of Economic Analysis, 2021).

Regarding social vulnerability and capacities, diverse flood-exposed residents in Virginia are more likely to be urban residents, economically stressed families, and people of color (Lang 2020, Cause IQ, 2021). For example, Hampton Roads and Western Virginia have the highest portion of residents of color exposed to flooding. The regions also have pockets of flood-exposed communities with low English proficiency in places like Virginia Beach, Chesapeake, and Roanoke, who may experience additional challenges accessing critical information and
resources, and many families living in flood-exposed areas. In terms of housing type and transportation, research has shown that a significant portion of these regions’ flood-exposed residents’ lives in housing situations considered challenging for emergency management in terms of housing type and transportation. These include living in group quarters and some households having no vehicle access (NOAA, 2021; Intergovernmental Panel on Climate Change, 2021; The Nature Conservancy, 2021; US Bureau of Economic Analysis, 2021).

**Virginia coastal resilience: Regional and local government vulnerability and capacities**

Virginia’s local, county, and regional governments have different variations in their ability to implement adaptation projects because of the differences in financial resources and technical capacities. Such inequities arise for numerous reasons, including institutional knowledge and legislative authorities' historical economic disadvantages (NOAA, 2021; Intergovernmental Panel on Climate Change, 2021; The Nature Conservancy, 2021; US Bureau of Economic Analysis, 2021).

Understanding these differences among localities is essential to directing future support in response to resilience. Research has identified localities experiencing these limitations using two metrics: the Fiscal Stress Index framework, brought about by the Virginia Department of Housing Development's commission on local government, and the results from an online survey completed by local and regional practitioners as part of Virginia (Intergovernmental Panel on Climate Change, 2021; The Nature Conservancy, 2021). From the survey results, specific projects need to adopt feasibly and even numerous approaches for promoting coastal resilience. The "green" natural or nature-based solutions approach or a hybrid of the managed and natural
approaches to resilience needs and priorities vary across Virginia and regions and localities that need flexibility in determining which strategies work best for their communities (The Nature Conservancy, 2021; US Bureau of Economic Analysis, 2021).

Moreover, research shows that some localities and organizations have little experience with, or resources dedicated towards resilience efforts, and Virginia supports localities to help build such capacities, develop funding strategies, and assist in securing funding. Hence, building capacity and planning for resilience should include dynamic and continuous processes that require refinement as science, considering that coastal communities in Virginia are facing new risks that need innovative and cost-effective efforts and solutions (Sweet et al., 2018; Lang, 2020; NOAA, 2021; US Bureau of Economic Analysis, 2021).

According to the 2021 Virginia Coastal Master Plan Master Plan report, the Aligning Economic Development Subcommittee worked with Virginia’s state, regional, and local practitioners to identify and harness opportunities that align coastal resilience with economic development efforts and goals (Virginia Coastal Master Plan, 2021; Lang, NOAA, 2021; US Bureau of Economic Analysis, 2021). Based on the survey the subcommittee developed to understand better how flooding affects economic development efforts and the barriers to aligning economic development and resilience efforts, it was found that flooding can hinder economic potential. Risks related to flooding have catalyzed new economic opportunities. The survey received responses from representatives of state agencies, planning district commissions, regional commissions, regional economic development organizations and agencies, and local governments (Virginia Coastal Master Plan, 2021; Lang, NOAA, 2021; US Bureau of Economic Analysis, 2021).
The respondents also mentioned the need for financial and regulatory support for industries emerging around resilience, assistance for businesses affected by flooding, and capacity-building support for local governments to bolster their resilience. The barriers identified in aligning economic development and resilience include the lack of local awareness and prioritization of coastal flooding resilience as well as the acknowledgment of economic risks of flooding, which have been identified as problems by other research findings (Virginia Coastal Master Plan, 2021; NOAA, 2021; US Bureau of Economic Analysis, 2021).

**Virginia environmental nonprofits' capacities for coastal resilience**

Little literature explores the relationship between environmental nonprofit organizations and shoreline management for coastal resilience. Nonetheless, environmental nonprofits in Virginia are generally considered to offer services that contribute to shoreline management efforts (Bowen & Wells, 2002; Berman, Mason, Nunez & Tombleson, 2018). Some of the environmental nonprofits in Virginia that do shoreline management for coastal resilience work include the Wetlands Watch, Lynnhaven River Now nonprofits, which are more than ten years old, and Elizabeth River Project, which is about 20 years old. Other large environmental nonprofit organizations with subsidiaries in Virginia include the Chesapeake Bay Foundation, The Nature Conservancy, Sierra Club, and the Environmental Defense Fund (Berman, Mason, Nunez & Tombleson, 2018; Lang, 2020; Cause IQ, 2022).

Current research shows 729 environmental organizations in Virginia as of 2022. These Virginian environmental nonprofit organizations employ 10,601 people, earn more than $2 billion in revenue each year, and have assets of $10 billion (Cause IQ, 2022; GuideStar, 2022;
Charity Navigator, 2022). Also, employment and significant environmental works related to coastal resilience in Virginia environmental nonprofit organizations are driven by large organizations like Nature Conservancy, Virginia Conservation Network (VCN), Student Conservation Association (SCA), Marine Spill Response Corporation (MSRC), Sierra Club, Conservation International (CI), and the Environmental Defense Fund (EDF) (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022). Studies show that environmental nonprofit organizations with less than $1 million in revenue account for 20% of combined environmental nonprofit earnings, and organizations with more than $100 million account for 77.9% of environmental nonprofit earnings (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022).

About 17 different types of environmental nonprofit organizations in Virginia are doing work related to environmental management and resilience, though not all are directly relevant to shoreline management. In terms of natural resource conservation, there are 258 natural resource conservation nonprofits in Virginia. These Virginian natural resource conservation nonprofits employ 7,200 people and earn more than $2 billion in revenue per annum and $10 billion in assets. In the case of botanical and horticultural nonprofits, there are 207 botanical nonprofits and horticultural societies in Virginia. These Virginian botanical and horticultural nonprofits employ 510 people, earn more than $29 million in revenue each year, and have assets of $111 million. Virginia has 181 garden clubs for horticultural gardening and horticulture programs. Combined, these Virginian garden clubs employ 36 people, earn more than $6 million in revenue each year, and have assets of $21 million (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022).
For water and wetland protection organizations, there are 62 water quality and wetland conservation organizations in Virginia. These Virginia water and wetland protection organizations employ 467 people and have revenue of $97 million per annum and $235 million in assets. For environmental education programs, there are 61 environmental education organizations in Virginia. When put together, these Virginian environmental education programs employ 2,768 people, earn revenue of more than $64 million, and have $56 million in assets. For pollution abatement organizations, there are 59 pollution abatement and control organizations in Virginia. These Virginian pollution abatement organizations employ 672 people, earn more than $176 million in revenue each year, and have assets of $212 million (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022).

For land conservation groups, 49 land conservation organizations in Virginia exclusively do land conservation work without combining it with other environmental work. When put together, these Virginian land conservation groups employ 4,632 people, earn revenue of $1 billion yearly, and have $9 billion in assets (Lang, 2020; Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022; Eco USA, 2022). For energy conservation organizations, there are 37 energy conservation and development organizations in Virginia. These Virginian energy conservation organizations employ 774 people, earn more than $151 million in revenue each year, and have assets of $114 million (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022; Eco USA, 2022). There are 32 civic environmental and open space organizations in Virginia for civic and environmental organizations. Combined, these Virginia civic and environmental organizations employ 30 people, earn $2 million yearly, and have $2 million in
assets worth. For recycling programs, there are 21 recycling programs in Virginia. These
Virginian recycling programs employ 71 people, pay $65 million yearly, and have $81 million in
assets (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022). For nonprofit organizations
supporting a single environmental nonprofit, 19 organizations are supporting a single
environmental nonprofit in Virginia. When put together, these Virginian organizations
supporting environmental nonprofits have no employees, earn $4 million per annum have $44 million in assets (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022).

For environmental advocacy, there are 21 environmental alliances and advocates in
Virginia. These Virginian environmental advocates employ 0 people, earn more than $596,482 in
revenue each year, and have assets of $914,322 (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022). For organizations supporting multiple environmental nonprofits, 11
organizations are supporting multiple environmental nonprofits in Virginia. When put together,
these Virginian organizations supporting multiple environmental nonprofits employ 0 people,
earn more than $6 million in revenue each year, and have assets of $29 million (Cause IQ, 2022;
GuideStar, 2022; Charity Navigator, 2022). For botanical gardens, there are 14 botanical gardens
and arboreta in Virginia. These Virginian botanical gardens employ 474 people, earn more than
$23 million in revenue each year, and have assets of $89 million (Lang, 2020; Cause IQ, 2022;

There are eight environmental research and public policy institutes in Virginia. These
Virginian environmental research institutes earn more than $443,286 in revenue each year and
have assets of $205,707 (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022). There are
five environmental professional societies in Virginia. In combination, these Virginian environmental societies employ 0 people, earn more than $0 in revenue each year, and have assets of $0 (Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022). There are four environmental technical and management assistance providers in Virginia. These Virginian environmental assistance providers employ 22 people, earn more than $2 million in revenue annually, and have assets of $254,153 (Lang, 2020; Cause IQ, 2022; GuideStar, 2022; Charity Navigator, 2022; Eco USA, 2022).

**Shoreline management defined**

Before now, landscape professionals have addressed shoreline erosion haphazardly without a rudimentary understanding or consideration of how the physical environment, human-made constructions, and land-use patterns affect or impact each other (Hardaway & Byrne, 1999). Nevertheless, the effects of these changes are often significant. Land-use practices have also evolved substantially in the past few decades and have continued to progress (Hardaway & Byrne, 1999; Beatley, 2012; Taylor et al., 2019).

Over the years, numerous lands along rivers, creeks, and bays that were once predominantly woodlands have been converted to agricultural areas, with residential development continually increasing (Hardaway et al., 1992; Beatley, 2012). Consequently, "the influx of nutrients, herbicides, and pesticides has increased and has directly influenced waterways. At the same time, marsh fringes that once lined many shorelines have eroded, leaving uplands often unprotected from wave action." (Hardaway & Byrne, 1999 p. 7). As these
physical changes continue to occur, waterfront property values have steadily increased, and the expenses of managing and controlling shoreline erosion have also increased.

Anthropogenic alteration of shoreline environments has caused significant lost of sandy beach ecosystems and eroded these ecosystems' resilience to disturbances in haphazard situations (Balouskus & Targett, 2016). As a result, shoreline management has become critical, especially considering that human occupation and investments are threatened (Hardaway & Byrne, 1999; Beatley, 2012). Shoreline management has been conceptualized as building setbacks and formulating short- and long-term defense strategies, which form the basis of coastal defense in coastal zones (Leatherman, 2003; Jennings, 2004).

This research defines shoreline management as an individual or collaborative formulation and application of feasible methods and strategies, such as shoreline management plans, that drive coastal defense and build short- and long-term mechanisms to facilitate and promote the management of shorelines for coastal resilience in coastal zones and coastal communities. Shoreline management is considered one of the main focus areas pivotal for coastal resilience. Knowledge and methods of the activities involving the continuous management of shorelines have continued to be crucial (Leatherman, 2003; Jennings, 2004).

**Strategies of shoreline management and protection of wetlands**

In the last two decades, more habitat-friendly management strategies, which utilize the creation of marshes and beaches for shoreline protection rather than hardening the coast, have been implemented around the Chesapeake Bay. These approaches include creating marsh fringe by directly planting the existing substrate and adding sand and sand with stone groins and sills.
Where the fetch is long, the stone is needed to resist waves. Breakwaters and beach fill can be built on more open coasts to achieve a stable sandy habitat of beaches and dunes (Hardaway & Byrne, 1999). These “shoreline strategies can, if properly designed and constructed, provide shore protection as well as create a viable vegetated fringe that 1) restores natural functions and 2) provides water quality buffers, which are the two main Chesapeake Bay restoration goals” (Hardaway & Byrne, 1999, p. 4).

With efforts to develop feasible shoreline management strategies and options for effective shoreline stabilization, the goals to consider to achieve shoreline stabilization provided by Hardaway and Byrne (1999) are listed below:

1. To ensure that vegetated and non-vegetated wetland habitats are created, protected, maintained, and enhanced.
2. To enhance the longevity of strategies of shore stabilization.
3. To foster the prevention of loss of land and protect upland improvements.
4. Protection and preservation of upland runoff and groundwater flow through riparian and vegetated wetlands management.
5. To address possibilities of secondary impacts within reach, every proposed shoreline strategy may include the encroachment of structures onto subaqueous land and wetlands or impacts to downdrift shores from a reduction in the sand supply.
6. To be involved in erosion control initiatives to abate sedimentation.
7. To create and provide access to recreational opportunities such as beaches.
These objectives are appropriately assessed in the context of shoreline management and stabilization. While all these objectives should be considered for shoreline management, they will not carry equal weight. The satisfaction of all objectives for any given location is not likely, as some may be mutually exclusive. For instance, some coastal communities use riparian and living shoreline methods to manage their shores and use bulkheads, stone sills, sand with groins, breakwater systems, spurs, and revetments.

**Shoreline management in coastal Virginia**

Virginia is considered one of the states in the U.S. with the most extensive tidal environment (Hardaway & Anderson, 1999; Berman, Mason, Nunez & Tombleson, 2018). Shoreline management and erosion control throughout Virginia's coastal communities often consists of isolated actions taken on a parcel-by-parcel basis when waterfront property owners contact consultants or contractors to address erosion concerns (Berman, Mason, Nunez & Tombleson, 2018). In some instances, “water presents a threat, either directly or indirectly, whereas in other cases, water enriches both private and public aspects of urban life” (Gandy, p. 2, 2014). In this way, management of Virginia's shorelines is characterized as response-structured to threats, and environmental resource managers such as environmental nonprofits are involved in influencing waterfront property owners on whether they have an erosion problem, the magnitude of erosion if it exists, or about alternative approaches that are more beneficial to the property owner and the local environment (Berman, Mason, Nunez & Tombleson, 2018). For instance, with approximately 85 % of the Chesapeake Bay shoreline privately owned as of 2018, it is vital to increase awareness about the potential of erosion and the choices available for shore
stabilization, which enhances the land-water connection (Hardaway & Anderson, 1999; Berman, Mason, Nunez & Tombleson, 2018).

Researchers have found that the erosion rate in tidal Virginia has continued to increase (Hardaway & Anderson, 1999; Berman, Mason, Nunez, et al., 2018). The National Academy of Science reported on improving shoreline management framework and strategies that suggest improving awareness of diverse choices available for erosion mitigation, considering the consequences of erosion mitigation approaches (NRC, 2007). Improvements in shoreline management planning and action have been identified as critical elements to mitigating shore erosion on sheltered coasts in environmentally friendly ways (Berman, Mason, Nunez & Tombleson, 2018). Gandy also suggests that the ‘development of a modern state, and its characteristic forms of expertise and knowledge production, is to a significant degree entwined toward greater control over water, ranging from the public health needs of cities to larger-scale interventions for agriculture, power, and flood control’ (Gandy, 2014, p. 3).

Over the past three decades in coastal Virginia, bulkheads, revetments, and groins were considered the most common protection and mitigation strategies and approach currently employed to promote shoreline management and control, with some others including sills and beach nourishment. (Hardaway & Anderson, 1999). Considering these most common approaches, in 1985, there were over 400 miles of eroding upland shorelines along the Virginia side of the bay's main stem and major tributaries, where bulkheads or revetments defended about 58 miles of shoreline, and about 18 miles had groins and groin fields (Hardaway & Anderson,
1999). By 1990 and well into the 2000s, the use of these management strategies increased drastically (Hardaway & Anderson, 1999; Berman, Mason, Nunez & Tombreson, 2018).

Bulkheads are often made of wood designed to help retain upland soils and provide minimal protection from extreme wave action (Hardaway & Anderson, 1999). The second most common strategy is rock revetments. Rock revetments are also known as riprap revetments, which became more widely used in the late 1970s, 1980s, and 1990s. Today, a properly constructed and designed rock revetment is posted to have the possibility of lasting fifty years or more, with the stone lasting indefinitely. Stone revetments are made of rocks with sloped and roughed faces that decrease wave reflection and associated bottom scour, a disturbance that causes increased depths in the sea, threatening the long-term integrity of any shoreline protection system (Hardaway & Anderson, 1999).

Lastly, groins as a strategy for shoreline management was a popular way to trap sand and build a modest beach area in the 1950s and 1980s. Primitively, these structures are constructed of wood, and when used without bulkhead or seawall or with them, groin or groin fields (existing space between groins) can cause impacts that are significant to adjacent unprotected shorelines (Hardaway & Anderson, 1999; Berman, Mason, Nunez, et al., 2018). More positively, a relatively wide sand beach tends to accrete on the updrift side of groins, and the shoreline banks usually gain some excellent protection with enough sand. Considering the negative impact, the sand build-up might not allow sand to properly penetrate downdrift shores (Hardaway & Anderson, 1999).
Virginia enacted new legislation in 2011, which encouraged increased living shorelines and identified living shorelines as a new preferred approach for tidal shoreline erosion control (Berman, Mason, Nunez, et al., 2018). This legislation also gave the Virginia Marine Resources Commission (VMRC) the authority “to develop a general permit that would further encourage the use of living shorelines and a mandate to develop integrated shoreline management guidance. The legislation required the Virginia Institute of Marine Science (VIMS) to develop recommended guidance to enable local governments to implement the legislation and make decisions consistent with the sustained protection of living shoreline resources” (Berman, Mason, Nunez, et al., 2018, p. 3).

A more recent Senate Bill 776 also took effect on July 1, 2020, which has now become a law to further reemphasize and demand the use of living shorelines in Virginia, except when there are scientifically proven reasons why it will be impossible on coastal land. Specifically, the Senate law mainly directs the Virginia Marine Resources Commission (VMRC) to put a stop to granting permits that allow waterfront property owners to be able “to install a hardened shoreline unless the best available science shows that a living shoreline is not suitable” (Lang, 2020, p. 1).

The term living shoreline conveys the image of a shoreline characterized by wetlands and sand beaches and may include submerged aquatic vegetation, mudflats, and oyster reefs that provide living spaces for a broad array of aquatic-terrestrial organisms. The main aim of the living shoreline approach “is to protect eroding shorelines while also enhancing water quality and habitat for living resources in the bay” (Hardaway & Anderson, 1999, p. 4). Living shorelines are further posited to be most appropriate between low to moderate energy settings.
considering that plants find it difficult to establish themselves and thrive in high-energy areas (Currin, Davis, & Malhotra, 2017).

Diverse environmental nonprofit organizations in Virginia usually work with homeowners, and other property owners, contractors, local, state, and national agencies, and other stakeholders, on developing environmental guidelines or give recommendations regarding existing guidelines and shoreline management strategies that are environmentally safe for use (Beatley, 2012; Arbuckle, 2013; Berman, Mason, Nunez & Tombleson, 2018). Nonetheless, research has further shown that there has been an increasing length of hardened shorelines, about 751 acres at the end of 2016, that are lost due to migration impediments. The Comprehensive Coastal Inventory research at the Virginia Institute of Marine Science showed that hardened tidal shorelines in Virginia coastal communities totaled 928.5 miles in 2016 (Berman, Mason, Nunez & Tombleson, 2018, p. 3). Also, the forensic application of the shoreline management models finds that 732.9 miles of the shoreline currently hardened in coastal Virginia could have been suitable for a living shoreline (Berman et al., 2018). To this end, the capability of tidal wetlands to provide ecosystem services that support coastal resiliency in Virginia is limited by the increasing shoreline hardening trend. Traditional shoreline hardening occurrences have continued over many decades, and research indicates that the trend toward traditional, non-living shoreline-type projects continues (Berman et al., 2018).

