THE VALUE OF MARITIME ARCHAEOLOGICAL HERITAGE:

AN EXPLORATORY STUDY OF THE CULTURAL CAPITAL OF SHIPWRECKS IN THE

GRAVEYARD OF THE ATLANTIC

by

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Ph.D. Program in Coastal Resources Management

Off the coast of North Carolina's Outer Banks are the remains of ships spanning

hundreds of years of history, architecture, technology, industry, and maritime culture.

Potentially more than 2,000 ships have been lost in "The Graveyard of the Atlantic" due to a

combination of natural and human factors. These shipwrecks are tangible artifacts to the past

and constitute important archaeological resources. They also serve as dramatic links to North

Carolina's historic maritime heritage, helping to establish a sense of identity and place within

American history. While those who work, live, or visit the Outer Banks and look out on the

Graveyard of the Atlantic today have inherited a maritime heritage as rich and as historic as any

in the United States, there is uncertainty regarding how they perceive and value the preservation

of maritime heritage resources along the Outer Banks, specifically shipwrecks in the Graveyard

of the Atlantic.

This dissertation is an exploratory study that combines qualitative and quantitative

methodologies from the fields of archaeology, economics, and sociology, by engaging different

populations in a series of interviews and surveys. These activities are designed to understand

and evaluate the public's current perceptions and attitudes towards maritime archaeological

heritage, to estimate its willingness to pay for preservation of shipwrecks in the Graveyard of the

Atlantic, and to provide baseline data for informing future preservation, public outreach, and

education efforts.

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LIST OF ABBREVIATIONS

ACHP: Advisory Council on Historic Preservation
ASA: Abandoned Shipwreck Act
AWOIS: Automated Wreck and Information System
CAHA: Cape Hatteras National Seashore
CAMA: Coastal Area Management Act
CE: Choice Experiment
CLM: Conditional Logit Model
CRM: Cultural Resources Management
CRNPS: Cultural Resources National Park Service
CSI: University of North Carolina's Coastal Studies Institute
CVM: Contingent Valuation Method
ETD: Ebb Tide Delta
FTD: Flood Tide Delta
GAMP: Graveyard of the Atlantic Maritime Park
GIS: Geographical Information Systems
GOA: The Graveyard of the Atlantic
ICOMOS: International Council on Monuments and Sites
MNMS: Monitor National Marine Sanctuary
MWTP: Marginal Willingness to Pay
NCZ: Northern Coastal Zone
NHPA: National Historic Preservation Act
NMSA: National Marine Sanctuaries Act
NRHP: National Register of Historic Places
NOAA: National Oceanic and Atmospheric Administration
SCZ: Southern Coastal Zone
SHPO: State Historic Preservation Office
SMCA: Sunken Military Craft Act
UAB: Underwater Archaeology Branch (North Carolina)
UCH: Underwater Cultural Heritage
UNCLOS III: United Nations Convention on the Law of the Sea
UNESCO: United Nations Educational, Scientific and Cultural Organization
USCB: United States Census Bureau
USCGOB: United States Coast Guard Office of Boating
USLSS: United States Life-Saving Service
WTP: Willingness to Pay

CHAPTER 1: INTRODUCTION

Introduction

On the night of 24 November 1877, gale force winds, heavy seas, fog, and human error combined to wreck the steamship, USS *Huron* – one of the last American naval vessels built solely from iron – off North Carolina's coast. Although the beach was only 200 yards away from the foundering ship and a lifesaving station was less than two miles away, 98 of the 132 people onboard perished as increasingly poor weather and poor decision making took their tolls. The loss of the ship and life had both immediate and far-reaching impacts on North Carolina's maritime heritage. In the short term, it helped motivate the federal government to improve an inefficient lifesaving system. In the long term, the shipwreck's resting site became North Carolina's first and only "Historic Shipwreck Preserve." Although tragic the story of USS *Huron* was not unique, it was simply one of possibly more than 2,000 ships that wrecked along North Carolina's treacherous coastline – ominously known as the "Graveyard of the Atlantic" (Stick 1952; Lawrence 2003).

Stretching over 175 miles from Virginia southwards to Cape Lookout, The Graveyard of the Atlantic is defined by a series of low-lying barrier islands (Figure 1.1). It sits at the confluence of two powerful ocean currents – the warm Gulf Stream from the south, and the cold Labrador Current from the north – and seems designed to cause shipwrecks. First, these currents carry or create powerful storms, unpredictable seas, heavy fogs, lasting winds, and hurricanes when their waters collide. These natural factors shift and shape the islands, constantly transforming inlets and shoals that entrap even the most seaworthy captains and crew. Second, the currents create a super-highway for ships, making the waters off North Carolina one of the

Figure 1.1: Coastline of North Carolina, also known as the "Graveyard of the Atlantic" (http://sanctuaries.noaa.gov/pgallery/atlasmaps/images/monitor_2000.jpg)

busiest shipping conduits in the world. With such high vessel traffic, human causes have created shipwrecks too. Some of these causes were nefarious – such as naval warfare, piracy, or purposeful wrecking, while others – navigation errors, collisions, or ignorance – were unintentional. Although destruction defined these natural and anthropogenic causes of so many shipwrecks, they were constructive effects that helped shape and define the history and cultural heritage of the Outer Banks (Farb 1985; Duffus 2007; Brooke 2008; Lawrence 2008; Mallinson et al. 2008).