Although the environmental sector uses data to determine the status of these ecological and coastal systems, the strategies and approaches it uses to influence these statuses need to be continually improved (Keene & Pullin, 2011; Berman et al., 2018). As governments,
organizations, and individuals look further to more excellent functioning and evidence of what works and what does not, a lot is being learned from shoreline management professionals, and sophisticated approaches are increasingly emerging to analyze perspectives that will assist in the management of the effectiveness of environmental issues like shoreline management for coastal resilience (Keene & Pullin, 2011; Worth, 2016).

Hence, a rational mechanism for examining these perspectives is subscribing to an ideal democracy, thereby obtaining relevant data that provide diverse perspectives that will help society better solve environmental problems (Bowen & Wells, 2002). With environmental nonprofit organizations being important and professional actors in handling issues of shoreline management, there is a need for exploration and analysis of their views in terms of their roles and problems faced on the subject matter (Hanna-Attisha, LaChance, Sadler, & Champney, 2016; Robinson, Shum, & Singh, 2018). Considerations of the adaptive management strategies of environmental nonprofit organizations further provide a basis to inform and advance the management of shorelines for coastal resilience (Bowen & Wells, 2002; Berman, Mason, Nunez & Tombreson, 2018).
CHAPTER III
THEORIES AND CONCEPTUAL FRAMEWORK

For this research, the stewardship and structural-functionalist theories are adopted to explain the rationale of environmental nonprofits’ roles and challenges in shoreline management for coastal resilience in the Commonwealth of Virginia.

Stewardship theory

Stewardship theory emphasizes cooperation and collaboration towards a specified end (Sundaramurthy & Lewis, 2003; Keay, 2017) and provides a non-economic premise for explaining relationships (Keay, 2017). It is a theory that has been credited to organizational behavior scholars in the past 25-30 years. Nonetheless, the theory has been in practice in different forms for longer. Research has shown that views and ideas posited during the 1930s are consistent with stewardship theory. While organizations and workers were practicing what is generally known as "managerialism," directors widely regarded themselves as stewards (Stout, 2013). These individuals and organizations aligned with a broad stewardship approach toward collective organizational and communal benefits (Stout, 2013; Keay, 2017).

The stewardship theory essentially holds that organization representatives act as stewards and will not be concerned about fostering their interests but will be willing to communicate and act in the best interests of, are accountable to, and take stakeholders they serve as a priority. In this theory, the core posit is that individuals will lead to collectivist and organizational or community utility instead of those utilities with self-serving benefits (Keay, 2017). In the long run, working towards organizational and communal ends, the personal needs of organizational
representatives or/and top workers are fulfilled (Sundaramurthy & Lewis, 2003; Kluvers & Tippett, 2011). Due to this, the individuals who serve such organizations are generally concerned about acting in an honorable manner and "doing the right thing" (Stout 2003, p.8). Block (1993) stated that stewardship theory is marked by the idea of service for others and not self-interest. Caldwell and Karri further emphasized that the theory assumes a "commitment to the welfare, growth, and wholeness of others" (2005, p. 255).

Stewardship theory posits that organizational individuals, including directors, can often be motivated by considerations of fairness, justice, and concern for others' interests or the society around them (Buchanan, 1996; Keay, 2017). Organizational representatives often see themselves as stewards of the company's affairs who can be trusted to do a good, professional job, and they are so connected to the aims of the company that these take precedence over their self-interest (Hernandez 2012; Schillemans and Basuioc 2015, Keay, 2017). As professionals, they will make some degree of personal sacrifice and act honestly and diligently (Blair & Stout, 2001). They seek intrinsic rewards and take satisfaction in seeing organizational success rather than seeking to gain extrinsic rewards as posited classically, which are economical and monetary (Davis et al. 1997; Tosi et al. 2003; Pastoriza & Arinio 2008; Keay, 2017).

The theory's dominant motive is that organizational leaders, employees, and volunteers see their job as honorable and desire to perform excellently and with honor. Specifically, organizational representatives are motivated by a need to gain intrinsic satisfaction through achievement and self-actualization in their contributions to organizational goals (Davis et al., 1997; Keay, 2017; Taylor et al., 2019). The organizational representatives endeavor to
successfully perform and engage in challenging work, exercise responsibility and authority in performing each task, and gain recognition from peers and leaders. Hence, they have non-financial motivations as organizational members acting as stewards. This makes trust and commitment central to accomplishing their activities (Davis et al., 1997; Bundt, 2000; Hernandez, 2008; Huse, 2007; Barclift, 2007; Kluvers & Tippett, 2011; Keay, 2017). The collective goals, trust-building, and relational reciprocity usually lead to long-term relationships with all stakeholders, which may benefit all concerned (Kluvers & Tippett, 2011).

Nonetheless, the organizational representatives also have personal interests in acting as stewards. The stewardship theory posits that the organizational representatives and leaders' interests and goals are, on most occasions, already aligned with those of the organization they are part of (Pastoriza & Arinio, 2008). Hence, even though they are usually achieving the organization's overarching goals, they also achieve their personal goals, which may be a passion for seeing a change of growth in personal goals that are, in most cases, linked to that of the organization (Pastoriza & Arinio, 2008; Keay, 2017). Stewardship theory also puts forward that an organization requires a structure that allows harmonization of goals to be achieved most efficiently between the organization, shareholders, and stakeholders to capture and adequately manage issues like "motivation, goal congruence, trust and organizational identification." (Van Puyvelde et al. 2013; p. 65).

A drawback of the theory is that a more significant transaction cost may be made because there might be more investment of time for principal organizations in involving and training stewards in resolving problems, managing joint decision-making, and information exchange
Stewardship theory has also been criticized because it gives organizational representatives/leaders or stewards, in a sense, almost absolute authority when it comes to using their discretion. Nonetheless, it must be acknowledged that such representatives may be challenged by several factors that include the availability of an appropriate workforce, the demand for the products of the company, and the cost and availability of finance which can be typical of nonprofits organizations (Blair & Stout 2001; Keay, 2017; Taylor et al., 2019).

**Application of stewardship theory**

Stewardship theory is relevant to this research on environmental nonprofits and their roles in shoreline management because it assumes a firm commitment to the greater good, togetherness in the promotion of community development with diverse shareholders and stakeholders, and a commitment to drive positive change or maintain consistent progress that improves the organization's goals and objectives (Sundaramurthy & Lewis 2003; Keay, 2017). Stewardship theory holds that an organization requires a structure that allows harmonization to be achieved efficiently between directors and shareholders (Keay, 2017).

Hence, to promote shoreline management for coastal resilience, environmental nonprofit organizations can be considered stewards in that they harmoniously seek to contribute to the progress of shoreline management. Environmental nonprofits are considered central actors in framing environmental problems (Corbett, 2006; Goffman, 1986; Merriman-Goldring, 2017). This refers to how nonprofit leaders, employees, and volunteers use specific framing such as language and imagery to make sense of and provide information regarding environmental situations and the way forward (Goffman, 1986; Corbett, 2006; Goffman, 1986; Merriman-
Goldring, 2017). Such framing and actions of environmental nonprofits can be interpreted as acts of stewardship used to propel the nonprofit sphere and influence government policies and public debate (Corbett, 2006; Merriman-Goldring, 2017).

Furthermore, the dominant purpose of stewardship theory, which directs organization members to accomplish their goals, is their desire to perform excellently and with honor and with little or no personal extrinsic and monetary motivations on the part of individual representatives (Davis et al. 1997a; Keay, 2017). In the context of environmental nonprofits and their willingness to play their role in promoting coastal resilience, these organizations and their representatives are conceived as being motivated by a need to achieve and gain intrinsic satisfaction through their service provision in the communities they serve.

Environmental nonprofits are usually intrinsically motivated to grow and, more specifically, successfully perform inherently challenging work. They exercise responsibility in serving communities through shoreline management, coastal education, and environmental conservation work, which gives them recognition from peers, leaders, and society. They also work together with the government and other stakeholders committed to the exact cause while promoting coastal resilience (Taylor et al., 2019).

This may insinuate non-financial motivations for environmental and organizational volunteers acting as stewards, making it the theory's central element (Davis et al., 2001; Bundt, 2000; Hernandez, 2007; Huse, 2007; Barclift, 2007; Kluvers and Tippett, 2011; Keay, 2017). These attributes of togetherness, collective goals, and relational reciprocity lead to long-term relationships of environmental nonprofits with other stakeholders, which benefits all concerned.
More importantly, such results help them progress in their contributions to shoreline management by developing personal and collective feasible solutions to maintain and improve shorelines (Kluvers and Tippett 2011).

This theory helps answer the study’s research questions by directly applying the stewardship concept to mirroring nonprofits' roles in promoting shoreline management. Since the study’s research questions seek to examine the perspectives of Virginia environmental nonprofits in terms of functions and roles they play as stewards of shoreline management for coastal resilience, how do Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in terms of their effectiveness in performing their roles and functions and what factors affect Virginia environmental nonprofits as stewards of shoreline management for coastal resilience based on their organizations' interests, experiences, and efforts, the theory embodies the vitality of environmental nonprofits as notable actors in the environmental scene who seek environmental good in through their efforts in shoreline management. According to the theory, this understanding helps to categorize environmental nonprofits as stewards due to their ethics which embody the responsible management of coastal resources. These resources can be translated into shoreline management resources for coastal resilience for the study's research questions and objectives (Keay, 2017; Taylor et al., 2019). For example, studies have shown that environmental nonprofits provide human and material resources in the building and managing living shorelines, tree and buffer plantings, river cleanups, and other activities related to promoting shoreline management (Beatley, 2012; Keay, 2017; Taylor, 2019). Such resources provided to advance the management of shorelines for
coastal resilience make them qualify as environmental stewards based on the context of the theory which qualifies stewards as promoters of societal good (Van Puyvelde et al. 2013).

**Structural functionalist theory/ Structural functionalism**

The Structural Functionalist theory, also known as Structural Functionalism, is a 19th-century sociological thought where the dominant idea and explanation of social and environmental reality was to present a systematic analysis of the cause-and-effect relationships of social phenomena. This theory's founders include Comte (1798-1857) and Spencer (1820-1903). The theory was later developed by Durkheim (1858-1917) and was further refined by Talcott Parson (1902-1979).

This theory asserts that society holds different structures that perform different functions and work independently to form a whole and result (Wellstead, Howlett, & Rayner, 2017). This implies that these parts are, to an extent, interrelated, interdependent, and intertwined. Considering the various factors and parts that make the society ranging from environmental to sociocultural, these parts perform various roles and functions that affect societal growth and development. Hence the ineffectiveness of a structure in tackling a social or environmental concern can affect other structures' effectiveness in such a society (Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017).

Kingsbury and Scanzoni’s book on theories addresses functionalism and recognizes its relevance because of the historical significance for studies of families (Kingsbury & Scanzoni, 2009). Structural functionalism is also significant because its assumptions remain central to family sociology and society studies (Kingsbury & Scanzoni, 2009), despite arguments to the
contrary by scholars like Broderick of structural functionalism not considering structural contradictions and conflict or social change (Broderick, 1971; Holman & Burr, 1980). According to Kingsbury & Scanzoni (2009), the understanding of why functionalism was once considered necessary, then was criticized but had the strong momentum to continue to be significant for organizational/units and society today is highly hinged on the accuracy and the rhetoric of the theory and the importance it has in today’s state, society, communal activities (Kingsbury & Scanzoni, 2009).

The focus here is on society, a social system, and structures or organizations that perform functions to promote societal affairs. Society is itself a collectivity, which contains sub collectivities. The aim is to identify the focal points for the structural differentiation of a social system. What is being differentiated is different societal structures and their functions (Turner & Maryanski 1988; Kingsbury & Scanzoni, 2009). Thus, the fundamental focus is on how roles are differentiated within a structure and integrated to form a functioning system, which signifies an integrative mechanism. Given such a structure, the extent of the structure's functionality may have to be adjusted to the constraints of time available, location, communication access, capabilities, and needs of particular actors. However, functions are usually relatively stable (Turner & Maryanski 1988; Kingsbury & Scanzoni, 2009).

Spencer, one of the propounders of the theory, as previously mentioned, introduced and explained how organic societal structures function to serve a societal system's needs (Spencer, 1963; Turner & Maryanski 1988; Kingsbury & Scanzoni, 2009) but describes a society's growth as an evolutionary process (Spencer, 1863; Turner & Maryanski 1988; Kingsbury & Scanzoni,
2009). This growth, Spencer argues, occurs at two significant levels; a simple multiplication of units level and the "joining and continuous rejoining of a union of groups" (Spencer, 186; Kingsbury & Scanzoni, 2009). Spencer suggests that, for a system to cope with these levels of integration, a differentiation process, proper framing, and communicative activities, and a specialized reassignment of duties have to occur, where each group or structure has its role differentiation with the aim to integrate towards the accomplishment of an objective continually. The evolutionary process, and the following integration it entails, makes each unit's functions continuous and relevant at all levels (Spencer, 1863; Turner & Maryanski 1988; Kingsbury & Scanzoni, 2009).

Emile Durkheim also elaborated on Spencer and Comte's organic association with society. According to Durkheim, communities and organizations’ disintegration and urbanization began to affect the conventional way of living and a sense of togetherness in caring for society. Thus, he alluded to the importance of individuals and groups and structure integration into society to maintain order and sustainable growth in a social system or society (Broderick, 1971; Holman & Burr, 1980; Turner & Maryanski, 1988; Kingsbury & Scanzoni, 2009).

**Application of structural-functionalist theory**

This theory is relevant to the topical discourse of examining environmental nonprofits’ functions, the challenges they face in shoreline management for coastal resilience, and proposed solutions to ameliorating such challenges in Virginia. This is because structural-functionalist theory or structural functionalism draws out the importance of the roles and functions of societal units and structures (Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017). The
theory considers structures to consist of sectors like the government, business, nonprofit sectors, and organizations because they all have some levels of leadership, programs, and administration that promote societal welfare and progress through the functions they perform (Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017). Environmental nonprofits, with roots in the nonprofit sector, can be considered a substructure under the nonprofit sector, with functions mainly around promoting societal advancement from the environmental protection and resilience lenses. Specifically, the theory can help in the understanding of environmental nonprofits having functions to participate in, with the expectation of such functions broadly leading to the development of the societal system both in the short and long term (Broderick, 1971; Holman & Burr, 1980; Turner & Maryanski 1988; Kingsbury & Scanzoni, 2009).

In the case of the study, the substructures translate to environmental nonprofits, and the functions translate to the roles they play through their hands-on activities, communication strategies, and collaborative endeavors in the management of shorelines. In other words, the roles of such nonprofits in enhancing shoreline management for coastal resilience in a functional system like the state of Virginia is the point needed for exploration for further understanding. The study also examines some challenges hindering the performance of the environmental nonprofits’ functions in shoreline management, which could stem from them or other structures or sub-structures. For example, these structures may include the federal government, business or nonprofit sector more broadly, or substructures which may include state government, local governments, environmental nonprofits themselves, and other agencies involved in
environmental issues in Virginia's coastal zones and coastal communities (Wellstead, Howlett, & Rayner, 2017).

Hence, the deficiencies between or within structures or substructures in tackling coastal resilience issues in Virginia may serve as causes of challenges environmental nonprofit organizations in Virginia face in enhancing shoreline management for coastal resilience. This is especially true if all structures and substructures considered are directly or indirectly endeavoring to tackle the same issue of shoreline management in coastal communities towards enhancing coastal resilience and have shortcomings in the process (Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017).

This theory helps answer the study research questions because it predominantly examines societal structures and how they function in addressing societal issues that directly or indirectly affect or concern them. The study research questions provide answers to the perspectives of Virginia environmental nonprofits considering functions and roles they play as substructures promoting shoreline management for coastal resilience and how Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in terms of their effectiveness in performing their roles and functions. Structural functionalism can directly help answer these questions because the study question embodies the operations and activities of structures and their substructures and, in this case, environmental nonprofit organizations regarding shoreline management for coastal resilience.

Since the structural-functionalism theory's core postulation is to show how organic societal structures function to serve a societal system's needs (Spencer, 1963; Turner &
Maryanski, 1988; Kingsbury & Scanzoni, 2009), the theory seems appropriate for examining how environmental nonprofits functions in terms of their roles and challenges in providing shoreline management services to attend to societal needs. These services usually align with their purpose and expertise and are done in the communities with the need they can meet (Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017). Hence, structural functionalism helps to examine the totality of structures and their substructures, ranging from their capacities to their affiliations in tackling societal issues, to help understand how they function and what has proven difficult for them to achieve. In the case of the study, Virginia environmental nonprofits are examined based on their capacities, affiliations, challenges, and other issues they deal with in doing shoreline management work for coastal resilience.

**Conceptual framework**

This study utilizes stewardship and structural-functionalist theories to explain the context and importance of environmental nonprofits' positioning regarding their roles in shoreline management for coastal resilience, driven by their functions and stewardship to maintain shorelines and facilitate coastal resilience in Virginia. This relationship in Figure 1 below explains the connectivity in understanding the study research questions, theories, and general objective of the research.

The conceptual framework starts with splitting environmental nonprofits into two boxes, “roles/ position” and “functions/positioning,” to show that environmental nonprofits are actors with roles in enhancing shoreline management, which directly links to the first research question of exploring the roles and functions of Virginia environmental nonprofits in shoreline
management for coastal resilience. It aims to answer the first research question by critically examining the roles and positioning of Virginia environmental nonprofits in shoreline management for coastal resilience. The following two boxes, “stewards with roles” and “structures with functions,” use stewardship and structural-functionalist theories to illustrate that environmental nonprofits are coastal community stewards with roles and are established structures with functions to enhance shoreline management for coastal resilience. The roles of environmental nonprofits as stewards and structures are analyzed by examining the day-to-day activities they perform for the management of shorelines through the analysis of their organizations’ documents, reports, and formal interviews. The last two boxes, “stewards with challenges” and “structures with challenges,” connect the stewardship and structural-functionalist theories to the second research question to illustrate that environmental nonprofits are stewards and structures who face challenges in shoreline management for coastal resilience with the hope to have feasible and lasting solutions.

The stewardship theory views organizations and their representatives as stewards with community utility goals in mind, with needs that allows for such goals to be achieved most effectively and efficiently between the organization, shareholders, and stakeholders (Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017). This theory is relevant to the study’s research questions because it speaks to the totality of what the environmental nonprofits do in terms of their community service roles through shoreline management. It is also relevant to the research questions because it exposes the passion of environmental nonprofits to attain such community utility goals that facilitate their stewardship roles, which, if not present, can pose an
obstacle to them that breeds challenges. On the other hand, the structural-functionalist theory views societal structures as performing functions to promote the societal system (Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017). The structural-functionalist theory looks at both structures and their social functions broadly.

Structural functionalism is relevant to the study’s research questions because it addresses structures as related to the totality of the activities and functions of the structures’ elements. This can include what the structures do, their affiliations, trends, what has worked for them, what has not worked, and solutions to what has not worked. It also considers other elements as appropriate contingencies to perform their activities for the effective and successful functioning of the structures, which is the environmental nonprofit organizations in the case of this study (Davis et al. 2001; Bundt 2000; Hernandez, 2007; Huse 2007; Barclift 2007; Kluvers and Tippett 2011; Keay, 2017).

These explanations of the relationship between the theories and the study’s research questions also form the basis of the study's conceptual framework because the framework explains how the theories are relevant to the research questions and connects the rationale of questions and theories with the literature review. This helps to answer the hows and whys questions of the research questions and bring about a better understanding of how the theories and research questions can create a working framework to better understand the study purpose, especially on how each element related to the research end goals, which is to examine the roles and challenges of Virginia environmental nonprofits of in shoreline management for coastal resilience. Using these theories and conceptual frameworks, the study answers the first and
second research questions by critically examining the roles and positioning of Virginia environmental nonprofits in shoreline management for coastal resilience. Secondly, the study explores the third research question by examining and discovering existing challenges faced by Virginia environmental nonprofits in shoreline management for coastal resilience, based on the study findings through the lens of the sampled environmental organizations.