Towns and villages were founded from the salvage of shipwrecks' cargo. Homes were built from the timbers of shipwrecks. Services and industries like lifesaving services, lighthouses, and salvage companies were created. Recreational activities took place on or in shipwrecks. For example, children used the hulks of ships resting on the beaches as personal playgrounds, while adults hosted parties and dances on them. Throughout most of North Carolina's maritime history, shipwrecks have played an important role in creating an identity for the Outer Banks's cultural heritage (Stick 1952; Duffus 2007).

While many of the possible 2,000 shipwrecks will never be found due to non-cultural and cultural site formation processes that have obscured or destroyed them, those that still exist comprise an impressive range of maritime archaeological resources. They represent more than 500 years of maritime history, architecture, technology, industry, and maritime culture. Some are associated with famous historical events, historical figures, or both. Others provide evidence of the day-to-day activities of North Carolinians through history, allowing researchers to learn about those past cultures and societies traditionally not written in history books or often marginalized in historical records.

These shipwrecks are tangible artifacts to the past and constitute important archaeological resources. They also serve as dramatic links to North Carolina's historic maritime heritage, helping to establish a sense of place in American history both in time and space as well as defining an identity for some. Today, those who work, live, or visit the Outer Banks and look out on the Graveyard of the Atlantic have inherited a maritime heritage as rich and as historic as any in the United States.

Problem Statement

The problem arises, however, that there is uncertainty about how people today perceive and value their maritime heritage and its preservation. Further uncertainty exists regarding whether the public is aware of this heritage or feels any connection to it. If efforts and policy decisions were made to increase preservation of maritime archaeological resources in the Graveyard of the Atlantic, it is unknown what type of support – either in terms of monetary or good will – such efforts would receive from the public. Understanding these and similar questions is essential for maritime archaeologists and coastal managers concerned with maritime cultural resources to develop successful and intelligent policies that benefit both the resources and the public. While there have been various research projects to document and investigate particular shipwrecks, there has not yet been a systematic study designed to understand these resources within the context of contemporary society's perceptions, awareness, opinions, and willingness to pay for preserving them.

Purpose

The purpose of this dissertation is to understand how the public perceives and values the preservation of maritime archaeological heritage resources along the Outer Banks, specifically shipwrecks in the Graveyard of the Atlantic. It is an exploratory study designed to combine qualitative and quantitative methodologies from the fields of archaeology, economics, and sociology, by engaging different populations in a series of interviews and surveys. These activities are designed to understand and evaluate the public's current perceptions and attitudes towards maritime archeological heritage, to estimate its willingness to pay (WTP) for preservation of shipwrecks in the Graveyard of the Atlantic, and to provide baseline data for informing future preservation, public outreach, and education efforts. The following primary and secondary research questions have guided these efforts.

Primary Research Question

  ➤ How does the public perceive and value the preservation of maritime archaeological heritage, specifically the *in situ* remains of shipwrecks resting in North Carolina's Graveyard of the Atlantic?

Secondary Research Questions

  ➤ What is the public's awareness of and connection to maritime heritage in general and maritime archaeological heritage specifically?
  ➤ What are the welfare estimates, such as willingness to pay (WTP), for preservation of maritime archaeological heritage resources and related attributes (e.g. informal and formal education opportunities, heritage trails, and facilities) through the stated preference technique of choice experiment?
  ➤ How may collected, analyzed, and synthesized information help managers appreciate the benefits and recognize the costs of archaeological heritage resources in coastal management decisions?
  ➤ Is it possible to combine frameworks and methods from different disciplines in an attempt to create a holistic context of the social value of maritime archaeological heritage through qualitative and quantitative analysis?
  ➤ Is the Theory of Cultural Capital applicable for maritime archaeological resources?

Discussion and Delimitations of Terms

In addressing these questions, two constructs underpin this dissertation: heritage and value. These are multifaceted, multi-interpreted concepts that involve agents (whether singular or in collective groups) making choices based on preference and perspective, and when they overlap, they often create intense feelings among individuals or groups with competing viewpoints. Chapters 2 and 3 examine heritage and value, respectively, and relevant issues in detail, but a brief discussion to establish how this study approaches and defines these foundational concepts is appropriate here.

First, heritage has grown from its origins as a precise legal term to a ubiquitous term that seems to have as many meanings as objects it is ascribed. Many organizations and agencies concerned with the preservation of cultural heritage define heritage in terms of specific characteristics, such as sites, structures, tangible (and sometimes intangible) qualities, environment, and chronology. These definitions work well within the context of the various agents' own needs, but with more and more agents and agencies engaged in defining heritage, the term runs the risk of becoming meaningless since it seems to mean *everything*. Yet scholars note that no matter what the specific object is being defined as heritage, there is a process in creating this definition (Osborne 1998; Graham et al. 2000; Seaton 2001). This process relies on discourse and is continuously evolving. This study focuses on that process as the element of heritage, and thus defines heritage as "that part of past which we [contemporary society] select in the present for contemporary purposes" be it social, political, or economic (Graham et al. 2000:17). For this dissertation, maritime archaeological heritage resources are the parts of the past that will be explored in order to understand how contemporary society uses them for social,

political, or economic purposes. Therefore, the reasoning for choosing the term "maritime archaeological heritage" is discussed first.