*Figure 1. Conceptual framework.*
CHAPTER IV
METHODOLOGY AND METHODS

Research design

This is a qualitative research study with a case study design. The study also adopts an exploratory approach (Creswell & Creswell, 2017) to collect and analyze the information that occurred during the study period by interpreting the findings obtained using the study's ontological data collection and data analysis instruments (Creswell & Creswell, 2017). The proposed study's methodology and research methods are discussed below.

Research methodology

According to Moses and Knutsen (2019), a methodology is like a "well-equipped toolbox" a researcher puts "research tools" in for the research (p. 4). Methodology in this light is comprehensive, foundational, and ontological rather than problem-specific techniques (Moses & Knutsen, 2019). A case study methodology is adopted for the study’s purpose. Creswell (2007) describes a case as a bounded system (for one case) or multiple bounded systems (for more than one). His explanation of a bounded system means that the researcher makes unequivocal statements about the research purpose, focus, and extent (p. 73). Hence, as mentioned earlier in chapter one, the study explores the roles and challenges of environmental nonprofits in shoreline management for coastal resilience in Virginia.

The study adopts 85 environmental nonprofits in Virginia as a single case study, considering their involvement in shoreline management work in Virginia, which helped to account for the rigor, representativeness, and trustworthiness of study results essential for
qualitative research (Creswell, 2007; GuideStar, 2020). The type of case study methodology for the research purpose is a qualitative case study, used to explore a phenomenon within a specific context through various data sources (Creswell, 2007; Baxter & Jack, 2008).

The research paradigm assumed in this study is a constructivist paradigm. Constructivists believe that individuals’ knowledge acquisition is subjective to how they view the world, usually spurred by their experiences, functioning, backgrounds, and other social constructs. Hence, the study establishes a constructivist paradigm because of the belief that findings and facts can be derived from exploring environmental nonprofits' perspectives on their roles, challenges, and solutions to coastal resilience based on the nonprofits’ beliefs and experiences. This is derived from their "multiple stories" (Moses & Knutsen, 2019; p. 221) and perceptions of their roles in shoreline management for coastal resilience in Virginia, using interviews and document analysis of the five charting impact questions for environmental nonprofits on GuideStar and Charity Navigator as well as the reports retrieve from GuideStar and Charity Navigator or the organizations’ websites.

**Study participants (the other) and study impacts (researcher, participants, and community of practice)**

The study participants include Virginia environmental nonprofit representatives, from organizational volunteers to contractors. Environmental nonprofits are considered the other when considering shoreline management. Little environmental examination and concentration have been given in the literature regarding their contributions to shoreline management through their perspectives. Hence, in the context of advanced qualitative research, such entities are categorized
as others if they are under-explored in the literature or not given sufficient attention.

Environmental nonprofit organizations are integral to the maintenance and improvements of shorelines, coastal adaptation, and resilience, yet there are no actual clarifications in the literature regarding their importance, roles, and the challenges faced in the maintenance and improvement through the lens of environmental organizations, which makes this research important (Beatley, 2012; Taylor et al., 2019).

The discussion of the possible impact audience of this research is explained through a “qualitative impact triangle” in Figures 2 and 3 below. Figure 2 explains the initial outlook of a qualitative impact triangle and the audience it is supposed to impact, while figure 3 shows more information on the study impacts, which fits into the study context. The impact of the study includes the contribution of actionable results that help identify process improvements that enable environmental nonprofits to meet the needs of property owners better and other shoreline management needs in Virginia coastal communities (community of practice as described below in Figures 2 and 3) as well as enhance collaborations with the government. Another possible outcome of the research is to document environmental nonprofits' essential role in achieving a locality's shoreline management, water quality, and resilience goals. They can refer to their personal and organizational activities such as fundraising, grant writing, and recruiting new property owners for shoreline work, among others (research participants as described below in Figures 2 and 3).

In terms of broader societal impacts, by understanding their roles and challenges, diverse stakeholders in the study’s community of practice (Virginia), such as the policy experts, coastal
management practitioners, property owners, and students, could learn about support services rendered by environmental nonprofits for their shorelines through study findings. Peer environmental organizations may also learn from each other (community of practice). By combining and analyzing data from multiple environmental nonprofits, collaborations could also be enhanced in promoting shoreline management for coastal resilience, and areas for further research can be identified (research participants). The researcher benefits from all these possible contributions since it emphasizes the aim of the research and answers the research questions, which is the researcher's goal for the study (researcher).

Figure 2. Qualitative Research Impact Triangle.
Methods of data collection and sources of data

The study employs a qualitative research methodology for data collection and analysis. Qualitative research does not adopt statistical findings using statistical procedures and other means of quantification; instead, it uses words and draws out possible meanings (Strauss & Corbin, 1990). Hence, the focus lies on an in-depth understanding of words, perspectives, and experiences. The qualitative research tradition is appropriate for this research compared to other research approaches because of its in-depth research strategies to extract in-depth information from the research respondents based on their perspectives (Hays & Singh, 2012).

Data triangulation is for two data collection methods: document analysis (environmental nonprofits’ charting impact questions and reports) and interviews. In other words, the methods of data collection adopted for the study are document analysis and semi-structured in-depth
interviews. Triangulation refers to using two or more methods or data sources in qualitative research to advance the understanding of phenomena in a comprehensive way (Patton, 1999). Triangulation is also described as a qualitative research instrument that combines information from different sources to test validity. This explains why triangulation is used for the study’s data collection (Patton, 1999, Triangulation, 2014).

The study started with a document analysis of 85 environmental nonprofits in Virginia, based GuideStar website’s list of environmental nonprofits in Virginia in 2020, followed by semi-structured interview sessions. The breakdown of the data collection method is detailed in Table 1 below, based on document analysis using the charting impact question and interview questions in answering the study research questions. The environmental nonprofits examined are listed in Appendix 1 in the appendices section.

The charting impact questions, which is one of the documents analyzed for the study, include: "1. What is your organization aiming to accomplish? 2. What are the strategies for making this happen? 3. What are your organization's capabilities for doing this? 4. How will your organization know if you are making an impact? 5. What have, and have you not accomplished yet?" (Charity Navigator, 2020; Guidestar, 2020). These questions were selected for the study’s document analysis because it gives extensive details on Virginia's environmental nonprofit activities in shoreline management. Attention is given to those details related and relevant to shoreline management. The first four questions and the first part of the fifth question relate to the study research questions 1 and 2 because the organization’s aim, activities, strategies, capabilities, and perspectives of making an impact relate to exploring their roles and
functions. The second research question, which seeks to address the effectiveness of nonprofits in addressing their roles was addressed through the charting impact question 4, which reads: How will your organization know if you are making an impact? The responses to this question emphasize some of the strategies environmental nonprofits use to ensure the effective delivery of their services and the lasting impact of their activities. A strategy example includes the number of individuals or groups they can reach and convince on the importance of shoreline management and work with them to make necessary changes to that effect. Also, to answer research question 2 on effectiveness with the interview data, the research randomly collected information from responses on the interview transcripts on questions regarding their roles, expertise, and community engagement and collaboration activities. This allowed the study to examine the environmental impacts and roles related to shoreline management and coastal resilience.

The second part of the last charting impact question connects with the study’s research on environmental nonprofits’ challenges in shoreline management. This is the case because the last part of the fifth charting impact question poses what environmental nonprofits find challenging to and/or are yet to accomplish, which can translate to some obstacles or challenges they face in performing their roles (Charity Navigator, 2020; Guidestar, 2020). In answering research question three on factors affecting nonprofit roles, the researcher's focus was on challenges faced by environmental nonprofits in shoreline management and streamlined factors to challenges that impact and affect the shoreline management services they provide since their roles were largely positive. After the document analysis, the interview sessions were conducted with environmental nonprofits and took writhing 24 minutes to 58 minutes per session. The interview questions
document comprises about 16 questions, and a consent form was given out to participants for the interview.

Table 1. *Data Collection Methods Breakdown*

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<td>85 environmental nonprofits in Virginia (Appendix 2)</td>
<td>1. What is your organization aiming to accomplish?</td>
<td>1. What are the perspectives of Virginia environmental nonprofits in terms of functions and roles they play as stewards of shoreline management for coastal resilience?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. What are the strategies for making this happen?</td>
<td>2. How do Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in terms of their effectiveness in performing their roles and functions?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. What are your organization's capabilities for doing this?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. How will your organization know if you are making an impact?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5a. What have you accomplished?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1 Continued

<table>
<thead>
<tr>
<th>Primary Data: Interviews for analysis</th>
<th>5b. What have you not accomplished yet?</th>
<th>3. What factors affect Virginia environmental nonprofits as stewards of shoreline management for coastal resilience based on their organizations' interests, experiences, and efforts?</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 environmental nonprofits</td>
<td>What is your organization's mission?</td>
<td>1. What are the perspectives of Virginia environmental nonprofits in terms of functions and roles they play as stewards of shoreline management for coastal resilience?</td>
</tr>
<tr>
<td>(through snowball sample selection from the 85 environmental nonprofits)</td>
<td>Where does your organization work?</td>
<td>2. How do Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in terms of their effectiveness in performing their roles and functions?</td>
</tr>
<tr>
<td></td>
<td>What kind of work does your organization do related to coastal resilience?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kind of work does your organization do related to shoreline management for coastal resilience?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How long has your organization been working with shoreline management projects?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kind of expertise does your organization have in this area?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kind of outreach to the community in general, if any, do you do specifically relate to resilience and shorelines?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>What kinds of advocacy at the local, state, or national</td>
<td></td>
</tr>
</tbody>
</table>
Table 1 Continued

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>level, if any, do you do specifically relate to coastal environmental protection or restoration?</td>
<td></td>
</tr>
<tr>
<td>Do you collaborate with others-NGOs, universities, state agencies, or contractors? Who and how?</td>
<td></td>
</tr>
<tr>
<td>How central is coastal management to your organization's mission? Are you a membership-based organization? If yes, what types of services do you provide to non-members?</td>
<td></td>
</tr>
<tr>
<td>What are the challenges you face as an organization in enhancing shoreline management?</td>
<td></td>
</tr>
<tr>
<td>What are the challenges you face as an organization in enhancing shoreline management?</td>
<td></td>
</tr>
<tr>
<td>How can the challenges be ameliorated in your opinion and through your experiences as an organization?</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Data Collection Methods Break down (Primary and secondary data; data sources include interviews, document analysis which details data on Charting impact questions on Charity Navigator and GuideStar websites, and environmental nonprofits’ reports on Charity Navigator and GuideStar websites or their personal organizations’ websites)
**Sampling strategy and sample participants**

A rolling snowball sample strategy was used to select 19 environmental nonprofit representatives by identifying 15 Virginia environmental nonprofit organizations being the study’s unit of analysis in the context of Virginia as a state. This implies that the research depended on the first few environmental nonprofits found to get referrals to other environmental nonprofits for data collection, using a snowball sampling strategy. Adopting the snowball sampling technique was appropriate for this research because it helped the researcher gain exponential and non-discriminative (where the researcher got multiple snowballed referrals from one source) sampling access to the study participants (Noy, 2008). A referral by an entity or a representative they are familiar with increases the researcher's chance of getting more interview sessions (Noy, 2008). The adoption of snowball sampling strategies was also chosen because it effectively recruits participants with different ideas but similar backgrounds or interests to give their perspectives on a topic (Noy, 2008).

Moreover, on a basic level, the interrelations between snowball sampling and in-depth interviewing are apparent and tied to the snowball procedure's meaning: informants the researcher meets are those who supply the referrals (Noy, 2008). This also links directly with the theory used in the study regarding stewards who frame information and act on it in commitment to the coastal management goals (stewardship theory) of the communities they serve. These environmental nonprofits are stewards, and their referrals (using the snowball technique) pose the idea of commitment to the success of a cause, which they believe should promote shoreline
management for coastal resilience in Virginia. Moreover, for the structural-functionalist theory, environmental nonprofits' functions in shoreline management reflect what they care about as a structure.

Nonetheless, the quality of the referring process is usually naturally related to the quality of the interaction. If an interviewee leaves the interview meeting feeling discontented, or if the researcher did not win the interviewee’s trust and empathy, the chances the latter will supply the former referrals may decrease, and vice versa. This posed an advantage or disadvantage depending on the situation and response of the interviewee (Noy, 2004; Noy, 2008). Several authors have stated that the relationship between snowball sampling and interviewing requires concentration on how interviewees perceive or frame the interview discussion and encounter, which spurs their trust and engaging response. This is because interviews encounter complex interactions, partly because the researcher/interviewer and the interviewees may hold different perceptions concerning the topical discourse. In other words, both parties partaking in the interview do not necessarily frame the meeting similarly (Noy, 2004; Noy, 2008).

The sample participants interviewed for the study purpose were nineteen environmental nonprofit representatives from fifteen environmental nonprofits in Virginia, including program managers, executive directors, deputy directors, and restoration specialists representing the environmental nonprofit organizations. Fifteen nonprofit organizations were selected to reach a “high saturation of knowledge” in getting a more in-depth examination of the roles and challenges of environmental nonprofits in managing shorelines. Nineteen representatives representing the fifteen environmental nonprofit organizations were eventually interviewed due
to the increased response rates (Bertaux 1981). According to Bertaux (1981), getting to a saturation point starts with the researcher being surprised or learning from the first few interviews. When the interview sessions are close to 10, the researcher will likely recognize repetition and patterns in interviewees’ experiences on a topic, confirming a knowledge saturation point. Guest et al. (2006) found that 12 interviews of a homogenous group are needed to reach saturation. This could conceptually be the desired endpoint of data collection. Nonetheless, the decision to stop a qualitative interview could also function due to saturation and other factors like access and resources (Guest et al., 2006). Fifteen in-depth semi-structured interviews with environmental nonprofits are the target for this study.

The selected environmental nonprofits represented a diverse group operating in Virginia, based on their involvement in shoreline management and wetlands conservation and using nature-based solutions. These nonprofit organizations are diverse in size, geographic scope, services and functions, and environmental focus. For instance, in terms of size and geographic scope, the researcher included small, community-based environmental nonprofit organizations like Lynnhaven River NOW, Elizabeth River Project, and Nansemond River Preservation Alliance, which operates only in Virginia, and others that operate more broadly and internationally with a subset in Virginia, such as the Nature Conservancy, and Chesapeake Bay Foundation. Nonetheless, all the environmental nonprofits analyzed are involved in shoreline management activities in Virginia to promote coastal resilience.

The researcher gained entrée by informing the participants via phone calls and email about the consent before the research's commencement. This sample was appropriate for
investigating the research topic because it focuses on the challenges faced by Virginia environmental nonprofits in coastal resilience and proposed solutions' impact on coastal resilience. One important reason for adding interviews of Virginia environmental nonprofit representatives was to help the researcher identify each respondent's engagement capacity to draw practical answers (Hays & Singh, 2012; Onwuegbuzie & Combs, 2010). Another primary reason for selecting personal interviews was to ensure that the participants' questions were straightforward and fully understood and to extract more in-depth information through sub-questions (Sekaran & Bougie, 2016).

The data collection process lasted for seven (7) months, with the fifteen (19) interview sessions from 15 environmental nonprofit organizations completed within eight weeks due to the high responses rate from the environmental nonprofits' representatives. The reports and charting impact data collection on GuideStar and Charity Navigator lasted six months, with some missing data on these questions on the websites. Information not present on GuideStar and Charity Navigator websites was later retrieved from the environmental nonprofits' organizational websites for the document analysis. The researcher had a Zoom interview with the Deputy Director and Program Manager for the first nonprofit interview, and they gave a snowball referral for numerous other nonprofits. Most of the other nonprofits did the same, which helped the research achieve the goal of fifteen environmental nonprofits' interviews for research with a high saturation level.

Documents shared with the environmental organizations included a consent form and some requests for the interview questions/guide before the interview for information and
perusal. At this stage, some environmental nonprofits sent in withdrawal emails because they mentioned they were not really into coastal resilience research and practice enough to answer the questions to their satisfaction and for the research needs. Nonetheless, some other organizations requested a briefing on the questions and gave final authorization.

All interviews were done via Zoom meetings. They were scheduled with the representatives, including directors, program managers, and board members, through email correspondence. The interviews conducted were between 24 minutes and 58 minutes. In order to follow due process, participants were briefed on the research, and each participant had a signed consent form with their initials. The researcher explained that the study focused on environmental organizations’ roles and challenges in shoreline management to enhance coastal resilience. Annual reports and charting impact questions of all 85 environmental organizations, including the 15 environmental nonprofit organizations interviewed, which is the study’s focus, were retrieved from these nonprofit organizations’ websites and GuideStar and Charity Navigator websites for analysis.

**Research analysis measures and strategy**

In this study, the unit of analysis for the study is environmental nonprofit organizations. The study adopts a qualitative content analysis, using explicit terms to examine data (Krippendorff, 2012; Schreier, 2012). Content analysis is also described as studying traces (Krippendorff, 2012). Historically, content analysis was time-consuming because it was done manually, especially for significant texts. However, the strategy became more commonly used by researchers in the 1940s. In the 1950s, content analysis scholars started concentrating not only
on simple words but also on concepts. Content analysis is the appropriate technique for this study because it helps make replicable and valid inferences from words, documents, or other meaningful matters to the context of their use (Krippendorff, 2012).

This study chose content analysis as the analysis method because it allows a researcher to classify text, interpret the meaning and draw conclusions by coding them using manual or computerized qualitative analysis strategies (Krippendorff, 2012; Schreier, 2012). This method is relevant and appropriate for analyzing interviews and document analysis data to be employed in this research. The qualitative content analysis aims to analyze communication material in a ‘systematic’ way (Mayring, 2007). In qualitative research, there are three necessary forms of interpretation using content analysis they include 'summary,' defined as the reduction of data, 'explication,' used for finding additional material in the data (text), and 'structuring,' defined as filtering essential aspects from the document. Structuring was adopted for this analysis process was for the document analysis because the charting impact document contained much other information about the roles of the environmental nonprofit that is not related to or relevant to shoreline management. This made the document a little more complex and required the researcher to opt for structuring content analysis through the NVivo software package (Mayring, 2003:58). The text coding was done by reading a charting impact questions’ documents, reports and the interviews' transcripts and “filtering” (structuring) relevant concepts or themes. Also, inter-rater reliability was used to establish validity. The validity of the coding process was further ensured through a consistent and coherent coding procedure (Mayring, 2007). After the data of the environmental nonprofits were collected from their documents on GuideStar and the
interviews were transcribed, both documents (data triangulation) were uploaded into NVivo for coding (Creswell, 2007; Mayring, 2007).

The NVivo software is a qualitative software analysis package used in analyzing qualitative data. Traditionally, some researchers utilized colored pens to sort and then cut and categorize these data. However, “the innovations in software technology designed for qualitative data analysis have significantly diminished complexity and simplified the difficult task, making the procedure relatively bearable” (Hilal & Alabri 2013, p. 1). The researcher used the NVivo coding package as the foundational method for coding the transcripts because it helps the researcher honor the participants' voices (Hilal & Alabri, 2013; Miles, Huberman & Saldaña, 2014). The transcripts were analyzed using a content analysis approach, first cycle coding, and second cycle coding methods. The researcher used the descriptive approach in coding the interview and document data. The study employed open coding to label concepts and developed patterns based on the content transcription's properties and dimensions (Creswell, 2007; Mayring, 2007).

For the first cycle coding method, the researcher assigned numerous codes to the data units to detect recurrent patterns and words (Saldaña, 2016). Similar codes were clustered together from these patterns to help the researcher create smaller categories: second cycle coding (Saldaña, 2016). This second coding cycle helped the researcher narrow the findings into major themes through smaller codes (Saldaña, 2016). Moreover, the interview transcripts were used when the research required participants' “quotes” to buttress findings and discuss themes in the findings and discussion section. This approach was intended to bring richness and in-depth
discussion into the study analysis where the need arises by honoring and making the participants’ voices (Mayring, 2007). Interactive network mapping was also used for data visualization of the interview results to better aid the study analysis discussion, using Node XL AdOns on Microsoft excel.

**Summary of environmental nonprofits interviewed**

Fifteen environmental nonprofit organizations’ most recent reports and interview sessions were analyzed. Charting impact questions of eighty-five environmental nonprofit organizations, including the fifteen environmental nonprofit organizations selected in interview sessions, were also analyzed to identify their roles and challenges in managing shorelines for coastal resilience. (Yin, 1981; Stake, 2006; Khan & VanWynsberghe, 2008). The missions of the environmental nonprofits interviewed ranged from advocating for effective, science-based solutions to pollution degradation of rivers and streams to planting trees and building shoreline management strategies for coastal resilience and other attending to other environmental issues like sea-level rise.

Many of the nonprofits interviewed have been in operation for ten years, some for over twenty years, and few for more than fifty years. While some nonprofits operate within communities in Virginia and some in the whole of Virginia, others operate nationally and internationally with subsidiaries and centers in Virginia. For instance, some of the states environmental nonprofits that operate on the national level work in include Maryland, Pennsylvania, the District of Columbia, New York, and New Jersey, and some of the communities and counties they operate in Virginia include Virginia Beach, Norfolk, Hampton,
Newport News, Hoffler Creek, Nansemond County, Rappahannock County, Warwick County, and James City County.

Most organizations work with a top-down approach, through state and federal policy advocacy, and a bottom-up approach, using grassroots education and activism to influence state and local government shorelines use and regulatory decisions. Nonetheless, some environmental nonprofits only use the later approach. The organizations’ budget per annum ranges from $50,000 for the smaller environmental nonprofits to millions of dollars for more extensive and international environmental nonprofits, which runs up to $92 million, according to interview findings and organizations’ reports. For instance, one of the environmental nonprofits invested $10 million worth of stormwater management practices as of April 2022, bringing together communities, companies, and conservationists to improve lands and waters within their jurisdiction.

In interviewing environmental nonprofit representatives, the researcher interviewed individuals with organizational positions that include program managers, executive directors, deputy directors, restoration chairs, and coastal scientists. More details are given below on those interviewed. Table 2. illustrates the interviewees, and months the interview occurred, how many minutes each interview occurred, and the number of pages of interview transcripts.
Table 2. Environmental Nonprofits’ Interview Sessions Information

<table>
<thead>
<tr>
<th>Environmental Nonprofit (EN)</th>
<th>Length of Interview</th>
<th>No. of Transcript Pages</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN A</td>
<td>55 minutes</td>
<td>17 pages</td>
<td>Program Manager; Deputy Director</td>
</tr>
<tr>
<td>EN B</td>
<td>56 minutes</td>
<td>17 pages</td>
<td>Program Manager; Executive Director</td>
</tr>
<tr>
<td>EN C</td>
<td>56 minutes</td>
<td>20 pages</td>
<td>Deputy Director</td>
</tr>
<tr>
<td>EN D</td>
<td>51 minutes</td>
<td>21 pages</td>
<td>Project Manager; Restoration Specialist</td>
</tr>
<tr>
<td>EN E</td>
<td>53 minutes</td>
<td>16 pages</td>
<td>Executive Director</td>
</tr>
<tr>
<td>EN F</td>
<td>34 minutes</td>
<td>17 pages</td>
<td>Restoration Chair; Environmental Educator</td>
</tr>
<tr>
<td>EN G</td>
<td>24 minutes</td>
<td>10 pages</td>
<td>Executive Director</td>
</tr>
<tr>
<td>EN H</td>
<td>39 minutes</td>
<td>13 pages</td>
<td>Coastal Scientist</td>
</tr>
<tr>
<td>EN I</td>
<td>48 minutes</td>
<td>17 pages</td>
<td>Outreach Senior Manager</td>
</tr>
<tr>
<td>EN J</td>
<td>39 minutes</td>
<td>14 pages</td>
<td>Stewardship Manager</td>
</tr>
<tr>
<td>EN K</td>
<td>31 minutes</td>
<td>10 pages</td>
<td>Program Manager</td>
</tr>
<tr>
<td>EN L</td>
<td>38 minutes</td>
<td>13 pages</td>
<td>Executive Director</td>
</tr>
<tr>
<td>EN M</td>
<td>36 minutes</td>
<td>11 pages</td>
<td>Executive Director</td>
</tr>
<tr>
<td>EN N</td>
<td>34 minutes</td>
<td>10 pages</td>
<td>Executive Director</td>
</tr>
<tr>
<td>EN O</td>
<td>49 minutes</td>
<td>17 pages</td>
<td>Executive Director</td>
</tr>
</tbody>
</table>

Table 2: Interview session information: Minutes of each interview and a number of pages of interview transcripts and participants’ positions.
**Trustworthiness strategies**

It is pivotal to ensure the research's trustworthiness. Hence, several strategies were implemented to generate credibility for this research. First, the researcher bracketed personal opinions from this research to avoid forming any bias (Creswell, 2014). A reflective journal was kept throughout the interviewing sessions. Second, probes were introduced during the interview sessions through leading questions when answers were vague and when the researcher wanted to obtain more specific or in-depth information. Hays and Singh (2012) argue that establishing these probes is necessary for “member checking while the interview is ongoing” p. 207).

Third, the research comprised a “thick description” to realize detailed and thorough research (Creswell & Miller, 2000). It provides a vivid representation of the participants' voices for a thorough understanding of their experiences with the organizations (Creswell, 2014). More so, “thick description provides readers with the interviewees' experience and the researcher interpretation” (Ponterotto, 2006, p. 547) as presented in this single case study. Ultimately, the interpretative depth offered by details provided by a thick description enables readers to generalize findings to a narrowed context or replicate the study in another setting (Hays & Singh, 2012, p. 8).

Steps were taken to ensure participants’ privacy. First, the data was stored on an external hard drive for safety purposes and was used solely for this research. The audio data would be discarded five years after the study is completed. Confidentiality is assured because participating organizations were assigned pseudonyms instead of their names. In this case, the participants' statements, opinions, and quotes were transcribed using unique identifiers to retain the trust and
confidentiality of the organizations' information. This was done by attaching personal identity
dissociation such as letters and title names (for example, EN A, EN B, Program Manager, and
Executive Director) to the interviewees, replacing their names and other sensitive and non-
required identities. After coding the transcriptions, the researcher interprets the collected data
(Hays & Singh, 2012).

The intra-rater reliability was also used for trustworthiness by comparing the results of
the documents and interview transcripts by the research team. The research team consisted of the
researcher and, a field research associate, a doctoral candidate, making up a two-member
research team. The researcher ensured that the research team only accessed the audio interview
recordings for confidentiality and reliability. Before transcription, the recordings were repeatedly
listened to pinpoint the participant's statements appropriately and accurately transcribe them
(Hays & Singh, 2012). The researcher also put ethical considerations in place to further solidify
the rigor, trustworthiness, and appropriateness and ensure non-adverse effects on the human
representatives through the research process.

**Ethical considerations**

There are ethical considerations to gain entrée for data collection, honoring the rights and
opinions of respondents, and research analysis processes (Onwuegbuzie & Comb, 2010). The
researcher fulfilled this consideration for this proposed research and is crucial to the study due to
potential exploration with nonprofit environmental leaders, employees, and volunteers.

To further fulfill and uphold research ethics, the researcher submitted a request proposal
to collect data. The study was identified as a human subjects research exempt and was approved.
This means that the study’s data collection and analysis process still involved participants or human subjects but is a minimal risk research that does not require approval by an IRB according to federal regulations. However, it required a review and approval from the Old Dominion University College of Business Human Subjects Research Committee. The College of Business Human Subjects Research Committee approved the research, and the researcher was permitted to conduct the data collection and analysis process with a human subjects research exempt.
CHAPTER V
DATA PRESENTATION, ANALYSES OF RESULTS, AND DISCUSSION OF FINDINGS

Introduction

This research examines the roles and challenges of Virginia environmental nonprofits in shoreline management for coastal resilience. The research provides findings on roles and challenges for environmental nonprofit organizations’ service delivery for shoreline management. The study used a single case study method of 85 environmental nonprofits to explore the roles and challenges of Virginia environmental nonprofits in managing shorelines. The research questions are:

1. What are the perspectives of Virginia environmental nonprofits in terms of functions and roles they play as stewards of shoreline management for coastal resilience?
2. How do Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in terms of their effectiveness in performing their roles and functions?
3. What factors affect Virginia environmental nonprofits as stewards of shoreline management for coastal resilience based on their organizations' interests, experiences, and efforts?

The conceptual framework shown in Figure 1 explains the connectivity in understanding the study research questions, theories, and general objective of the research. As extensively discussed in the previous chapters, the structural functionalism and stewardship theories are directly related and relevant to the study framework and findings. The structural functionalist
theory provides a theoretical base for environmental nonprofit organizations as part of the nonprofit “structure” with functions in enhancing shoreline management, backed up by data in the study findings. The findings also corroborate the stewardship theory postulations in the study context, which considers environmental nonprofit organizations as environmental stewards.

**Document analysis and interview data**

As part of qualitative data analyses, interview sessions were conducted via Zoom, and the Otter AI transcription software was used to transcribe the interviews. The researcher listened to the audio recordings of the interviews and made essential amendments to ensure that the transcriptions were complete and the interviewees' words were captured properly and correctly. The researcher used initial coding, which offers an open-ended approach to coding (Saldana, 2016, p. 115). The document data of the charting impact questions, and the organizations' annual reports and website data were also analyzed and coded together with the interviewees to produce common themes. The findings’ discussion reflects the data findings of 85 environmental nonprofit document analyses and 15 environmental nonprofit organizations out of the 85 that also participated in interview sessions, with a total of nineteen participants. Description of document analysis and interviews’ joint codes for a single-case analysis is provided in Table 3and 4 below.

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Table 3. *Description of Themes on Roles of Environmental Nonprofits in Shoreline Management*
<table>
<thead>
<tr>
<th>Roles</th>
<th>Code</th>
<th>Brief Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Shoreline Conservation, Restoration, and/or Stabilization</td>
<td>SCRS</td>
<td>Activities that involve conserving and protecting shoreline properties help stabilize coastal management strategies, including living shorelines.</td>
</tr>
<tr>
<td>2. Advocacy</td>
<td>ADVC</td>
<td>Activities that involve lobbying for or against environmental issues and protection laws or regulations.</td>
</tr>
<tr>
<td>3. Community Engagement, Collaboration, and Partnerships</td>
<td>CEC</td>
<td>Having a coherent relationship with other stakeholders involved in shoreline management activities or can help facilitate efforts to promote shoreline management.</td>
</tr>
<tr>
<td>4. Education, Training, Outreach, and Advising</td>
<td>ETOA</td>
<td>Facilitating information sharing, learning processes, learning outcomes, and imparting knowledge that helps advance shoreline management and coastal protection.</td>
</tr>
<tr>
<td>5. Mapping</td>
<td>MAP</td>
<td>Activities that involve using digital data and online applications to create awareness of coastal ills, such as the problem of coastal erosion, and employing mapping strategies to identify potential locations for occurrence.</td>
</tr>
</tbody>
</table>

Table 4. Description of Themes on Challenges of Environmental Nonprofits in Shoreline Management

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1 Table 3. The codes on “roles” are represented with abbreviations used to generate the work and relationship chart between nonprofits. For example, shoreline management, restoration and/or stabilization is coded as SMRS and advocacy is coded as ADVC.
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Funding of Vulnerable Communities and Access to Resources</td>
<td>FVCR</td>
<td>Problems relating to access to sufficient and consistent funding, multiple funding sources, and underserved communities’ access to funding programs such as cost-shares and other resources.</td>
</tr>
<tr>
<td>3. Issues with Shoreline Management Practices</td>
<td>ISMP</td>
<td>Issues related to shoreline management practices and activities and the impact on communities. This includes issues such as home and property owners’ rigid perceptions of some shoreline management activities and the impact on shoreline protection.</td>
</tr>
</tbody>
</table>

Table 4. The codes on “challenges” are represented with abbreviations used to generate the challenges and relationship chart between nonprofits. For example, permitting process is coded as PP, and issues with shoreline management practices as code ISMP.

The tables illustrate codes generated during the coding process to highlight the pattern in the data. For instance, codes such as “conservation,” “restoration,” “funding process,” and “funding” were some initial codes generated during the initial coding process. Initial codes were generated, focusing on the research questions as the basis. Later, pattern coding was applied as a second cycle coding method developed to form themes and set the stage for the single case study.
Codes were reexamined to accurately represent the concepts and themes to ensure a proper interpretation and representation of participant responses. The coding process helped to determine codes, and the codes were examined for repetition to develop themes.

Nonetheless, this made some codes not become a theme. The second coding cycle was conducted separately using the NVivo qualitative software analysis for each environmental nonprofit organization. Central themes were combined for a single-case analysis, and direct quotes from environmental nonprofit organizations’ data were used to support the findings.

**Detailed Description of Themes: Roles**

*Shoreline Conservation, Restoration and/or Stabilization:*

The theme of shoreline conservation, restoration, and stabilization in the context of the study was arrived at after combining the preliminary themes in document data, interview data, and reports of environmental nonprofits explored. The initial themes from the interviewee data and reports that made up this theme include “shoreline conservation, shoreline restoration, shoreline monitoring, shoreline stabilization, living shorelines, and implementation of shoreline management strategies.” The document data also corroborate these themes with its initial themes on this role, which include “restoration projects, living shorelines, conservation, and stabilization.” In specific terms, the role of shoreline conservation, restoration, and stabilization based on these study findings involves conserving, protecting, and stabilizing shoreline properties through shoreline management strategies, such as building living shorelines, marsh grasses, ripraps, and bulkheads for shoreline management. It also includes the performances of
several restoration projects like buffer plantings, tree plantings, oyster restoration, and rivers and stream cleanups.

**Advocacy**

The advocacy role as a theme came up in all the study data explored as simply “advocacy, or advocate,” though with numerous explanations. Some nonprofits consider advocacy as influencing federal, state, and local policies to benefit shoreline management and address coastal and environmental management issues. In contrast, some consider it as activities that include providing services to the public, especially individuals like home and property owners, and working with volunteers, and communities, to advance environmental activities such as shoreline management. Hence, advocacy in the study context and based on findings are discussed as involving activities that include standing up for or lobbying for or against policies, laws, or regulations related to shoreline management for coastal resilience. It also incorporates reaching out and working with communities and individuals on shoreline management advancement and providing services that promote shoreline management.

**Community Engagement, Collaboration, and Partnerships**

The theme of community engagement, collaboration, and partnership is a theme that came up from the combination of several themes from the interview and document data. Findings show that all the 85 environmental nonprofits explored have working relationships or connections with communities and other organizations in and outside their sector. Initial themes that support this in the interviewee data include “collaboration, community engagement, partnerships, working relationships, alliance, collaborative, sharing resources, partnerships with
information sharing.” The researcher also found initial themes from the document data, including “collaboration, partnerships, and community engagement, and partnering with communities.” It is essential to mention that environmental nonprofits often used these words interchangeably to mean the same thing, and the researchers combined the three roles as one because they were the most reoccurring phrases used interchangeably. In the context of the study findings, the theme of community engagement, collaboration, and partnerships details a coherent relationship with numerous stakeholders, including peer nonprofit organizations, government agencies, private organizations, community-based organizations, professionals, and individuals involved in shoreline management or that can help facilitate environmental nonprofits’ efforts to promote shoreline management.

*Education, Training, Outreach, and Advising*

Education, training, outreach, and advising were different roles initially drawn from interview data and document analysis. The initial themes came out separately as “education, outreach, training, advising, environmental marketing, teaching, and providing professional certifications.” Most of these initial themes were also used interchangeably to mean the same thing by some environmental nonprofits. For instance, some environmental nonprofits talk about providing education by providing professional training to interested individuals and students alike. Some others also refer to outreach programs as advising and educating homeowners and individuals on shoreline management practices and doing outreaches as a fundraising campaign to attract donors. All the nonprofits who talked about teaching courses also explained the form of providing education and doing educational activities and programs. In specific terms as related to
the study findings, these themes were brought together as a singular theme and role some that explained the environmental nonprofits’ facilitation of learning processes, learning outcomes, public awareness, and promotion of the practical implementation of existing shoreline management policies and programs that help advance shoreline management for coastal resilience.

Mapping

Mapping as a theme came out as “mapping or map” in the study findings. The role was not as reoccurring as the other roles discussed but had an inclination of importance by the nonprofits that identified it as a theme one of the roles in the interview and document data. The theme in the context of the study findings details the involvement and use of digital data and online applications that help create awareness of potential locations of coastal ills such as coastal erosion, with attention to what can be done to be resilient about such. The theme also details mapping locations that have the proper fit for building or using specific shoreline management strategies like rip raps and living shorelines, which either need a combination of such strategies or will not apply for one or the other.

Detailed Description of Themes: Challenges

Funding and Vulnerable Communities’ Access to Resources

The role of funding vulnerable communities and access to resources come up as three separate themes in the study findings. All the study data analysis signified the problems of “funding, funding process, vulnerable communities, and access to resources.” Nonetheless, in
many cases where funding is being discussed as a challenge, many environmental nonprofits have related to needing funding to provide services in underserved and vulnerable coastal communities. When access to resources was pointed out, it was also most linked to the need for resources like cost-share programs, cleanup programs, education programs, and the provision of grants programs that vulnerable and underserved coastal communities would benefit from.

This explains the researcher’s decision to combine these themes to avoid redundancy. Some other explanations regarding funding for environmental nonprofit organizations detail a constant need for financial support, especially for current and future programs. Most environmental nonprofits depend solely on grants and donations as income sources to carry out free or subsidized programs and projects. In specific terms, the theme of funding vulnerable communities and access to resources relates to access to continuous funding, having multiple funding sources, and providing programs and resources that benefit underserved and vulnerable communities.

Permitting Process

The theme of permitting process was a straightforward theme that occurred in all data sources of the study findings. The initial themes that formed the permitting process include “expensive permit applications, technical problems with the permit process, slow permitting process, and centralization issues with state agencies and local boards with permit applications.” All these initial themes were merged into one challenge: the permitting process. In the study context and based on findings, the challenge of permitting process relates to the slow permit process, expensive permitting, technical issues faced before permit approval, and low availability
of contractors and other technical experts to assist with the process. Environmental nonprofits also need to ensure that permit demands and policies are adhered to by property owners and any other individual, group, or organization involved in the process.

*Issues with Shoreline Management Practices*

The issues with shoreline management practices came up as a theme out of efforts to bring together diverse issues that different environmental nonprofit organizations raised as a challenge related to shoreline management practices. These issues include some outstanding problems that have impacted effective shoreline management practices and activities and their impact on coastal communities. Issues discussed range from communication and framing challenges to the challenge of endangered living shorelines caused by trees dying, falling into the water, and shading, causing dangerous grass growths and minor erosions.

Other challenges include conflicting opinions of boards and agencies addressing shoreline management issues and rigid perceptions of home and property owners on using some shoreline management strategies for their properties’ shorelines and water fronts. At first, the research separated issues with shoreline management practices from rigid perceptions of homeowners and stakeholders as separate themes. These themes were later combined because they were closely linked and not mutually exclusive. For example, it seems as though rigid perceptions of homeowners and stakeholders on shoreline management strategies and practices pass as an example of issues environmental nonprofits face in addressing shoreline management practices.
Content analyses

The following charting impact questions have been explained in the previous chapter but are briefly listed below. They include,

1. What is your organization aiming to accomplish?
2. What are the strategies for making this happen?
3. What are your organization's capabilities for doing this?
4. How will your organization know if you are making an impact?
5. What have and have you not accomplished yet? (Charity Navigator, 2020; GuideStar, 2020).

Eighty-five nonprofits’ charting impact responses, organizational website information, and 18 interviews from 15 environmental nonprofit organizations and their organizations’ annual reports were merged to produce study results through a single-case analysis. The document data were reviewed to determine the nonprofits’ focus on coastal resilience. They were triangulated and analyzed with the interviews, reports, and charting impact questions to draw out overarching themes.