It is acknowledged that the predominant term in the field of maritime archaeology for heritage resources is "underwater cultural heritage" (UCH hereafter). This term was established and adopted through the United Nations Educational, Scientific and Cultural Organization (UNESCO hereafter) 2001 *Convention on the Protection of the Underwater Cultural Heritage*, which not only defined what underwater cultural heritage was but also listed the best practices for protecting it. This definition is most often used in literature and in policy, and is found throughout this dissertation when appropriate for the sake of clarity and consistency with these other sources. The decision to use "maritime archaeological heritage" was not to reinvent the wheel, but chosen for considerations specific to this dissertation. For example, there are some resources being investigated that do not fit the "underwater" definition of UCH well, and so a more inclusive term of "maritime" as put forth by maritime archaeologist Keith Muckelroy (1979:4), who states that maritime is "everything that is connected to seafaring in the broadest sense…all aspects of maritime culture; not just technical matters, but also social, economic, political, religious and a host of other aspects." Conversely, the attributive, "archaeological" was included to keep the focus on archaeology, and avoid tangents into different types of maritime cultural heritage, such as maritime lighthouse lawn ornaments. Archaeological heritage is a subset of heritage and thus the prism through which this study views and discusses heritage resources within an archaeological perspective of the processes used to value material culture in comparison to other stakeholder perspectives of value.

Value is the second foundational concept for this study. There are many types of value and many ways to value something, such as legal, ethical, moral, religious, political, social, or

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economic. These values are neither exclusionary nor linear with one (or more) informing and influencing others. Of course, it is unrealistic and beyond the scope to discuss all types of values and the role they may play in determining what is heritage and what it is worth. Yet by defining heritage as a process that involves interpretation and discourse, this study recognizes the influence these other values have over different cultures perspectives and purposes towards heritage – which often are at odds with each other. This creates a situation of contested values and is exacerbated by heritage's inherent duality: it is a resource with cultural and economic value (Graham et al. 2000).

Heritage's cultural value is based on the tastes and perceptions of individuals, groups, or culture, and is often said to have "inherent" or "intrinsic" worth, and is a cultural product with social and political consequences. The economic value of heritage has been traditionally discussed in terms of cultural tourism or the selling of artifacts (legally or illegally), each of which are driven by the private market's models of supply and demand. Cultural heritage resources are not private goods, however. They are public goods to varying degrees, and public goods have different types of values that cannot be satisfactorily captured by the private market. These non-market values represent unseen benefits that contribute to the total economic value of the resource, but are also challenging to measure since they cannot be directly (or empirically) observed (Throsby 2001; Klamer 2003; Noonan 2003; Snowball 2008).

Since this dissertation seeks to understand and estimate these cultural and non-market economic values through social and economic analysis, it uses the theoretical framework of "cultural capital" put forth by economist David Throsby (2001), as an organizing principle and conceptual means to bridge "the gap between economics and culture." Throsby defines cultural capital "as an asset which embodies, stores, or provides cultural value in addition to whatever

economic value it may possess" (Throsby 2001:46). He argues that cultural capital is a fourth

form of capital, distinct from three broad forms of capital usually identified in contemporary

economic analysis (physical capital, human capital, natural capital). Like the other three,

cultural capital has its own stocks of resources (e.g. the number of shipwrecks at a given time)

and flows of services that may be directly consumed (e.g. museum exhibits and recreational

diving) or used for further goods and services (e.g. public outreach and avocational training

activities). The theory of cultural capital acknowledges that economic value and cultural value

are two different values, but that resources with cultural capital can have both. For example, a

resource may have economic value derived simply from its physical material alone, but it may be

augmented because of its cultural value. In other words, "cultural value may give rise to

economic value" (Throsby 2001:47). The theory of cultural capital asserts that there is a strong

correlation between cultural values and economic values. The challenge is the means of

measurement for each type of value.

Chapter Summaries

Chapter 2 begins to address this challenge by examining the literature for similarities and

differences between heritage and archaeology. It discusses how archaeological resources are

used as heritage to create and establish *cultural* values within a society or societies. These

values are often contested and inherently dissonant as they are subjective, evolving, and rely on

discursive processes between stakeholders with different perspectives and priorities. It touches

on the roles of archaeological theory, policy, and public education as agents of the processes in

the preservation and construction of archaeological heritage. Since "archaeological heritage" is a

type of heritage, the chapter first looks at the issues and cultural values associated with heritage, providing context for the subsequent examination of archaeology's role within heritage.