Findings

Study findings are presented using themes in this section. The discussion covers themes of roles and challenges that all 85 environmental organizations share with selected direct quotes and illustrations from interviews data, reports, and charting impact questions responses on GuideStar and Charity Navigator and environmental nonprofits' websites data. Study findings included triangulation of participant responses to the interview questions, annual reports, and
charting impact questions. Finally, all the themes related directly to the onus of the study literature, research questions, and theories.

**Themes: Single-Case Analysis**

There are five major and most reoccurred themes for roles, and they include:

- Shoreline conservation, restoration, and stabilization
- Advocacy
- Education, training, outreach, and advising
- Community engagement, collaborations, and partnerships
- Mapping

These comprise the themes that detail environmental nonprofit organizations' roles in shoreline management for coastal resilience. There are also three major themes on the challenges, and they include:

- Funding and access to resources in vulnerable communities
- Issues with shoreline management practices
- Permitting process

While most of the roles and challenges are shared by all the environmental nonprofit organizations from diverse points of view, few others are exclusive to most or, in some cases, some of the individual environmental nonprofits.

**Study results on roles**

*Shoreline conservation, restoration, and stabilization*
Study findings show the impacts of environmental nonprofit organizations in terms of their role in shoreline conservation, restoration, and stabilization. All 85 environmental nonprofits explored for the study are found to do work that involves restoration, conservation, and stabilization of shorelines for private homeowners and property owners, state and community lands, or a combination of all. The document analysis findings show that environmental nonprofits do a wide range of restoration and conservation projects that include river clean-ups, the building of living shorelines, oyster restoration, tree plantings, improving water quality, and building of marsh grasses, rip raps and bulkheads, and applying for funding such as grants to carry out their activities and funding other individuals, groups or organizations to do the same. These service provisions corroborate the study’s literature that shows that environmental nonprofits attend to communities' and individuals' environmental needs and address environmental issues that concern the public, which includes shoreline management work (Sadler, & Champney, 2016; Robinson, Shum, & Singh, 2018; Taylor, 2019).

One of the environmental nonprofits (EN B) examined through both interviews and document analysis was found to be the largest independent conservation organization dedicated to saving the Chesapeake Bay. Findings from the document analysis show that the nonprofit’s mission is to “serve as a watchdog, fighting for effective, science-based solutions to the pollution degrading the Chesapeake Bay and its rivers and streams.” Another environmental nonprofit (EN E) organization’s report shows its mission is to “restore, maintain, and enhance waterways, local seafood, and recreational opportunities in Virginia Beach.” Some of these environmental nonprofits were found to have wider reach beyond Virginia but have subsidiaries in Virginia
with the same focus on shoreline restoration efforts. One of the organization’s document analysis (EN B) data explored, for instance, shows that they impact conservation in 76 countries and numerous states, including Virginia. Based on the environmental nonprofit organization's report, the mission statement of its Virginia chapter is “to protect the lands and waters across coastal regions of Virginia.” They are involved in managing coastal habitats such as clean water, habitat for fish, scallops, oysters, and cluster resilience. They also do marine habitat restoration activities, including oysters, scallops, and other oyster restoration work, like making oyster reefs for coastal resilience. These organizations’ missions and activities embody engaging in and protecting shoreline management work, which the shoreline conservation, restoration, and stabilization role represents in the study context. Another nonprofit’s (EN I) mission from the document analysis includes “maintaining rivers with submerged grasses, oysters, crabs, and other species and helping them return to their historical levels and productivity.” Like these examples, other environmental nonprofits explored do similar and diverse works related to shoreline conservation, restoration, and stabilization, ranging from supporting healthy rivers to protecting and stabilizing shorelines and aquatic ecosystems.

The role of shoreline conservation, restoration, and stabilization answers the study’s first research question and the theories used. For instance, in answering the charting impact question one and two for the document analysis, which reads, “what is your organization aiming to accomplish? and what are the strategies for making this happen?” Study results from the document analysis show that environmental nonprofits are engaged in shoreline management work and adopt numerous strategies within the confines of state-approved guidelines to carry
them out. For example, findings from the document analysis show that one of the environmental nonprofits (EN A) has been proactively engaged in restoring the Elizabeth River for the past 30 years, which is one of the most polluted water bodies in the United States. Other environmental nonprofits also mentioned being involved in the restoration and conservation of different rivers like the James River, Rappahannock River, Chesapeake Bay, Nansemond River, Hoffler Creek, Virginia Rivers, Shenandoah River, Lower Appomattox River, Rockfish Watershed, and Dan River Basin amongst others.

The document analysis findings corroborate the interview findings as all the nonprofits mentioned numerous work they do to promote shoreline conservation and stabilization, including activities like river clean-ups, the building of ripraps, bulk heads, and other activities mentioned earlier. Notably, there were more in-depth conversations from many of the organizations’ representatives during the interviews. Many stated that doing restoration, conservation, and stabilization work is not a one-size-fits-all. They usually must examine the best strategies for a type of shoreline and choose the most effective restoration or stabilization plan. One environmental nonprofit organization’s (EN B) program manager shared, "I am currently working on being a restoration expert. So, it is being somebody that can go on a site, evaluate a site, and say, these are the plants that are there, this is the best thing to do.” It was further stated, "Water quality means that wetlands need to be protected. Our highest priority for river shorelines is to stabilize the banks.” These statements emphasize nonprofits' involvement in restoration and stabilization projects but also denote the importance of choosing the right strategies to accomplish such projects effectively.
Understanding this shoreline conservation, restoration, and stabilization role flow into what research questions one and two of this study seek to answer. Question one examines environmental nonprofits' roles in shoreline management for coastal resilience, and question two examines the perceived effectiveness of the roles through the lens of environmental nonprofits. All the environmental nonprofits analyzed stated roles related to shoreline management work in Virginia. These nonprofits consider the roles effective because of their core involvement and success in advancing shoreline management for coastal resilience and because they have been doing it continuously for years. Also, out of the 15 environmental nonprofits interviewed for the study analysis, all of the nonprofits mentioned they work with volunteer staff and, in some cases, minimally paid employees who are committed to working with them on their restoration and conservation projects for the advancement of healthy and lasting shorelines in the communities they serve.

The study also uses the stewardship theory to explain how environmental nonprofits serve as environmental stewards because of their roles in taking care of their environment, which includes shoreline management practices like restoration, conservation, and stabilization for coastal resilience. Study findings corroborated the stewardship theory connotations (Blair & Stout 2001; Sundaramurthy & Lewis 2003; Keay, 2017) as environmental nonprofits examined for this study consider themselves “environmental stewards,” “river stewards,” “River Star Homes employees and volunteers,” or those who engage in “protecting shorelines.”

In an interview with one of the environmental organizations (EN A), the representative who is a program manager in the organization shared,
“I am the River Star Homes program manager, so I work specifically with residents throughout the watershed and beyond to make an impact on the river and improve water quality. Our contracts and some federal funding allow us to go beyond that and help homeowners pay for restoration projects like living shorelines. I also work on larger projects like settlement cleanup projects and restoration work.”

These statements illustrate how environmental nonprofits invest and are committed to restoration and conservation projects as environmental stewards in the communities they serve. Environmental nonprofits are also engaged in activities involving oyster restoration and promoting living shoreline practices from the document analysis, reports, and interviews examined. According to another nonprofit’s program manager (EN K), their organization does an average of 10 living shorelines yearly and between five and ten buffer plantings, and their projects are documented in their annual reports as progress checkpoints. They cover areas between wetlands and try to encourage homes and landowners to plant living shorelines.

The document analysis findings also show that environmental nonprofits are involved in watershed planning and address technological capital issues related to shoreline conservation. For the structural functionalist theory in relation to the study findings, which shows environmental nonprofits to be doing work to advance shoreline restoration, conservation, and stabilization, the suggestions made by the theory show how environmental nonprofits serve as substructures of the nonprofit structures in that they perform functions that improve societal welfare and growth. Here, the main concentration of the theory is that existing organizations or sectors that can stand independently or work together with other structures to function in ways that influence or improve the maintenance of societal order and progress are considered
structures/substructures with functions (Spencer, 1963; Turner & Maryanski, 1988; Kingsbury & Scanzoni, 2009; Wellstead, Howlett, & Rayner, 2017). Study findings reflect that Virginia environmental nonprofits generally have millions of volunteers locally and internationally compared to the private and public sectors. Individuals who perform these functions for environmental nonprofits mostly do them voluntarily with minimal or no extrinsic reward. Based on this understanding, it can be stated that environmental nonprofits are stewards with functions considering study findings on what they do and how it relates to the study’s theory, conceptual framework, and the first research question.

The second research question, which seeks to answer the effectiveness of Virginia environmental nonprofits’ role, is also addressed based on environmental nonprofits’ discussions on how the services they provide help in the restoration, conservation, and stabilization of shorelines in vulnerable coastal communities and help property owners in managing and maintaining their waterfronts or shorelines. The study literature also corroborates this by describing environmental nonprofits as organizations that voluntarily look for unmet environmental needs and work on providing services to meet such needs in the communities they serve (Beatley, 2012; Sadler & Champney, 2016; Robinson, Shum, & Singh, 2018; Taylor, 2019).

Advocacy

The role of advocacy in promoting shoreline management has been expressed as crucial through the study results. This role is not mutually exclusive from the shoreline conservation, restoration, and stabilization role because most of what environmental nonprofit organizations
advocate for include how to advance their restoration, conservation, and stabilization work for coastal resilience. After examining 85 environmental nonprofit organizations, the study found numerous ways environmental nonprofit organizations do advocacy work.

Study results show that some environmental nonprofits advocate in state assemblies and local assembles to influence decisions to protect wetlands and manage shorelines through their writings or word of mouth. Some others do advocacy by reaching out to communities about shoreline management and protection best practices, and some others, through their roles and activities, consider themselves as advocates of shoreline management because of the work they do to support it and the services they provide to enhance it. Nonetheless, study literature supports the notion of environmental nonprofits being advocates of coastal resilience and as actors who address and seek to influence coastal issues and policies respectively, which include issues of sea-level rise, flooding, and shoreline management (Peacock, Brody, Seitz, Merrell, Vedlitz, Zahran & Stickney, 2010; Beatley, 2012; Taylor, 2019).

For organizations involved in advocacy at the state level, findings show that they provide policy advising on the state level with diverse government relations within Virginia and contribute to the state legislation. One of the organizations examined (EN D) in the document analysis shared in answering the charting impact questions regarding their mission that they advocate for funding for projects like green infrastructure projects that are part of the clean water coalition advocacy activities. In an interview session with the same environmental nonprofit organization (EN D), findings show they also participate in annual lobby days where they participate in state assemblies and talk on pending shoreline restoration and resilience issues.
They look for and use historical data, showing their work trends, current needs, impacts, and projects to support their claims and needs. The representative said, “I think when it comes to lobbying day, what we do is looking at historical data and knowledge and showing that the investments we have made are working like, and that works when it comes to like grant writing, it is a really good resource….” Documents and reports analysis findings show how other environmental nonprofit organizations’ advocacy activities and work are done with the local wetlands board members. Their representatives attend planning commission meetings and visit Richmond to inform the Chesapeake Bay restoration committee about what they are doing for the environment as an organization. They mainly try to ensure that comprehensive plans have conservation and restoration plans and efforts that benefit them.

Concerning working with the community as a type of advocacy, findings show that some nonprofits consider their work a type of advocacy. For instance, an interviewee, a coastal scientist in one of the environmental nonprofits explored (EN H), mentioned how that outreach serves as a form of advocacy within the communities they serve. The interviewee said, “I feel like the outreach we do is advocacy within our communities.” The study results show that what advocacy means to some environmental nonprofits differs from what it means to others. While some see it as an action regarding putting policies and funding in place to support the work that they do, others see it as an action that involves reaching out to individuals and communities to join them and actively participate in activities like plantings and cleanups that help them in achieving their shoreline management goals.
The findings corroborate the study literature, which explains that environmental nonprofit organizations’ campaigns and outreaches have been sources of influence on the U.S. government at the local, state, and federal levels and on communities (Greenberg & MacAulay, 2009; Hall and Taplin, 2010; Dodge & Ospina, 2016; Guo & Saxton, 2018). The findings on advocacy role help answer the study’s first research question because they address the advocacy role environmental nonprofits play in shoreline management. Though environmental nonprofits explored have interpreted their advocacy roles and activities differently, they alluded that they advocate for shoreline management practices.

In answering research question two on the effectiveness of environmental nonprofits’ advocacy role, based on their perspectives, study findings show that numerous environmental nonprofits have been actively involved in state legislatures and local assemblies and have been successful over the years in giving policy advice and influencing policies that advance shoreline management for coastal resilience. Also, study findings show that environmental nonprofits have been effective in advocating for shoreline management through their continuous provision of education, advising, and services that provide solutions to shoreline management needs in the communities they serve. This role also emphasizes environmental nonprofit the stewardship role environmental nonprofits play as substructures advancing coastal resilience (Blair & Stout, 2001; Sundaramurthy & Lewis, 2003; Keay, 2017; Howlett & Rayner, 2017). Serving as representatives advocating for shoreline management in state legislatures, providing policy advice to policy decision makers on restoration and conservation practices related to shorelines as mentioned above, and reaching out at the community level to seek the support of individuals,
groups, and other entities denotes a sense of responsibility that environmental nonprofits
organizations carry. Based on the literature on what the stewardship theory and structural
functionalism connote, this qualifies them as environmental stewards and substructures under the
nonprofit structures with functions to promote shoreline management in the communities they
serve, which can translate to societal advancement (Blair & Stout 2001; Sundaramurthy & Lewis

Community engagement, Collaboration, and Partnerships

The role of community engagement, collaboration, and partnership is embedded in the
first two roles discussed based on study findings. In carrying out the shoreline conservation,
restoration, stabilization, and advocacy roles, results show that environmental nonprofit
organizations are highly dependent on engaging with communities and individuals and
collaborating with other structures, including sectors and institutions, for information sharing
purposes. Others have shoreline projects together and apply for funding together to achieve their
individual and collective goals.

There are numerous examples of environmental nonprofit collaborations with community-
based organizations, state government and agencies, and private organizations from the study
findings, ranging from document analysis to interview data. Study findings that address the
charting impact questions 1, 2, and 3 from the document analysis show that environmental
nonprofits collaborate to enhance living shoreline projects, buffer plantings, forest cover, and
tree canopy in different watersheds in Virginia. One of the organizations (EN H), for example,
works with private woodland owners to promote and implement sustainable forest management
practices and resources and build the capacity of local governments to attain their forest and tree canopy goals while collaborating with individuals to build trees and woodlands in landscapes. The document analysis data of environmental nonprofit organizations show that numerous nonprofits are members of a collaborative called the “living shoreline collaborative.” The collaborative includes numerous nonprofit partners who do living shorelines projects. This was corroborated by the interview data that details responses of environmental nonprofit representatives mentioning that their organizations are members. The outreach manager of an environmental nonprofit (EN I) interviewed mentioned how the nonprofit “collaborate and are part of the living shoreline collaborative, a group of different partners working on living shorelines in the James River Watershed.”

Some of the environmental nonprofits (EN A, EN B, EN I, EN J, EN M, EN N, EN O) also form partnerships with city staff and indigenous organizations based in the communities they serve to reach their goals. The response to organizations charting impact question three on how they achieve the goals and the interview session with the same organizations on whether they collaborate with other institutions and individuals or not show that nonprofits have numerous partners they collaborate with, including the Virginia Department of Health Division, Shellfish Safety, Native American Heritage Association, Rappahannock Tribal Center, and Chesapeake Bay Foundation. They also have about 250 members involved with them directly and 300 people who volunteer for their projects in the community. In an interview with another environmental nonprofit (EN F), the representative who is an environmental educator said, “we have a lot of the waterfront property [that] is privately owned, and so we have been working with the city over the
years to increase public access so more people can enjoy the waterways. We are doing this project in full partnership with Chesapeake Bay Foundation and looking at five different oyster substrates.”

This response answers to the study’s second research question on the effectiveness of environmental nonprofits’ role because it shows how nonprofits collaborate to achieve their immediate shoreline management goals and put efforts in getting involved in numerous roles and activities that directly and indirectly relate to shoreline management for coastal resilience. This further establishes their roles as environmental stewards and substructures with functions, considering that they not only do work that promotes shoreline protection and stabilization in terms of putting restoration and stabilization strategies in place. It also ensures the effectiveness and success of environmental nonprofits’ shoreline management goals by collaborating with other agencies to advance restoration, conservation, and recreation purposes that shorelines can serve.

The study findings from the interview data show a strong connection between advocacy and community engagement, collaboration, and partnership roles. There are instances where organizations’ representatives have explained that their organizations work with other environmental nonprofits to do advocacy work together, ranging from reaching out to communities and engaging them in shoreline management activities to jointly representing their organizations in state legislatures. One of the 15 environmental nonprofit organizations representatives (EN H) interviewed, a coastal scientist, said, “when there is an opportunity, we
advocate for something together or, you know if some appropriate something arises and we apply for money together, whatever it is.” These results show that environmental nonprofits combine forces and resources to achieve their personal goals and the wheel that help drives the role that engagement, collaboration, and partnership play. This role also helps answer the first study research questions on the roles of environmental nonprofits and corroborates the study theories that consider environmental nonprofits as stewards and part of the nonprofit structure with functions. In this case, environmental nonprofits come together to perform their functions as stewards toward a collective goal of enhancing shoreline management (Blair & Stout, 2001; Kingsbury & Scanzoni, 2009; Sundaramurthy & Lewis, 2003; Keay, 2017; Wellstead, Howlett, & Rayner, 2017).

**Education, Training, Outreach, and Advising**

Study findings show that environmental nonprofits play the role of education, training, outreach, and advising. The advising here differs from the policy advising to state and local policy experts in the advocacy role. It is more focused on the implementation level of environmental nonprofits educating home or property owners on the best ways to protect their homes and waterfronts and adopting strategies like community-based social marketing to do the same. The education, training, outreach, and advising role is also linked to the first three roles discussed and were often used interchangeably by environmental nonprofits based on study findings. For instance, study findings have established some education, training, and advising work environmental nonprofits do on shoreline restoration, conservation, and stabilization,
amongst other things. Some environmental nonprofits consider themselves educators and stewards who educate other stewards on topics like rivers and stream-ups, buffer and tree plantings, tree names, and shoreline mitigation strategies. They are also invested in creating and expanding education programs related to shoreline management.

According to an environmental nonprofit (EN I) representative interviewee, the nonprofit provides educational programs and upriver experiences to interested persons of different age groups. The outreach manager said, “We educate and inspire more river stewards by expanding education programs at each River Center. We also provide education programs and river adventures, opening upriver experiences to a broader diversity of people, including younger children and those with disabilities.” These results are founded on the study theories because they directly connect with the study’s stewardship theory that operationally regards environmental nonprofits as environmental stewards. This responsibility of being environmental stewards reflects environmental nonprofits’ functions as part of the nonprofit structure in providing education and mentorship, training, outreach programs, and advising on issues related to shoreline management on the part of the home and property owners.

Study findings from the document analysis further show that environmental nonprofits provide educational materials and training on numerous shoreline management and protection strategies, ranging from strategies for doing effective river clean-ups to broader materials in environmental advocacy in nonprofits. The interviews corroborate this, for example, when a nonprofit representative explained that the organization (EN F) has outdoor classrooms for home and property owners where students learn about over 60 varieties of trees and native
shrubs. Apart from the nonprofit’s annual reports, their most recent report also shows they are working towards writing a ten-year report to inform the public on the state of water quality in the communities they serve, and current research is going on through an ad-hoc committee that convenes monthly.