Chapter 3 moves the discussion from cultural value to economic value. It discusses the challenges of trying to estimate the economic value for public goods such as cultural heritage resources. It looks at how the private market works and how archaeological resources have been treated within the market. Since this treatment has often been illegal there is a brief examination of the illicit antiquities trade as well as how the ethos of private ownership has influenced maritime archaeology and why it is difficult to counter. It also looks at legal market practices such as cultural tourism and discusses its benefits and costs. After exploring the private market, it then moves into non-market values, defining them and presenting the challenges of measuring them within a relatively new field of Cultural Economics. The theory of cultural capital is explained and methods used to measure cultural and economic values. Finally, there is an overview and literature review of non-market valuation methods with discussion over the methods used for this study: choice experiment along with its structural economic theory of random utility model.

While Chapters 2 and 3 discussed the two underpinning concepts of heritage and value, Chapter 4 shifts focus to the resources under investigation and provides an overview to the Graveyard of the Atlantic. It first looks at the environmental factors that made North Carolina's coastline one of the busiest shipping corridors in the world, and subsequently how they factored in causing shipwrecks. Next, it presents some of the human causes of shipwrecks, such as naval wars, criminal acts, and navigational errors. These environmental and human factors potentially caused over 2,000 ships to be lost in the Graveyard of the Atlantic, and only a small fraction of these vessels have been relocated – fewer have been archaeologically studied. The third section

discusses the role maritime archaeology has played in investigating, documenting, and preserving shipwrecks today. Finally, it examines how shipwrecks have influenced North Carolina's maritime cultural heritage and the construction of identity for the Outer Banks.

Chapter 5 describes this study's methods and processes used to understand how contemporary society perceive and value the preservation and management of maritime archaeological resources (in general), and shipwrecks (specifically). This was an interdisciplinary study that employed qualitative and quantitative methodologies adapted from the fields of archaeology, economics, and social science. This chapter breaks down the different stages and steps used to develop, implement, and analyze data from different stakeholder groups who were studied.

Chapter 6 presents the results from Stage I of the project, which gathered data from different stakeholder groups in order to identify themes, attributes, and attribute levels that were incorporated into the final survey instrument. The stakeholder groups were a panel of experts, interviewed residents of the Outer Banks, and members of the fishing and scuba diving industries who spoke at a series of public hearings in 2012. The chapter first presents identified themes. It then discusses the perceptions and attitudes held by each stakeholder group towards these themes. Finally, it compares each stakeholder group with each other, examining the similarities and dissonance between them.

Chapter 7 presents the results from the final survey that was sent to almost 2,000 randomly selected residents of North Carolina. It first examines response rates, demographics, and travel and recreation behavior. Next, it discusses respondents' awareness and perceptions for maritime archaeology heritage in GOA and for public outreach. It then describes respondents' perceptions and attitudes towards the preservation, management, and oversight of

shipwrecks, specifically. Finally, it presents of the choice experiment. In each section, there is a presentation of results followed by a brief discussion of them.

Chapter 8 revisits the research questions and addressing them in the context of previous chapters' findings. It examines the cultural and economic values reported in the study and provides some policy recommendations. It also presents recommendations for future research before presenting concluding comments.

CHAPTER 2: ARCHAEOLOGY AS HERITAGE

Introduction

The search for meaning and understanding through the material remains of the past links archaeology to heritage through similar subject matter, concepts, and theories. These connections have intertwined the terms, "archaeology," and "heritage," so closely that they often appear inseparable in literature, but it is important to remember that there are differences. Primarily, archaeological heritage is a type of heritage, meaning that it exists under the umbrella of heritage as a concept, while heritage includes concepts beyond archaeology. This chapter explores the literature, issues, similarities, and differences between heritage and archaeology. It examines how archaeological resources are used as heritage resources to create and establish *cultural* values within society. These types of values are subjective, evolving, and rely on discursive processes between stakeholders with different perspectives and priorities. Therefore they are often said to be inherently dissonant and often contested. Since "archaeological heritage" is a type of heritage, the chapter will start by examining the issues and values associated with heritage in order to provide context for the subsequent examination of archaeology's role within heritage.

Heritage

Heritage was once a precise legal term that described an inheritance bequeathed to one's heirs, but today it has evolved into a ubiquitous word with seemingly as many meanings as the objects to which it is ascribed (Graham et al. 2000:1). In *Possessed by the Past*, Lowenthall

(1996:3) declares, "Never before have so many been so engaged with many different pasts," He calls this phenomenon a "heritage glut" that has arisen because of certain trends such as increasing life longevity, family dissolution, migration, genocide, urban development, technological progress, and modern media. These trends magnify the remoteness of the past, heighten feelings of isolation and instability, erode optimism of the future, and instill the view that people need and are owed heritage. Different agents (international agencies, nations, states, cities, communities, and individuals) use heritage to mollify these negative feelings of isolation and to create positive feelings of continuity, legitimatization, and identity (Lowenthall 1996:ix-6).

With so many perspectives, agents and agencies engaged in defining heritage, the term risks becoming meaningless – since it seems to mean *everything*. Still, no matter what type of resource –whether it is tangible or intangible – is ascribed to heritage, scholars note that there is a process in this ascription. This process relies on discourse, is continual and evolving, and often is filled with contention, discord and dissonance (Pile and Keith 1997; Osborne 1998; Brundage 2000; Graham et al. 2000; Seaton 2001). For these reasons, Graham et al.'s (2000:17) simple and practical definition of heritage was utilized in this study: "Heritage is that part of the past which we [contemporary society] select in the present for contemporary purposes."

This definition balances the complex social issues inherent in heritage with the processes involved in creating it. It is different than other definitions (see UNESCO 1972, 2001; Jokilehto 1990; Cultural Resources National Park Service 1996 (CRNPS hereafter)) which define maritime heritage in terms of tangible and intangible aspects that are subject themselves to change through the processes that create their meaning. As Seaton (2001:26) states, "Heritage is never a stable, finally completed process but a constantly evolving process of accommodation, adjustment, and

contestation." These characteristics of accommodation, adjustment and contestation can occur almost anywhere or over any topic, whether it is about reputation (Schwartz 1991; Lowenthall 1996; Alderman 2002), a flag (Brundage 2000; Webster and Leib 2001), a monument (Osborne 1998; Alderman 2010), landscape (Barthel 1996; Mitchell 2000; Foote 2003), food (Bessiere 1998; Hague 2001), street name (Alderman 2002), waterfront (Atkinson et al. 2002), or even atrocities (Azaryahu 2003; Foote 2003).

These characteristics explain why scholars often describe heritage as inherently dissonant (Tunbridge and Ashworth 1996; Graham et al. 2000; Seaton 2001; Graham 2002). Dissonance refers to the discordance or lack of agreement and consistency to meaning of heritage. It is often inevitable as different stakeholders with different perspectives and agendas compete to determine what heritage means, and to whom it does or does not apply (Tunbridge 1994). There are significant social and political consequences for the "winners" and "losers" of these discursive negotiations.

Socially, heritage is fundamental to constructs of identity since it allows an individual or group to associate itself with a particular meaning of the past. Identity is a multi-faceted phenomenon that includes a range of human attributes – including but not limited to language, religion, ethnicity, class, gender, and collective memory (Datel 1990; Schwartz 1991; Learch 1993; Leanord 1993; Neville 1993; Brundage 2000; Mitchell 2000; Graham et al. 2000; Alderman 2002, 2010; Hoelscher 2003; Wills 2005). Identification with the past validates the present by conveying a sense of timeless values, unbroken lineages, and the restoration of lost or subverted values. These social benefits provide familiarity, guidance, enrichment, escape, and sense of belonging to a place (Lowenthall 1996; Rosenzweig and Thelen 1998; Graham et al. 2000).

While heritage can provide validation and legitimization of identity for some groups, it can also simultaneously disinherit and exclude others groups that do not subscribe to or are not included in the dominant meaning of heritage. This is the social costs and consequences of the discursive processes over defining heritage. Excluded groups are often referred to collectively as the "Other" (Graham et al. 2000:18). The groups that usually have been categorized as the "Other" are indigenous cultures, minorities, women, and people in economic middle or lower classes (Learch 1993; Leonard 1993; Neville 1993; Hoelscher 2003; Lansing 2003; Wills 2005). The concept of Otherness is fundamental to constructs of identity in the following way:

> As identity is expressed and experienced through communal membership, awareness will develop of the Other…Recognition of Otherness will help reinforce self-identity, but may also lead to distrust, avoidance, exclusion and distancing from groups so-defined (Douglas 1997:151-152).

The viewpoints and consequently the heritage of the "Other" are often marginalized or ignored, creating a "zero-sum game" – meaning that one group's heritage is the disinheritance of another (Graham et al. 2000:24).

Perhaps the best example of the zero-sum nature of heritage is the struggle for identity in the American South, a region where racial tensions pervade many aspects of life, and where battles over identity occur frequently in society and politics through symbols of heritage (e.g. Confederate battle flag, "Jim Crow South," monuments to Martin Luther King, Jr., and African American heritage) (Datel 1990; Webster and Lieb 2001; Alderman 2002, 2010; Hoelscher 2003; Wills 2005). The consequences of these 'battles' underscore heritage's zero-sum quality, allowing "victors" the political and social power to define the identity of the region (Webster and Lieb 2001:271-272).

Of course, not all dissonance over heritage results in such an extreme "zero-sum" condition. There is a spectrum to heritage and heritage disinheritance, ranging from passionate

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to apathetic, and from purposeful to unintended exclusion. The process of heritage construction, entrenchment, and inclusion (or exclusion) of other heritage narratives involves continual and evolving negotiations of meaning and contestation. The results of this dynamic discursive process are expressed through symbolic and actual spaces, places, and landscapes.

Space, place, and landscape are constantly mutating concepts when based on interpretations of heritage. Each is characterized by a complexity of imagery and symbolism, or a "polyvocality" of perspectives (Graham et al. 2000:33). This means a single space, place, or landscape can be viewed simultaneously in a variety of ways. Often the level of dissonance and contention surrounding the multiplicity of meanings resource depends on the scale being discussed.