Some kinds of outreach environmental nonprofits do include education and training of individuals on shoreline management work. They promote their organization’s programs through newsletters on projects like living shorelines and tree plantings, give home and landowners seminars, and inform, train, and educate the public. Some of the nonprofits (EN A, EN B, EN C, EN D, EN F, EN G, EN H, EN I, EN M, EN O) stated that they train teachers every year and have summer courses for professional development. Study findings also show how environmental nonprofits do outreach for fundraising campaign purposes. One of the interviewees of a nonprofit (EN B) tagged this activity as “environmental marketing.” Although this term is present in the literature and called environmental or green marketing (Miles and Covin, 2000), the name has become less common in the environmental nonprofit field and literature over the past decade (Miles and Covin, 2000; Taylor, 2019). The term operationally denotes the financial performance of environmental nonprofits through fundraising campaigns, their grant writing prowess capabilities, and engaging with other organizations to boost their financial stance in their work.

Study results show that environmental nonprofits are involved in environmental marketing differently. The document analysis results show how environmental nonprofits either use electronic and technological means to detail their roles, needs, projects, and impacts and ask for
donations and funding from potential findings or use just word of mouth to do all these. While some organizations stated that they ask for funding support through word of mouth, other organizations stated they seek for it through electronic means, while others mentioned they do a combination of both when asked about their organization’s impact, capabilities, or strategies they use in achieving their goals (charting impact questions 2, 3 and 4).

In broader terms, nonprofits tend to communicate their funding needs and opportunities and their projects, activities, and impacts in the communities they serve through environmental marketing. These marketing practices include giving feedback through financial reports, newsletters, talks, and other means to attract and retain donors. An organization’s executive director (EN B) interviewed predominantly describes environmental marketing as the fundraising strategy for their organization. It was shared, “I am also responsible for marketing and communication for the organization’s financials. When I speak of marketing, know it is about fundraising for the organization.” This result further emphasizes how environmental nonprofits use environmental marketing to improve their organizations’ financial performance.

In another purview, in doing outreach activities and advising home and property owners on appropriate shoreline protection strategies for their property shoreline, findings show how nonprofits use the environmental marketing strategy to get them to agree and adopt such strategies as building living shorelines. According to a program manager of an environmental nonprofit (EN B), it was stated,

“It feels like you have to kind of market it to them. So, once you know it is the preferred option, you have to kind of convince them to take it. So, they have to go through the process, except they have this part of
why it is not scientifically feasible. Professionals could be more creative about making living shorelines and designing them because there seems to be a standard way about what a living shoreline looks like.”

This statement denotes the view of advising as a form of environmental marketing for promoting suitable shoreline management strategies and not just as an outreach process for fundraising and improving financial performances. These study findings help answer the study’s first research questions that seeks to answer questions on the roles environmental nonprofits play as stewards and their functions as part of the nonprofit structure because of the education, training, outreach, and advising role they play as environmental stewards who perform educational functions to advance shoreline management.

The statement also answers the study’s second research question on the effectiveness of environmental nonprofits’ roles through their perspectives because it emphasizes how environmental nonprofit representatives are committed to ensuring that individuals see reasons to adopt shoreline management strategies to promote shoreline management for coastal resilience. For instance, the interviewee representing EN B mentioned that they put efforts into “convincing” home and property owners, which signifies the nonprofit goal is to ensure that adequate shoreline management strategies are adopted and used by the property owners they serve (Spencer, 1963; Turner & Maryanski, 1988; Blair & Stout 2001; Sundaramurthy & Lewis 2003; Kingsbury & Scanzoni, 2009; Keay, 2017; Wellstead, Howlett, & Rayner, 2017).

The results further show that environmental nonprofits play education and advising roles through training and other services they provide to homeowners, students, older adults, children, nonprofit professionals, and teachers. This function not only translates into the postulation
stewardship theory, which denotes taking responsibility and doing work that promotes the betterment of others and having a high sense of inner fulfillment but also acknowledges the functional roles they play as part of the nonprofit structure to advance societal wellbeing through their services.

Mapping

Unlike the other roles where all of the 85 environmental examined do work on them, though, in different ways, the role of mapping has fewer environmental nonprofits who actively engage in using it and consider it as something they do towards achieving their goals. Study findings show that environmental nonprofits engage in mapping activities that involve using the living shorelines apps, geospatial tools, and software applications like R and Shinny that helps map areas that would be good for living shorelines or suitable for other shoreline management strategies like riprap, bulkhead, or unsuitable for any of those mitigation strategies.

An environmental nonprofit organization (EN H) representative interviewed, who is a coastal scientist, said, “we have the living shorelines app, and it maps the areas that would be good for living shoreline, you know, or some hybrid or none of those things and so this map show maps out where those places are.” In answering charting impact questions 2 and 3 in the document analysis, which explores the strategies and capabilities of environmental nonprofits in accomplishing their roles and missions. Some environmental nonprofits also have water reporter maps that empower everyday citizens to take actions that protect and improve water quality in their communities.
This role emphasizes environmental nonprofits' stewardship responsibility based on the study’s theory because some of them engage in mapping the ecosystems of the communities they serve in order to help them adequately implement shoreline management services and activities in shorelines using strategies and plans in the most effective ways they think is possible (Blair & Stout 2001; Sundaramurthy & Lewis 2003; Kingsbury & Scanzoni, 2009; Keay, 2017). It also speaks to the first research question on environmental nonprofits' roles, including works related to mapping with the sole aim of enhancing their works as stewards and as part of the nonprofit structure in attending to shoreline management activities and projects in the communities they serve.

Moreover, the second study research question is answered through this role as study findings show how some environmental nonprofits, such as EN B and EN C, find mapping to be an effective means of providing services. According to them, mapping can help detect areas in vulnerable coastal communities with issues like potential or impending coastal erosion, which helps them to be proactive rather than reactive in addressing such problems. Through this role, environmental nonprofits can also map areas that require appropriate shoreline management strategies, improving the success and effectiveness of their shoreline management activities and services.

**Study results for challenges**

**Permitting Process**

All 85 environmental organizations explored identify with doing diverse shoreline management projects, like planting marsh grasses, building oyster reefs, bulkheads, ripraps, and
living shorelines for shoreline conservation and restoration purposes, which usually require permits to carry them out. While some nonprofits do single permit applications based on their organizations’ needs and projects, others do joint permit applications with other nonprofits to carry out joint projects, and others do a combination of both. Interviewee and document analysis findings also show that environmental nonprofits sometimes contract their permit application activities out to contractors depending on the nature of the project, the number of projects at hand, and the level of technicalities a project requires. For example, the nonprofit interview data show that shoreline projects that adopt a hybrid approach which includes nature-based and managed alignment approaches, often require the technical expertise of contractors. Such projects are mostly contracted out to them for design, including the permitting process applications to implement the projects.

This corroborates the study’s literature section that discusses the shoreline management approaches, which include the nature-based, managed alignment, and hybrid approaches. According to the study literature, the hybrid approach details a combination of the two others, making it more demanding and technical. The study literature also emphasizes that permitting for natural projects can be more complex than for built projects and other approaches, which further corroborates the technical process of permitting (Arkema et al., 2013; Rodriguez et al., 2014; Sutton-Grier, Wowk, & Bamford, 2015). This leads to some issues environmental nonprofits have identified with the permitting process that are hindrances to the adequate performance of their roles and functions. These issues include timing and the technical aspects of the permitting process.
Some environmental nonprofit interviewees have mentioned that the permit process can sometimes be too technical regarding the demands they have to meet before projects are approved. Some of the technicalities include strategies required by the state to be put in place before carrying out projects. In the document analysis data, the answer to charting impact question five explores what environmental nonprofits have not yet been able to achieve and shows problems with the technical problems involved in the process. Some nonprofits mentioned that living shorelines, for instance, have become the state's preferred shoreline management strategy for coastal resilience and would be the required one except scientifically proven otherwise.

The study literature also corroborates this to be right in its explanation of how the 2020 State Senate Bill 776 emphasizes living shorelines as the preferred shoreline management strategy in Virginia against shoreline issues like erosion and how scientific justifications have to be made to adopt other strategies (Lang, 2020). The law mainly directs the Virginia Marine Resources Commission (VMRC) to put a stop to granting permits that allow waterfront property owners to be able “to install a hardened shoreline unless the best available science shows that a living shoreline is not suitable” (Lang, 2020, p. 1). Hence environmental nonprofits would need technical knowledge, information, and justifications for adopting any other management strategy, like riprap or bulkhead, for a particular project and show that such strategy is more suitable as a shoreline protection strategy compared to a living shoreline.

The interview findings also confirm these notions as representatives of the environmental nonprofits interviewed aired the same concern regarding the technical aspect of the permitting
process. An interviewee of a nonprofit (EN K) said their organization is working with homeowners in Rappahannock County, and some homeowners do not want living shorelines due to different reasons, and having to convince them to do it has sometimes “proven difficult or impossible.” Another representative of a nonprofit (EN B), who is a program manager, also explained that nonprofits have to work to try and convince homes and landowners, as well as other stakeholders like local wetland boards and state agencies, on why a preferred method is chosen, in which they may be convinced or not. Some other representatives also shared how fewer qualified contractors are available to assist with shoreline projects, especially for living shorelines, and explained how they would like more trained and qualified contractors.

Some nonprofits also advise homeowners on the benefits of living on shorelines compared to other management strategies to ease their work further and speed the process. This emphasizes the role of environmental nonprofits as stewards responsible for supporting the implementation of state policies and laws related to shoreline management. It also shows their plight as part of the nonprofit structure in performing functions that help promote societal order and progress through their actions and services, though with needs for support and interventions.

Another issue raised by environmental nonprofits explored is that permitting processes are usually slow and expensive. From the document analysis and interview findings, all the environmental nonprofits that raised concerns about the permitting process attested to the fact that it is slow, time-consuming, and better done as a group of individuals or organizations. An environmental nonprofit representative, the organization’s executive director, explained that permitting makes the building of living shorelines slower and that construction of a shoreline
usually takes about a month outside the permitting process. The interviewee representing EN J said, “it takes all of your time to build a living shoreline. For instance, let me say it takes up to a year or more. Now the actual construction was probably just a month.”

Based on this, it can be deduced that some environmental nonprofits seem to spend much time getting approved on projects because of the slow perm application processes. Findings also show that some wetlands board members still do not believe that living shorelines will work, making them spend more time in the process and questioning if building a living shoreline is appropriate for a project. Results show that it leads to “time constraints” on the part of the nonprofits and also “knowledge and perception barriers.” These findings signify the rate at which nonprofits could have moved faster with projects and achieved more in a year but are slowed down due to pending approvals. It also shows that environmental nonprofits would likely be unable to provide services and attend to as many individuals as quickly as they would like, which may put many home and property owners at continued risk for vices like erosion.

Another interviewee, whose title is a Virginia project manager of an environmental nonprofit (EN D), also mentioned that the permitting process is expensive and time-consuming, which further emphasizes the challenge of a slow and expensive permit process mentioned by other nonprofits. It was stated that “permitting administrative costs are very expensive for the time it takes to get through the permitting process and implementation. So hoping that it will be less expensive and quick and that the regular components will be a lot easier because it is a big obstacle for folks right now.” Findings also show that the citizens’ board may or may not know
of the living shoreline but will have to approve the proposed living shoreline, which leads to many more questions and scrutiny that makes the process more stressful and time-consuming.

The document analysis data also show that environmental nonprofits are experiencing staff shortages, and the multiple scrutiny process that permits go through makes the process slower, more tedious, and time-consuming. Suggestions to speeding up the permit process include self-permit living shorelines and other shoreline management strategies and avoiding duplication of review processes of a single project by different agencies or boards. In one of the interview sessions, the deputy director of a nonprofit (EN C) explained,

“Corps of Engineers is involved in the process, and I think they can streamline the permitting process so that you can self-permit your own living shoreline if you get a Virginia Marine Resources Commission permit. I think that is one way, and then another big holdup is called “OA review,” which means they review it again. And projects that have to go through a federal channel or some federal structure review here in Hampton Roads are quite few. And because of that, they only have a handful of people doing the review, and it is just taking time. It is just a significant amount of time.”

Environmental nonprofits’ document data also show that they submit permit applications with other organizations as a group, especially for “living shorelines and oyster restoration.” It is believed that process is most successful when a joint permit application is made because oyster shells, for example, are hard to come by, as shown in study findings, and joining resources with other organizations may be a feasible way to get it done.

Results also show that nonprofits do permit oversight and monitoring, which involves turning in people who are doing unauthorized and unpermitted shoreline work to state and local
agencies in charge of such illegal acts. In an interview with the stewardship manager of one of the environmental nonprofits explored (EN J), the nonprofit representative shared,

“We had a landowner not that long ago trying to recreate his shore without permits. And so, we essentially turned him in to the county and the wetlands board so they would do an enforcement action. So we do monitoring as well, annual monitoring of the property. This is a property owner that when I monitored, I saw that he had done this, and I sent some pictures to the county.”

Another interviewee, who is the executive director of EN E, further mentioned the challenge of property owners not accepting that they cannot cut down trees on the waterways and shorelines without permits and that they often advise the homeowners on what should have been done out of concern for protecting the waterways and the environment or report such cases.

These issues regarding the challenge of the permitting process link to the study theories because the findings show that environmental nonprofits are actively ensuring they perform their roles as environmental stewards and as part of the nonprofit structure with functions (Spencer, 1963; Turner & Maryanski, 1988; Blair & Stout 2001; Sundaramurthy & Lewis 2003; Kingsbury & Scanzoni, 2009; Keay, 2017; Wellstead, Howlett, & Rayner, 2017). They have proven this to be correct through their acts of service, identifying ways to improve their service provision and putting monitoring measures in place. This challenge also directly answers the study research question three, which seeks to explore the challenges environmental nonprofits play in performing their roles and functions. Based on study findings, the permitting process is one of the core challenges of environmental nonprofits in advancing shoreline management for coastal resilience, which needs adequate attention and has to be addressed.
Issues with Shoreline Management Practices

The study findings reveal several issues with shoreline management practices identified by environmental nonprofits. These issues ranged from recent societal changes and their impact on shoreline management practices and advancement to risks involved in doing shoreline management and the need for such risks to be more discussed with property owners and state and local policy makers. Findings from the interview data show that environmental nonprofits went through unprecedented changes during the Covid-19 pandemic, which affected their service provision due to a significant reduction in the number of staff and volunteers in nonprofit organizations, which have not fully recovered to date.

These changes in the past few years impacted the capacity and services of environmental nonprofits in the communities they work because volunteers and staff had concerns regarding factors due to pandemic restrictions, fear, health reasons, and concerns, and most of them never returned after the pandemic, which reduced commitment levels and availability of staff and volunteers. Although some of the nonprofits mentioned how they moved their work remotely, they explained how most of the activities required physical engagements and actions and how the pandemic affected the smooth running of their programs and activities. The executive director of one of the nonprofits (EN O) interviewed shared,

“The pandemic has affected us to where we could not do some of our projects [and] that has been a challenge. And then I have not had any volunteers, either, because I had a volunteer who did a lot of education work, record-keeping, letter writing, and things like that. She would help me organize projects, but she has not been here since the pandemic started.”
This problem is not surprising because virtually every sector, institution, or individual felt the impacts of the pandemic in significant ways. It is enlightening to see how environmental nonprofits in Virginia experienced the impacts of the pandemic based on the study findings. Environmental nonprofits may need more volunteers and staff post-pandemic due to the increasing number of pending projects and shortage of volunteers and staff, further slowing down their activities.

Another issue environmental nonprofits raise is the risk of failure that comes with living shorelines and that shoreline management professionals have not owned up and discussed these risks and failure possibilities with property owners before and when building them. For example, one of the environmental nonprofit representatives (EN B) shared that there is still a lack of confidence to go to homeowners and say this will work because professionals tend to shy away from telling homeowners and stakeholders that there is a “20% potential that a living shoreline will fail.” So they do not say much about it with consideration that such statements might discourage property owners from investing in doing living shorelines, even though other options such as bulkheads will eventually fail.

It was suggested that shoreline management professionals, including nonprofits, contractors, and engineers, own up to such possibilities for loopholes when dealing with clients and then try to figure out the best solution. According to the representative of the nonprofit (EN B), living shorelines as a shoreline management strategy is still new to many property owners. Hence, ensuring ways to excite them about living on shorelines is essential to enhance their
interests. Also, giving them a good visual representation through “pretty pictures” and explaining the benefits are simple but effective ways to achieve more acceptance to build living shorelines.

The document analysis findings show that environmental nonprofits face more unique challenges than their roles. Some of the challenges environmental nonprofit organizations stated are exclusive to a few of them, and others are more common. Challenges identified include “resiliency zoning,” where builders pay to put in a new conservation easement on the water's edges in vulnerable coastal communities where they are at risk; the need for proper framing and communication of shoreline management risks; issues regarding time for monitoring and maintaining shorelines and other restoration projects, especially finding volunteers groups to do it; and the need to “prioritize shoreline and river cleanups” in coastal communities.

Regarding the need to properly communicate climate change and shoreline management risks, suggestions are made for shoreline management professionals to not concentrate so much on the negative part when discussing climate change and management strategies but to talk about things like the economic benefits of addressing coastal management. The focus should be on communicating coastal resilience risks to the public without making them feel scared or overwhelmed but instead see it from a need and potential for shoreline management progress and betterment of the future’s perspective. Some nonprofits (EN B, EN C, and EN E) also suggested using a community-based social marketing strategy to be a good resource that helps property owners engage in modeling behavior. Study findings show that advice and work samples of shoreline management professionals, property owners’ neighbors, and contractors have proven to be a social marketing strategy and can minimize the challenge of knowledge and perceptions
barriers by changing rigid environmental behaviors, especially among home and property owners. For instance, a nonprofit organization (EN C) representative in an interview mentioned that with a social marketing strategy, homeowners who are initially uncomfortable with building living shorelines have eventually built them because professionals communicated more and helped them learn more about it and its benefits or because they see their neighbors building living shorelines.

This corroborates what another nonprofit (EN E) representative, a nonprofit executive director, said in the organization’s interview on doing outreach and talks on actual impacts shoreline management strategies and projects will have on the economy, environmental protection, and communicating and framing issues appropriately. The director noted this to be extremely important because “it is not so that people feel better but that they can get something done out of necessity and not fear.” The director also mentioned a need for better strategic plans at all levels of government and that the public, nonprofit, and private sectors have to figure out ways to prioritize building in higher elevation areas in vulnerable coastal communities.

This particular challenge of issues with shoreline management practices emphasizes the study literature about environmental nonprofits as organizations engaged in communicating and framing environmental issues that concern the public. Studies have shown that environmental nonprofits are considered central actors in framing environmental problems (Corbett, 2006; Goffman, 1986; Merriman-Goldring, 2017). Hence, the challenge of adequately framing shoreline management issues shows that environmental nonprofits not only have to be stewards in what they do but in what they say and carefully present what is being said. This would include
appropriate rhetoric of shoreline management issues in ways that drive positive changes and the advancement of shorelines and not otherwise (Corbett, 2006; Goffman, 1986; Merriman-Goldring, 2017).

Another challenge in the findings, specifically from the interview data, is the challenges with using waterways, which are major recreational areas. Apart from the fact that some property owners make use of waterways and cut down trees without permits, as discussed in the challenge of the “permitting process,” one of the interviewees, an executive director, explained that people who own property on the waterways have invested money in their homes and want to take ownership of the use of waterways in close proximity with their properties even though they do not have higher rights over them. The director of EN E shared,

“One of the challenges is that there are many uses for these waterways. They are major recreational areas. The people who own property...feel some ownership even though they do not have any other rights than anybody else does. It takes a lot of work to balance these different interests, and everybody is frequently not happy with what you are doing at the same time.”