At the national level, collective meanings of heritage are most obvious as the nation-state uses scale, space, place, and landscape to create hegemonic narratives and construct idealized symbols of identity for the nation. For example, while the United States is a pluralistic, diverse, and fragmented society in many respects, there is still prevailing "American Ideology," which emphasizes individualism, equality, liberty, limited government, and opportunity (Huntington 1981; Lipset 1963, 1990; McCloskey and Zallar 1984; Kingdon 1999; Pretes 2003). This American identity transcends regional or state boundaries and unites America's geo-political space through an ideological space that is homogenized through heritage because it oversimplifies space into idealized constructs of tradition and modernity (Graham et al. 2000:56-57). It is anchored in heritage places, which are the most concrete means of ascribing, reflecting, and supporting the dominant ideology. Places of heritage are real places that people can visit, see, and experience through tangible pieces of the past, which provide a sense of permanence, authority, and credibility to the constructed narrative through the perceived authenticity of the

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past (Urry 1990; Wright 1991; Walle 1993; Ashworth 1994; Johnson 1995a; Barthel 1996; Harvey 1996; Cleere 2000; Kristiansen 2000; King 2002; McKercher and du Cros 2002; McManamon 2002; Pretes 2003).

Since space and place are incorporated into landscapes, the American ideology is conveyed through the symbolic concept of landscape which is both an active and passive agent for heritage that simultaneously carries meanings of lineage, tradition, and stability while neutralizing, sanitizing, or even erasing unwanted memories of the past (Barnes and Duncan 1992; Cosgrove 1993; Lowenthall 1996; Mitchell 2000; Atkinson et al. 2002; Foote 2003). If a nation has sufficiently established itself, it then can accommodate differences, variations, and dissonances to its overall narrative. Again, heritage is at the core of these processes of renegotiation. Often the multiplicity of meanings that attend a single manifestation of heritage are most debated and heated at the local scale (Pile and Keith 1997; Osborne 1998; Graham et al 2000).

Heritage at the local scale is significantly different in content and function from the national level. First, the term "local" implies a wide range of spatial possibilities, from a region – such as the American "South," "North-east," "Mid-west," and "West" – to a state, sub-state region, a county, city, community, or the precise site of an event. This variation immediately creates conflict as multiple narratives can compete for dominance within the same space as opposed to the national level, which if mature and robust subsumes all other narratives to large degrees. Second, the social and political consequences of heritage are magnified at the local scale because the stronger associations and investments in identity are mixed with greater opportunities for polyvocality and multiple interpretations. Efforts to create hegemonic narratives of identity are more vigorously contested, illustrating the inherent dissonance of

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heritage, and emphasizing that heritage is often a "zero-sum game" (Graham et al. 2000:197-204).

In addition to national and local scales of heritage, recently a global scale of heritage has emerged, developing after World War II from the conviction that heritage is the responsibility of the whole human community and should be freely available for all now and in the future. International organizations like the UNESCO and the ICOMOS were created to preserve sites, develop codes of conduct, convene experts around the world for protection of cultural heritage, and establish international law regarding ownership and international trade of cultural property (ICOMOS 1964, 1990; UNESCO 1972, 2001). The potential of such common heritage lies primarily in its reinforcement of concepts of human equality, common destiny, shared stewardship of the earth, optimal use of scarce resources, and the consequent imperative of peaceful coexistence (Graham et al. 2000:236).

At each scale level, any heritage resource is undergoing continual renegotiation of meaning and identity, making scale itself a potent source of heritage dissonance. Heritage developed at each scale has potential to either undermine or reinforce the other levels because for each spatial scale, an identity of an "imagined community" is constructed. Since heritage is a primary mechanism for constructing identity, the same heritage resource may be defined and interpreted differently at each scale, creating contention and dissonance over its preservation and management (Graham et al. 2000).

Archaeology in particular has been used for social and political purposes to create meanings of heritage that connect contemporary societies to a past that can validate or legitimize its current values. As this dissertation seeks to understand how people perceive and value

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maritime archaeological resources as heritage, it is important to understand the implications of this, and how archaeology has been used to reinforce or dispel dominant ideologies of heritage.

Archaeology and Heritage

As the study of past societies through the material remains that cultures left behind, archaeology plays a significant role in heritage (Johnson 2010: 2-3). The contributions of archaeology to heritage are usually discussed in terms of providing cultural value, such as new information, authenticity, commemoration, symbolism, and continuity of cultural identity and sense of place. Archaeological sites encompass aspects of space, place, and landscape and have been used at national, local, and global scales to reinforce or refute previously held meanings of heritage (Trigger 1996; Graham et al. 2000; Kristiansen 2000; Lipe 2002; McManamon 2002; Jameson and Scott-Ireton 2007a). It is not surprising then that archaeology and heritage are strongly associated with each other since heritage is the way the present uses the past for its own purposes, and archaeology attempts to illuminate the past for the present. Consequently, each field shares similar concerns, themes, and concepts.

This is not to say that archaeology *is* heritage, or vice versa. Rather, archaeology can be a process or a tool used for to create meanings of heritage, but it does *not always* provide benefits associated with heritage. This distinction is vital according to Lowenthal (1996:xi) who argues that disciplines like history and archaeology "explore and explain pasts grown ever more opaque over time [i.e. knowledge benefits]; heritage clarifies pasts so as to infuse them with present purposes." McManamon (2002:31) echoes Lowenthal, stating that archaeology provides two major benefits: knowledge benefits of the past; and commemorative or associative benefits of heritage.

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Like other heritage resources, archaeological sites and artifacts are subject to the processes of contestation, negotiation, multiple perspectives, polyvocality (or mutlivocality in archaeological terms), legitimization, disinheritance, and dissonance. Trigger (1996:20-21) asserts as much in this reminder to the field:

> [Archaeologists] must analyze the ideas influencing archaeological interpretations as tools with which social groups seek to achieve their goals…Among these goals are to enhance a group's self-confidence by making its success appear natural, predestined, and inevitable; to inspire and justify collective action and to disguise collective interests as altruism; in short to provide groups and whole societies with mythical charters.

Further, archaeological knowledge benefits often overlap with the archaeological heritage benefits (or costs) because new information can simultaneously enhance and diminish a sense of place and identity for differing cultures and societies (Stipe 1984; Cleere 2000; Kristiansen 2000; Little 2002a; McManamon 2002). How this overlap influences interpretation of the archaeological record is a point of contention and intense debate in the field of archaeology as it has matured and examined its own heritage and theoretical foundations.

It is not the intention of this dissertation to recount the full history or theoretical development of archaeology. For a complete discussion, Trigger's *A History of Archaeological Thought* (1996) offers a detailed, chronological account of how archaeological theory started and evolved, while Johnson's *Archaeological Theory* (1999) provides a more concise and accessible account with excellent rationale for why theory is necessary in archaeology. It is important, however, to understand some of the events that have influenced archaeologists' perspectives towards the resources they study since archaeologists are often the agents who in part decide what is heritage. It is equally necessary to discuss how archaeological information has become part of the process of defining and redefining what is heritage and whose heritage it is.

The beginning of archaeology as a field of study is closely associated with state-sanctioned collection and accumulation of artifacts, known as *antiquarianism* – which is collecting artifacts without a real focus on the information these artifacts may reveal about past societies. Antiquarianism is closely associated with the rise of Nationalism during the 17th and 18th centuries in which different nations removed artifacts from other countries to legitimize and validate its own constructs of identity and ideology (Trigger 1996; Renfrew 2000; Skeates 2000; Atwood 2004; Hutt 2004; Gibbon 2005; Hawkins and Church 2005; Kurzweil et al. 2005).

Archaeologists eventually realized that increasing collections of artifacts provided little information about the past cultures that constructed and used those items (Johnson 2010:15). They developed more rigorous practices in order to interpret what they were finding. The theoretical framework that was predominantly used to achieve this was termed "cultural-historical archaeology," (Deagan 1982; Trigger 1996; Johnson 2010). Cultural-historical archaeologists looked at artifacts as cultural particulars and norms that defined what a "culture" was. Similar to antiquarianism of the 17th and 18th centuries, cultural-historical archaeology was closely associated with 19th century nationalism as European powers continued to legitimize their identities as political powers by tracing their lineage back to ancient times through archaeological excavations (Trigger 1996: 212-216; 248-268). Lowenthal (1996:174) calls this the goal of "priority," stating, "What is prior confers prestige and title…To be first warrants possession; and to antedate others' origins or exploits shows superiority…The more ancient a lineage is the more venerated [it is]."

In the United States, cultural-historical archaeology took a slightly different path as American archaeologists were focused primarily on prehistoric sites during the late 19th and early 20th centuries. There were archaeological investigations that looked at sites from the "historic

period," however, which is defined as the period of human history that begins with the appearance of written records (Orser and Fagan 1995:6-22). Researchers involved with these sites in America developed the subfield of archaeology, known as historical archaeology that emphasized use of the documentary evidence. Historical archaeology predominantly adopted the cultural-historical approach, where societal norms and chronologies were not only constructed solely from artifacts found in the ground but also from documentary sources.

Historical archaeologists tended to focus on "important and famous" sites associated with historical places such as colonial and frontier forts or trading posts (Smith 1939; Smith 1948; Harrington 1955, 1957; Fairbanks 1956), or people like Miles Standish (Deets 1977a) and Abraham Lincoln (Hagen 1951). These archaeological excavations served a two-fold purpose. First, they provided archaeological evidence that was used to supplement, support, or fill in gaps of the established historic and architectural records that would permit the best possible interpretation of the site to the visitor (Harrington 1955:1121-1122). Second, they helped reinforce, clarify, and legitimize the narrative of American identity, foundation, and lineage – thereby supporting constructs of American Nationalism.

While these projects brought recognition to the field of historical archaeology, their emphasis on describing the particulars of a site in order to "fill in the gaps" of the historic record did little to separate archaeology from history. Beginning in the 1960s, archaeologists were increasingly dissatisfied with the cultural-historical approach, and advocated that archaeology should follow more of an anthropological approach, or what became known as the "New Archaeology" (Binford 1962). The "New Archaeology" promoted following the scientific method in order to produce generalizing processes without consideration of cognitive or social factors either from the archaeological record or from contemporary society (Johnson 2010:21-

31). This emphasis on cultural processes as means for generalized explanations of the past

earned "New Archaeology" the appropriate and technical term, "processualism" (Trigger 1996;

Johnson 2010).