Due to this, environmental nonprofit professionals, for instance, are saddled with handling issues surrounding the use of these waterways to address the competing interests of some homeowners who have reservations about the public ownership of the waterways. Study findings also show that environmental nonprofits have monitoring, and reporting issues related to shoreline management practices because different authorities handle such matters. According to some nonprofits (EN E, EN F, EN L), it would be helpful for the different agencies to centralize
their activities and spend more on response to citizens’ needs. In an interview with an environmental nonprofit’s (EN F) restoration chair, the representative shared,

“My biggest complaint is that you have to deal with one board and then with another state or local board. I do not like that. That bothers me because when you see somebody neglecting and doing something wrong, you have to get two different people involved, and one can say you cannot do this or get rid of this. It would be great if they could be centralized. I know that there has been an attempt to centralize it over the years.”

Like the challenge of the permitting process, the results on the issues with shoreline management practices as a challenge corroborates the study research question three and study theories based on their postulations. Research question three seeks to answer the questions on the challenges Virginia environmental nonprofits faces, and this challenge details numerous problems environmental nonprofit deal with in relation to shoreline management practices. These challenges revolve around appropriate communication and framing needs, issues regarding adherence to shoreline management policies, and discussions with property owners on risks related to shoreline management practices, among others.

In summary, based on study findings and in connection to study theories, the issue with shoreline management practices challenge shows that environmental nonprofits face obstacles in playing their roles and performing their functions in advancing shoreline management. It also shows that other structures’ functions, such as government and their policies and individuals' actions, impact how some of their problems come to play and need to be attended to (Spencer, 1963; Turner & Maryanski, 1988; Blair & Stout 2001; Sundaramurthy & Lewis 2003; Kingsbury & Scanzoni, 2009; Keay, 2017; Wellstead, Howlett, & Rayner, 2017).
Funding and Vulnerable Communities’ Access to Resources

The challenges of funding in vulnerable communities and the need for resources, like cost-share programs, have been identified through study results as another main problem that environmental nonprofits gave in shoreline work for coastal resilience. Here, funding and vulnerable communities' access to resources are paired together because environmental nonprofits who discussed the problems of vulnerable communities' needs for shoreline management resources seem to have mostly tied them to the need for funding to obtain and provide for such resources. Such financial assistance and resources needed in underserved coastal areas include providing funds and resources to implement shoreline stabilization projects such as planting trees and rain gardens. Although many nonprofits in diverse cities are said to have access to some funding, Virginia's areas and communities lack those types of funding opportunities, including the City of Norfolk and Newport News.

Results from the interview data corroborate this as it shows that most of those cities’ residents do not have enough capacity to apply for cost-share opportunities to incentivize projects like planting trees and rain gardens, river cleanups, and building riprap and living shorelines. Nonetheless, an interviewee stated that the City of Norfolk, for instance, has continued to reach out to nonprofits to take that up. However, it takes a lot for nonprofits to take on a cost-share program with the city without more funding. Logistics was also regarded as an issue because where nonprofits sites are located can determine where they can go for shoreline management work and whom they can reach. An environmental nonprofit organization (EN M) executive director shared,
“Shorelines need to be stabilized, and we need to look at communities that may need more financial assistance, and these are the areas that we need to be. Those that need planting trees, rain gardens, and all these different types of projects to ensure we are doing the right thing for the area.”

Interview findings show that Newport News and some other Virginia localities need more agency funding for shoreline projects and are not in the water districts. These findings corroborate the study literature and explain that the capacities of communities in Virginia to mitigate coastal resilience have been reduced or hindered by high fiscal stress. For instance, study literature shows that some communities in Hampton roads have high fiscal stress, which included Newport News, Norfolk, and Portsmouth, and below-average fiscal stress in other areas like Chesapeake. The literature also explained that if political or donor support exists, many communities like Newport News may still likely struggle to generate additional local revenues from their current tax base to fund resilience efforts such as shoreline management (Sweet et al., 2018; Lang, 2020; NOAA, 2021; US Bureau of Economic Analysis, 2021).

Nonetheless, through study findings, environmental nonprofits mentioned having port-shed programs, which is a gap-filling program for such cities where the nonprofits try to provide technical assistance, advise property owners on what to do, and assist financially. A particular nonprofit (EN L) mentioned they have financial assistance and are said to be able to help incentivize living shorelines over revetments or bulkheads. These nonprofits decide to step because funding is limited in assisting property owners through the expenses of building living shorelines, which has been an issue, especially in low-income, underserved, vulnerable
communities. Findings show that issues with flooded and failing septic systems in such communities also need to be addressed and require financial provisions.

The document analysis findings corroborate the interviewee data as most nonprofits alluded to the fact that they needed to continuously source for funding, or have need for funding, or require grant and funding opportunities to function effectively in service provision and accomplish their environmental goals. Based on study findings, none of the 85 environmental nonprofit organizations, either in the document or interview data, seems to have mentioned being in a state of assurance for continued funding or not needing any more financial support for their work. Further examples of nonprofits airing their concerns on having funding but needing more continually to support their programs and staff, some having less funding opportunities available and are in need, and also that much time is invested in looking for and getting access to resources, were shared in interview data findings by various environmental nonprofits representatives as depicted below.

*Executive Director (EN O):* “We have been very fortunate to continue to grow our organization and have had the funding we need to do that. But, it is always a challenge. One of the major things I spend time on is looking for funding and applying for grants.”

*Coastal Scientist (EN H):* “I mean, funding is probably the first thing that comes to mind. We are a member-based organization, so we also depend on philanthropy, and then we also write proposals for competitive grants. That is kind of constantly keeping your eyes out.”

*Executive Director (EN K):* “Funding is always my part, especially as the director. It is my central responsibility. I do not want my program staff worrying about where the money is coming from to pay for things. I want them to focus on the program and how to make their program as effective as possible.”
More findings on vulnerable and underserved coastal communities’ access to funding and other resources show a need to support and prioritize regular cleanups in such communities. This is important so that citizens in these vulnerable coastal communities can have healthy and clean waterways. Some nonprofit organizations alluded that more work also needs to be done to acquire more resources for maintenance so that the same habitat that the communities are experiencing today still exists in the future.

These results on funding and vulnerable communities’ access to resources corroborate the study’s third research question and theoretical grounds. The issues of funding and vulnerable communities’ access to resources answered their question of the current challenges Virginia environmental nonprofits face in their shoreline management work because it illustrates evident problems related to resources based on findings that seem to slowdowns or thwart environmental nonprofits' activities, reach and service provision. The stewardship theory and its postulations also come to play here since the findings show that environmental nonprofits feel a sense of responsibility to reach out to underserved and vulnerable communities, which further qualifies them as environmental stewards (Spencer, 1963; Turner & Maryanski, 1988; Blair & Stout 2001; Sundaramurthy & Lewis 2003; Kingsbury & Scanzoni, 2009; Keay, 2017; Wellstead, Howlett, & Rayner, 2017).

Study findings reflect that environmental nonprofits’ human resources include minimally paid employees and volunteers, which corroborates stewardship theory grounds that environmental stewards are intrinsically motivated. Also, their financial capacities are often
based on grants, gifts, and funding, and the primary reason for sourcing for funding and grants is to provide services to individuals and communities in need, such as providing cost-share programs and funding to incentivize living shorelines and help individuals and communities lead better lives through their shoreline management work. This flows into the structural functionalism postulation of structures and substructures that engage in functions that promote societal welfare.

**Discussions of findings**

The study results are derived from a combination of interviews, reports, and charting impact answers, which brought about themes common to all or some of the organizations in the triangulated qualitative analysis. The five major and most reoccurred themes for roles include shoreline conservation, restoration, and stabilization; collaborations and partnerships; education and training, outreaches and advising; mapping; and advocacy. These themes detail environmental nonprofit organizations' roles in shoreline management for coastal resilience in Virginia. When it comes to challenges, while some are shared by all environmental nonprofit organizations from diverse points of view, other challenges were also exclusive to individual environmental nonprofits. The themes for challenges include funding and access to resources in vulnerable communities; issues with shoreline management practices; and permitting process.

The study’s conceptual framework shows connections in understanding the study research questions, theories, and general objective of the research. The structural functionalism and stewardship theories were directly related and relevant to the study framework and findings. The stewardship theory provided a theoretical base regarding environmental nonprofit
organizations as “stewards” with roles and functions in enhancing shoreline management, which is backed up by data in the study findings. The stewardship theory becomes even more relevant to the research and study findings as some environmental nonprofits regard their volunteers and employees as environmental stewards who work to promote shoreline management and coastal resilience.

In terms of the effectiveness of environmental nonprofit roles, which answers the second study research question, the stewardship theory corroborates the study findings in its postulations about stewards giving their best to the roles they play, which yields better results because there are intrinsically motivated and derive inner satisfaction from the work they do. The study findings also show environmental nonprofits value higher effectiveness in performing their roles through the challenges environmental nonprofit organizations mentioned to be experiencing and solutions suggested to ameliorate or overcome them.

The structural functionalist theory also directly relates to the study findings because it focuses on functions performed by societal structures and substructures, which nonprofits fit into. According to the theory, there are activities that societal structures play that form the bedrock of societal progress. Study findings show that environmental nonprofits perform functions such as advocacy, shoreline conservation, restoration, and stabilization; education, training, and outreach, amongst others, to promote shoreline management in the localities they serve. These functions speak to the structural functionalism theory postulations regarding performing functions that promote societal welfare and progress. It also answers the study’s first
research question, which concerns environmental nonprofits’ roles in shoreline management for coastal resilience.

In answering research question two on the perceived effectiveness of environmental nonprofits’ roles, the structural functionalism theory emphasizes functions that help promote social progress and welfare, as mentioned earlier. This points to the fact that the theory is inclined towards functions that are effective and have positive impacts on society. Study findings and study literature show that the roles Virginia environmental nonprofits play help coastal communities to sustain, restore, and improve their shorelines through shoreline management strategies such as river cleanups, tree planting, oyster restoration, and building of living shorelines, which depicts that the functions they perform are tangible and effective.

According to study findings, environmental nonprofits also consider their functions as effective because they work with a growing number of individuals and groups to advance shoreline management through education, training, and provision of shoreline management services, and many of them have been successfully performing such functions for many years. For example, some of the nonprofits interviewed mentioned doing shoreline management work successfully in the communities they serve for over ten years and others for over fifty years.

Many of the nonprofits examined are expanding from community to community, state to state, and internationally. Some of the shoreline management work done by nonprofits are in collaboration with other sectors, such as government agencies and private organizations, and some of their other shoreline management work are taken up because they have been neglected or given insufficient attention by the government, which further depicts the relevance and
effectiveness of environmental nonprofit roles (Sadler, & Champney, 2016; Robinson, Shum, & Singh, 2018). The study findings, in terms of environmental nonprofits’ challenges, also speak to the structural functionalism theory because it helps to understand some of the hurdles environmental nonprofits, as part of the nonprofit structure, face in carrying out their functions and how such functions or roles can be performed better and more effectively.

**Data Visualization and Researcher’s Key Observations**

The data visualization technique used for the study is the NodeXL relationship model. The visualization technique shows a sample of the inter-relationship between environmental nonprofit organizations from the perspective of their roles and challenges doing shoreline management work, as shown in figures 4 and 5 below.

![Data visualization for environmental nonprofits’ roles in shoreline management.](image)
The figure above is a data visualization representation of the roles and challenges of Virginia environmental nonprofits in shoreline management for coastal resilience using the interview data. Figure 4 data visualization shows the interrelationship of nonprofit roles, especially how they intersect, and the common roles of all nonprofits based on study findings. All 85 environmental nonprofits explored have the following roles that are common to them: shoreline conservation, restoration, and stabilization (SCRS); education, training, outreach, and advising (ETOA); and community engagement, collaboration, and partnerships (EECP). The other two roles, advocacy (ADVC) and mapping (MAP) are not as common to all environmental nonprofits. For example, eleven of the fifteen environmental nonprofits interviewed are currently doing advocacy work with a focus on policy advising (others see performing other roles as a form of advocacy) and six of the environmental nonprofits interviewed are doing work related to mapping (MAP), as depicted in the figure above.

Some trends in the findings show that factors like size of the organization, geographic scope, year of organization’s establishment, and areas of specialization explain why some organizations are more inclined to adopt some particular roles than others. For example, over 60% of the environmental nonprofit organizations with a large size, vast geographic scope (especially with subsets in Virginia), and who have been established for 20 years or more tend to be more involved in advocacy activities, such as representing and speaking on behalf of environmental nonprofits at the state assembly and local board meetings on shoreline management issues and doing technical activities such as mapping.
The data visualization in Figure 5 shows how the challenges of Virginia environmental nonprofits intersect in their quest to promote shoreline management for coastal resilience. The major challenges of the environmental nonprofit organizations appear to have been discussed in similar proportion as a concern by most of the environmental nonprofits, making them all important. The three significant challenges, which include funding and vulnerable communities’ access to resources (FVCR); permitting process (PP); issues with shoreline management practices (ISMP), with rigid perceptions of homeowners and other stakeholders under ISMP, were discussed by most of the environmental nonprofit organizations interviewed.
Considering the relationship between roles and challenges, environmental nonprofits who do outreach and environmental marketing through campaigns, online publicity, and other means as part of their roles and strategies for informing the public and doing fundraising had little or no concerns about funding compared to organizations who only adopted the use of word-of-mouth strategy before applying for grants or just expected donations.

Nonetheless, about 40% of the environmental nonprofit organizations interviewed have activities involving using maps to advance their shoreline management, and less than 20% of environmental nonprofits in the document analysis data use maps for their shoreline management work. One of the interviewees of an environmental nonprofit (EN O) explicitly mentions how lack of funding is a problem for their organization because they solely depend on funding to pay the employees. Another organization interviewed (EN M) did not do any significant fundraising campaigns or adopt major environmental marketing strategies. The organization (EN M) representative stated that they are having challenges related to the visibility of some of the shoreline management and coastal issues they face in the communities they serve.
CHAPTER VI

SUMMARY, CONTRIBUTIONS, RECOMMENDATIONS, AND LIMITATIONS

Research summary and conclusions

This research examined the roles and challenges of Virginia environmental nonprofits in shoreline management from the nonprofits' perspective. The research provides findings on environmental nonprofit service delivery and contributions, recommendations, and policy implications for coastal resilience, which will be discussed in this section.

Research Questions

Using environmental nonprofits in Virginia as a case study, the research questions are:

(1) What are the perspectives of Virginia environmental nonprofits in terms of functions and roles they play as stewards of shoreline management for coastal resilience?

(2) How do Virginia environmental nonprofits consider their roles and functions in shoreline management for coastal resilience in terms of their effectiveness in performing their roles and functions?

(3) What factors affect Virginia environmental nonprofits as stewards of shoreline management for coastal resilience based on their organizations' interests, experiences, and efforts?

The researcher questions are restated to remind the reader of the questions and show the connection of findings to the questions and how they answer each research question by addressing both the roles and challenges of environmental nonprofits in shoreline management. The study literature, theories, questions, framework, and methods are interconnected in that one
aspect is rooted and founded in the other, and another stems from the goal of trying to answer the questions or fill the gap missing in the other.

The study utilizes stewardship and structural-functionalist theories to explain the context and importance of environmental nonprofits' positioning regarding their roles in shoreline management for coastal resilience, driven by their functions and stewardship roles to maintain shorelines in Virginia. The structural functionalist theory is relevant to the study because it provides a theoretical base for environmental nonprofit organizations as “structures” that enhance shoreline management. Since the theory shows that structures in the society include organizations and institutions that have functional roles they play that helps “shape the society” and its growth, environmental nonprofits fit into these structural elements because they do work that shape society through the management and protection of shorelines in the communities they serve. Study findings show that shoreline management directly impacts individuals and groups in Virginia coastal communities such as Chesapeake, Suffolk, Newport News, Norfolk, Bethel Beach, and Virginia Beach, especially on issues regarding human and environmental health, management of coastal areas through coastal clean-ups and other mitigation strategies, and their conservation, restoration, and protection of coastal properties for environmental safety.

When these factors are enhanced, individuals living in such vulnerable communities have lesser harm potential from vices like flooding and shoreline erosion. This directly translates to the impact of environmental nonprofits' roles as structures when protecting shorelines because such functions help positively shape society. Hence, it is also pivotal to mention that there are situations surrounding environmental nonprofits' functions, including obstacles that might hinder
them from performing such functions. This called for examining challenges nonprofits face in managing shorelines to understand their functions better and explore ways such functions can be enhanced for societal progress in the context of structural-functionalist theory.

The second theory the study uses is the stewardship theory, which views organizations and their representatives as stewards with community utility goals. The theory connotes that an organization requires a structure that allows harmonization of goals to be achieved most efficiently between the organization’s stakeholders to capture and adequately manage issues like "motivation, goal congruence, trust" (Van Puyvelde et al. 2013; p. 65). To promote shoreline management for coastal resilience in this theory, findings show that environmental nonprofit organizations can be considered stewards in that they come together to improve shoreline management in coastal communities as peer organizations. Some of the representatives of environmental nonprofits identified themselves and the organizations’ stakeholders as environmental stewards, river stewards, or people doing environmental stewardship.

This theory considers organizations and their representatives as stewards through their work. Findings also corroborate the study literature of how organizations that identify as stewards go to great lengths to ensure they serve their organization and community needs, and representatives of such organizations are motivated more intrinsically than extrinsically (Van Slyke, 2006). This means such organizations appreciate the fulfillment they get from what they do to a greater extent than other material rewards. It depicts who environmental nonprofits are and what they do. These nonprofits seek and use opportunities they have to improve environmental protection and, in the case of this study, shorelines management. However, most
environmental nonprofit stakeholders are individuals who serve as volunteers and donors to their projects, expecting little or no personal gains but instead joint progress and advancement. According to the theory and study findings, such individuals are considered stewards. A disadvantage of the stewardship role is the consideration that a more significant transaction cost, which represents the labor or expense required to get a good or service, may be made because there might be more investment of time and resources for principal organizations in involving and training stewards. This corroborates one of the challenges raised in the study findings by some environmental nonprofits interviewed (EN I, EN B, EN C, EN E) about how they have to invest time and financial resources in training contractors and employees to do shoreline management work because many of them are not well trained to do the work. Nonetheless, these transactional costs incurred in training individuals to become stewards, such as training environmental nonprofits' volunteer staff or employees, can yield valuable results in cases where trained stewards support resolving environmental problems, for instance, doing conservation and advocacy work that promotes shoreline management for coastal resilience (Van Slyke, 2006).

**Summary of findings**

The study examined the roles and challenges of environmental nonprofits in shoreline management for coastal resilience. Five roles and three challenges came up after the study’s data analysis. The five roles are:

- Shoreline conservation, restoration, and stabilization
- Advocacy
- Education, training, outreach, and advising
• Community engagement, collaborations, and partnerships
• Mapping.

The three challenges are:

• Funding and access to resources in vulnerable communities
• Issues with shoreline management practices
• Permitting process

These highlighted roles and challenges reflect Virginia environmental nonprofits' services, activities, and issues they encounter in doing shoreline management work for coastal resilience.

The researcher found the roles of environmental nonprofits to be interconnected as one speaks to the other. For instance, the shoreline conservation, restoration, and stabilization role has led many environmental nonprofits to be part of diverse collaborations and partnerships, which speaks to community engagement, collaboration, and partnerships. Virginia environmental nonprofits' roles in advancing shoreline management are based on their organizations’ missions, capabilities, and specializations related to managing shorelines and the need to impact the communities they serve for coastal resilience.

The study results also show that these challenges spur across the nonprofits explored and are borne out of their efforts to play their roles as stewards and perform their functions as part of the nonprofit structure. For instance, issues with the permitting process stem from environmental nonprofits' shoreline restoration, protection, and conservation efforts using shoreline management strategies such as building ripraps or living shorelines. The process of doing this requires them to go through the permitting process and hence help them identify some challenges
that come along with feasible ways to ameliorate or completely solve them. These findings on roles and challenges answer all the study research questions in detail, which is the research's onus. The findings are also related to the study’s literature and theories to further establish a strong connection between the essential parts of the research that helps it form a coherent and meaningful whole.

**Implications**

*To Theory:*

Very few studies in the literature detail the roles and challenges of environmental nonprofits in promoting shoreline management from Virginia environmental nonprofits' perspectives. In essence, this study contributes to theory by first contextualizing an academic exploration of environmental nonprofits' roles and the challenges they face in Virginia.

Secondly, the research contributes to theory because environmental nonprofits are not conceptualized as stewards in the context of stewardship theory. According to the theory and findings, environmental nonprofits commit to performing roles to advance their organizations’ objectives. This research argues that environmental nonprofits are more than a peripheral sector (Young, 2000) but a highly functional sector because they are “significant” stewards of coastal resilience. This is evident in the roles they play in advancing shoreline management and providing advocacy support they give to communities and government in doing the same. Study results show that environmental nonprofits are championed by volunteer staff, donors, and in some cases, minimally paid employees who are committed to the advancement of the communities they serve by playing diverse roles such as conservation and monitoring, training
and outreach, and advocacy to support the management of shorelines. Some of these stakeholders who do the job directly also face challenges like the lack of funding and a slow permitting process to get the job done. According to findings, these organizations keep making efforts and are committed to performing those functions even facing challenges.

Thirdly, in the context of structural-functionalist theory, environmental nonprofits have been regarded as actors in the environmental scene. Various studies portray them as passive entities (Young, 2007; Beatley, 2012) in advancing societal progress. Through an explanation of what structures are based on the structural functionalist theory, this study considers environmental nonprofits as one of society's strong structures and not just an entity that supports other structures. Results show that Virginia environmental nonprofits do not just collaborate with the government on advancing shoreline management issues but, in many cases, single-handedly carry out projects that might have been neglected or unnoticed by the state government, policy experts, and other stakeholders. Environmental nonprofit L, in study findings, for instance, stated how they carry on recreation projects single-handedly when no other group is willing to contribute or collaborate. Hence, seeing nonprofits as a major societal structure with functions further confirms them in the categories of organizations and institutions that structural functionalism considers as “structures that shape society,” knowing the significant functions they perform in supporting shoreline management for coastal resilience.

The study, therefore, exemplifies roles and challenges based on the environmental nonprofit in Virginia’s perspectives of their roles and functions through the stewardship and structural-functionalist theory, with both being grounded in the study’s framework. This provides
originality and authenticity to study results because they answer directly to the study theories and research questions, which gives new perspectives and insights into literature for researchers and the public and adds to the public administration and policy field while blurring the line between theory and practice.

To Practice:

The proposed project contributes actionable results that help identify process improvements. These results will enable environmental nonprofit organizations to meet the needs of property owners and enhance collaborations with the government. The study results show some of the functions environmental nonprofits provide, including education, advising, and shoreline restoration, which involves building a living shoreline. Also, study results show the diverse challenges environmental nonprofits face in enhancing collaboration with the government. When state or city government and policy experts are exposed to these roles and challenges, which might have been otherwise hidden, they are further encouraged to work with nonprofits performing such roles and facing such challenges to help the state advance its coastal resilience goals. Other collaborations already existing between environmental nonprofits and government agencies can be further enhanced once the government gets its perspectives on the impact of such collaborations. For instance, study results show that an environmental nonprofit (EN A) that got funding from the government to advance the use of living shorelines has been convincing and supporting numerous homeowners vulnerable to coastal hazards with the funds to build living shorelines that would have been otherwise difficult for them to build if not funded. With the knowledge that the state government has put forward living shorelines as a
required shoreline management mitigation strategy, except scientifically proven otherwise, they are further encouraged to collaborate with environmental nonprofits to get more coastal homeowners to build living shorelines.

Another outcome is to document the essential roles environmental nonprofit organizations play in achieving the goals of shoreline management for coastal resilience within a given locality. For instance, study results show that nonprofits have supported living shorelines in Virginia through funding, and such documentation can be further used for a living shoreline fundraising campaign by presenting this action and its benefits to potential donors. Nonetheless, some nonprofits claim funding may be limited to specific communities, and more funding with the opportunity of broader coverage is needed to support communities like Norfolk and Newport News to help homeowners defray living shorelines costs as well.

Property owners may learn about support services for their shorelines regarding broader societal impacts. This can be achieved again through the documentation of the educational, training, conservation, and restoration services environmental nonprofits provide by making it accessible to the general public through publications on digital platforms and other archival resources. Peer environmental nonprofit organizations may also learn from each other to gain more insights into the different roles that environmental nonprofits like them play. For example, in a case where an environmental nonprofit is not playing the role of mapping but has the capacity and resources to play the role, the nonprofit might appreciate the idea and choose to adopt it as one of their roles. Study results show that only six out of fifteen interviewed environmental nonprofits, and about 20% of the 85 environmental nonprofits use mapping to
track flooding events in the localities they serve. Hence, other environmental nonprofits who learn about these roles through the study publications might choose to adopt them to benefit their organizations and the services they provide. By combining and analyzing the roles and challenges of multiple environmental nonprofits and government staff, better results and collaborations could be enhanced because each can better understand how they can help and support one another based on their functions, resources, capacities, and challenges.

An essential condition for successful shoreline restoration and management is that all the parties involved understand Virginia coastal resilience processes and procedures by knowing and applying laws applicable to shoreline management in Virginia. Hence, this research will also help local and state policymakers like the Virginia Marine and Resources Commission (VMRC) and Virginia Beach Green Ribbon Committee to understand why and how some current situations and challenges of shoreline management have developed and why specific solutions may work, and others may not. Such exposure is made possible because the study results show, from the perspectives of environmental nonprofits, some of the challenges they currently face, which may have been scarcely spoken about and might be relatively new to local and state policymakers or, in other cases, contribute to reemphasizing some challenges to local and state policymakers. For instance, results show that some environmental nonprofit representatives find it difficult to convince some property owners to build a living shoreline because they may feel like they are being forced to build it. Some environmental nonprofit representatives also mentioned that some property owners prefer other types of shoreline management strategies, and
asking them to do otherwise might make them feel their rights are being taken away. Hence, such demands may not apply to all property owners.

This understanding and exposure through research of roles, the perceived effectiveness of the roles, and challenges of environmental nonprofits in managing shorelines can inform policy changes on demolishing old but obsolete protection schemes and re-establishing relevant natural coastal landscapes and shoreline protection strategies where possible. Furthermore, the study may drive policies needed to put forward more funding distribution mechanisms. These distribution mechanisms will directly impact the various coastal challenges expressed by environmental nonprofit organizations. Also, it can help policymakers be more realistic and pragmatic in their management decisions, keeping in mind that having an untouched natural coastline is not feasible in developed areas for which Coastal Virginia is one.

**Contributions to knowledge**

A unique contribution of this study is its exposure on how we can view environmental nonprofits’ advocacy role. The rhetoric in the study literature is that environmental nonprofits advocate on environmental issues, such as lobbying for practices that promote shoreline management, in state assemblies and local assemblies to influence decisions to protect wetlands and manage shorelines through their writings or word of mouth (Jenkins, 2006; Greenberg and MacAulay, 2009). However, study results from document analysis and interviews show that while some environmental nonprofits advocate on environmental issues in state assemblies and local assemblies to influence decisions to protect wetlands and manage shorelines, others advocate by reaching out to communities about shoreline management and protection best
practices. Some others do this by providing shoreline management services but still consider themselves advocates of shoreline management because of their work in supporting it. For example, environmental nonprofit H representative shared, “I feel like the outreach we do is advocacy within our communities.” This implies that though environmental nonprofits do advocacy work, many have different meanings and interpretations of the advocacy they do, which adds something new to what is known as their advocacy from literature.

Although many studies in the literature refer to the nonprofit sector as a periphery sector and the ongoing debate around how core nonprofit is to societal progress (Young, 2000; Young, 2007; Taylor, 2019), another unique contribution of this study is that it the sector as a core sector. This is because of the core supplementary roles environmental nonprofits are found to play after the study exploration. For instance, some environmental nonprofits (EN C, EN L, EN C) explained that they single-handedly do many charity projects, including stream clean-ups, tree plantings, and building living shorelines, without governmental support or collaboration. The study literature corroborates this with the fact that some of the issues environmental nonprofits actively address have been neglected or given insufficient attention by the government (Sadler, & Champney, 2016; Robinson, Shum, & Singh, 2018).

In the same vein, the United Nations has more than half of its 17 SDGs connected to coastal management and environmental sustainability, including Goal 13, which is on “Climate Action,” Goal 14, which is on “Life Below Water,” and Goal 11, which is on “Sustainable Cities and Communities.” The nonprofit sector, precisely environmental nonprofits, is one of the main structures invested in addressing these environmental issues that are considered crucial on a
global scale (Sadler, & Champney, 2016; Robinson, Shum, & Singh, 2018). Hence, this study's contribution to knowledge is that environmental nonprofits should not be considered as playing just intermediary or periphery roles to promote environmental management, such as shoreline management. Due to their evident and consistent efforts, they should be considered as a core sector and structure that plays an undisputedly important role in enhancing shoreline management and coastal resilience on a global scale.

**Study recommendations**

The study recommendations are highlighted based on the study’s research questions and objectives. Firstly, the second study’s research question seeks to address the effectiveness of environmental nonprofits’ roles, and issues raised in the findings show that some vulnerable coastal communities like Newport News and Hampton lack government funding for their shoreline projects. Hence, a recommendation is for environmental nonprofits to get more involved with coastal communities that have been historically underserved and identify opportunities for shoreline projects. This suggests that nonprofits create gap-filling programs and provide technical assistance, advice on what to do, and financial assistance to such communities on shoreline management projects like building living shorelines. This would make a difference due to the knowledge drawn from the study on how providing financial assistance for property owners to build living shorelines encourages them to do living shorelines over revetments or bulkheads when needed since it is the preferred shoreline management strategy option by the state. This would lead to environmental nonprofits being more effective in adequately playing their shoreline conservation and restoration roles as part of a core structure.
Another study recommendation connects to research questions one and two on environmental nonprofits’ roles and effectiveness. In addressing the first research question, the study recommends that environmental nonprofit roles in shoreline management should be considered as core and not just a periphery role, considering the numerous essential activities they do to support shoreline management both on the local and global scale. In terms of the effectiveness of their roles, more environmental nonprofits should adopt community-based social marketing, a social marketing technique where people send signals to their neighbors and help them engage in shoreline management modeling behavior. Findings show that opinions of authorities such as landscape professionals and contractors have proven to work as a social marketing strategy to minimize the challenge of knowledge and perceptions barrier by changing rigid environmental behaviors, especially among property owners.

Study recommendations based on the third research question on factors affecting environmental nonprofits’ roles, with a factor identified as the issue of funding, is for the government to invest more in covering affordability or put more funding to support shoreline management activities such as building incentivizing living shorelines. In other words, state agencies can fund environmental nonprofits to support homeowners interested in living shorelines but lack the financial capacity to do it, especially in underserved coastal communities. Some environmental nonprofits (EN A, EN B, EN C, EN E, EN I, EN M, and EN O) mentioned that some city governments are already funding them.

Although the study findings show that people with properties on the waterways in major recreation areas want the right to determine what to do with them and how they are used, the
study recommends that coastal management professionals ensure that state shoreline
management guidelines are followed. Also, strategies should be implemented to ensure that
public waterways are accessible to the public and are not misused, even in the face of opposing
interests by property owners.

Regarding the problem of an expensive permitting process, this study recommends that
the financial requirements, such as application fees for getting permits, can be reduced to help
limit the expenses of applying for single and joint permits. In addition, this study recommends
that nonprofit, state and local agencies be more proactive in preventing people from doing
unauthorized and unpermitted shoreline work through oversight and monitoring, and
implementation of necessary sanctions in a situation of non-compliance since such acts are
considered illegal.

Future Research

An area for a future research project that can stem from this work is to extend the study to
US environmental nonprofits and examine their roles in shoreline management. These findings
can also be compared to other US states to see if there are any overall differences or similarities
in roles and challenges. Another area for future research is to continue working with
environmental nonprofit organizations in Virginia to increase awareness and examine the
impacts of using geospatial mapping and mapping apps for promoting coastal resilience, such as
giving real-time alerts for potentially water-logged communities to mitigate flooding. Study
findings show that fewer environmental nonprofits use them, and more research on the why and
its impacts on coastal resilience would be relevant. Lastly, future research can also explore more
the impact of the COVID 19 pandemic on environmental organizations’ shoreline management work in coastal communities, as mentioned by study participants.

**Limitation of Study**

This research is constrained to the environmental nonprofits in Virginia and their perspectives on coastal resilience. The researcher narrowed the research scope because of researcher feasibility and limited timing (Creswell & Creswell, 2017). This implies that the study findings may not apply outside Virginia because Virginia was used as the research case study. Nonetheless, the study helped the researcher conduct more in-depth, qualitative research on environmental nonprofits in Virginia.

Another study limitation is that snowball sampling design is spurred by representation bias. Sampling biases might have occurred because of the snowball sampling technique adopted for the interview sessions. Because the participants' interviews were predominantly done based on referral procedures, there might have been a representation bias where the few nonprofits who made the referrals only referred those in the closest locations to them, which could have left other parts of Virginia. This problem of representation bias might have also affected the over-representation of the community engagement, collaboration, and partnership role. For instance, most of the nonprofits interviewed in the study mentioned having been engaged in collaboration and partnerships with at least one other environmental nonprofit interviewed for the study analysis, especially those that referred them. EN A referred EN C, EN I, and EN B. EN C, EN I, and EN B representatives also mentioned that their organizations collaborate and have joint projects with EN A. However, it is essential to mention that the referral procedures helped the
researcher connect with similar organizations doing shoreline management work using different means, functions, and perspectives. Also, the document analysis helped the researcher get a broader view of Virginia environmental nonprofits’ perspectives on their roles and challenges in shoreline management for coastal resilience.

Although the responses to Charting impact question four helped the researcher answer research question two on the effectiveness of environmental roles in shoreline management, the interview questions were not specific enough to help the researcher address the second research question explicitly. The researcher had to collect data randomly from responses on the interview transcripts, on questions regarding their roles, expertise, and community engagement and collaboration activities, and analyze them to answer research question two on effectiveness with the interview data. To answer the effectiveness question more clearly using the interview data, if this study methodology were revised, the researcher would include precise and clear interview questions on the effectiveness of environmental nonprofits’ roles. This can include questions like what are some of the successes they have had in performing their roles in shoreline management for coastal resilience if they find their roles to be effective or not, and why they find their roles as effective or otherwise. Also, in answering research question three on factors affecting nonprofit roles, rather than focusing on challenges faced to be considered as factors, and for roles to be more to be just positive activities and services provided. The researcher would consider both positive and negative factors while discussing factors affecting environmental nonprofits in performing their roles in shoreline management for coastal resilience if the study methodology were to be redesigned.
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APPENDICES

APPENDIX 1: ENVIRONMENTAL NONPROFITS INTERVIEW GUIDE

INTRODUCTORY COMMENTS

This interview is part of a research project. This interview will be recorded so we can better understand your thinking. Your responses will remain confidential and be viewed only by our research team. The interview should take about 60 –90 minutes.

*Informed Consent:* Before we begin, I need you to understand and consent to the interview. Old Dominion University human subject research committee has approved the interview format; and this form (hand it to the interviewee), lets you know that this interview poses no risk to you, all your responses will be anonymous and confidential, and the recording will only be listened to by the research team. Also, you may end the interview at any point, although it is imperative to fully understand your point of view, which can only be accomplished by completing the entire interview. If you agree to conduct this interview, please let me know that you agree.

*Questions*

First, I would like to ask you some questions about your organization's mission and programming emphasis.

What is your organization's mission?

What is your role in the organization?

Specifically, what is your position within the organization and what are your responsibilities?

Where does your organization work?

What kind of work does your organization do related to coastal resilience?

What kind of work does your organization do related to shoreline management for coastal resilience?
How long has your organization been working with shoreline management projects?

What kind of expertise does your organization have in this area?

What kind of outreach to the community in general, if any, do you do specifically related to resilience and shorelines?

What kinds of advocacy at the local, state, or national level, if any, do you do specifically relate to coastal environmental protection or restoration?
Do you collaborate with others-NGOs, universities, state agencies, or contractors-in your work with living shorelines? Who and how?

How central is coastal management to your organization's mission? Are you a membership-based organization? If yes, what types of services do you provide to non-members?

How do new members get connected with you?

What are the challenges you face as an organization in enhancing shoreline management?

What are the challenges you face as an individual in enhancing shoreline management?

How can the challenges be ameliorated in your opinion and through your experiences?

I would like to know in general what you are thinking about the environment and shoreline management and coastal resilience?.
APPENDIX 2:

VIRGINIA ENVIRONMENTAL NONPROFITS (ECO.USA.NET; GUIDESTAR; CHARITY NAVIGATOR).

1. Alliance for the Shenandoah Valley
2. American Bird Conservancy
3. Amazon Conservation Team
4. Appalachian Mountain Advocates
5. Audubon Naturalist Society
6. Audubon Society of Northern Virginia
7. Blue Ridge Foothills Conservancy
8. Blue Ridge Land Conservancy
9. Cape Henry Audubon Society
10. Capital Region Land Conservancy
11. Citizens for a Better Eastern Shore
12. Central Virginia Land Conservancy
13. Chesapeake Bay Foundation
14. Chesapeake Climate Action Network
15. Clinch Coalition
16. Coastal Virginia Wildlife Observatory
17. Dan River Basin Association
18. EcoAction Arlingtonian
19. Elizabeth River Project
20. Environment Virginia
21. 500-Year Forest Foundation
22. Friends of Accotink Creek
23. Friends of Dragon Run
24. Friends of Dyke Marsh
25. Friends of First Landing State Park
26. Friends of Huntley Meadows Park
27. Friends of Mason Neck State Park
28. Friends of Norfolk's Environment
29. Friends of the Lower Appomattox River
30. Friends of the North Fork of the Shenandoah River
31. Friends of the Rappahannock
32. Friends of the Rivers of Virginia
33. Friends of the Rockfish Watershed
34. Friends of the Shenandoah River
35. Goose Creek Association
36. Green Fence Conservation Trust
37. Herndon Environmental Network
38. Historic Virginia Land Conservancy
39. James River Association
40. Keep Southwest Virginia Beautiful
41. Land Trust of Virginia
42. Lafayette Wetlands Partnership
43. Lynnhaven River Now
44. Nansemond River Preservation Alliance
45. Nature Conservancy of Virginia
46. New River Land Trust
47. Northern Neck Audubon Society
48. Northern Neck Land Conservancy
49. Northern Shenandoah Valley Audubon Society
50. Northern Virginia Bird Club
51. Northern Virginia Conservation Trust
52. Nature Foundation at Wintergreen
53. Old Dominion Land Conservancy
54. Piedmont Environmental Council
55. Potomac Appalachian Trail Club
56. Potomac Conservancy
57. Prince William Conservation Alliance
58. Rappahannock League for Environmental Protection
59. Raptor Conservancy of Virginia
60. Richmond Audubon Society
61. Rivanna Conservation Society
62. Rockbridge Area Conservation Council
63. Scenic Virginia
64. Sierra Club - Virginia Chapter
65. Southern Appalachian Mountain Stewards
66. Sustainable Loudon
67. Sweet Virginia
68. The Nature Generation
69. Upper Tennessee River Roundtable
70. Valley Conservation Council
71. Virginia Beach Audubon Society
72. Virginia Bluebird Society
73. Virginia Conservation Network
74. Virginia Eastern Shore Land Trust
75. Virginia Interfaith Power and Light
76. Virginia Master Naturalists
77. Virginia Native Plant Society
78. Virginia Outdoors Foundation
79. Virginia Organized Industries for A Clean Environment
80. Virginia’s United Land Trust
81. Virginia Society of Ornithology
82. Virginia Water Environment Association Inc
83. Virginia Wilderness Committee
84. Washington Area Butterfly Club
85. Wild Virginia
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