As with many theoretical movements, there was the eventual rebuke and criticism of

processualism, starting in the 1970s and founded in part as a counter-point to processualism's

rejection of the role human cognition played in creating the archaeological record. This counter-

movement became known as "post-processualism," which was an umbrella-term for an eclectic

set of theories and approaches that were developed in other fields and then adopted and applied

to archaeology, such as Marxism, Social theory, Gender theory, Identity theory, and Critical

theory (Childe 1979; Wylie 1985; Leone et al. 1987; Shanks and Tilley 1987, 1992; Gero and

Conkey 1991; Hodder 1991; Hodder et al. 1995, Trigger 1996; Insoll 2007; Conkey 2007).

While post-processualists chose to use different theoretical frameworks, there were unifying

principles involving the role humans played as active agents in forming the environment and that

social and political contexts (both in archaeological and contemporary terms) influenced

interpretation and meaning of the past (Johnson 2010:105-111). It is little surprise that the

principles post-processualists put forth were heavily influenced by and adapted from the post-

modern movement that was sweeping many areas of academia (Wallerstein 2003).

In relation to heritage, both processualism and post-processualism had significant

consequences as archaeologists in each movement tended to move away from the "rich and

famous" sites, and instead focused on reconstructing pathways of societies as a whole. In

particular, archaeologists started to investigate groups that had been historically disenfranchised,

marginalized in traditional historical narratives, or not written about at all. These and other

studies had important ramifications on established narratives of American constructs of heritage

and identity often evoking new pride for previously marginalized groups and creating new perspectives on cherished American tropes of identity (Schuyler 1976; Handler and Gable 1997). While archaeology was maturing through healthy (and often heated) debates over theory and was creating significant changes in constructs of heritage, another archaeological sub-discipline was born with the specific intention of understanding maritime cultures: maritime archaeology.

In 1960, the first large scale underwater excavation occurred at Cape Gelidonya, off the southern coast of Turkey, on a 13th century Bronze age shipwreck. Under the direction of Classical archaeologist, George Bass, this project proved that archaeology could be accomplished underwater to the exacting standards and methods used on land (Bass 1972). The growth of maritime archaeology particularly in theoretical development has been slow because the field has focused on descriptive analysis of sites, methodology, and the technology needed to conduct projects underwater – all of which usually has bounded the field to cultural-historical approaches (Watson 1983; Fontenoy 1998; Flatman 2003).

Additionally, early maritime texts were in the style of adventure writing and easy-reading were designed to stimulate popular interest and support the nascent field. To be fair, the pioneers of maritime archaeology had to prove to an ambivalent audience of terrestrial archaeologists that their techniques were as sound as those on land. Therefore, they were compelled to a degree to provide detailed descriptions of their methods (Flatman 2007a:80-81). Still, many produced high quality and ground-breaking scholarship that shed new or first light on seafaring activities, trade and merchant routes, and ship construction techniques – particularly in the Mediterranean region (Bass et al. 1967; Bass 1972; Steffy 1985; Wachsmann and Bass 1997). Still, maritime archaeology as a field has had limited consideration for explicit research designs that mitigate

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impacts, or ask questions about general human behavior beyond the shipwreck (Gould 1983a; Watson 1983).

By focusing on single shipwrecks, excavation descriptions, and diving technology to engage public interest, maritime archaeologists did not help themselves in distinguishing their objectives from those of professional shipwreck looters, or treasure hunters. The public perception was that both performed the same tasks: that is, find wrecks, dive on wrecks, and bring artifacts off wrecks. Treasure hunters propagated this perception through their own publications that told of adventurous and exciting tales of shipwreck discovery and explorations (Spotter 1960; Marx 1975, 1978, 1990; Mathewson 1986), and used this confusion to legitimize their activities and assert that their projects are as legitimate as archaeologists (Mathewson 1998:97-104). This of course helped permeate confusion among the general public about what maritime archaeology is and is not, and how to differentiate between professional maritime archaeological activities and treasure hunting. Due to these reasons, it is understandable that the public confuses the two professions. What is less acceptable, however, is that even within the discipline of archaeology, similar confusion exists.

Maritime archaeology is still perceived by some archaeologists as simply antiquarianism (Flatman 2003:143). Yet there is a growing body of literature that is explicitly theoretical about maritime archaeological resources. Muckelroy's seminal, but now dated work, *Maritime Archaeology* (1978) was the first offering of explicit theory in maritime archaeology. It has been followed by other examples of how theoretical research questions could produce valuable archaeological information about human behavior from sites that some might consider historically insignificant (see Gould 1983a, 1983b; Richards 2008). Some maritime archaeologists have started to look at ships as symbols for culture and heritage (Cederlund 1995,

Adams 2001, Gibbins and Adams 2001). Others have moved beyond ships altogether and have

started debates about the nature of maritime cultural landscapes (Westerdahl 1992, 1994; Ford

2011). The United States (Gould 1983b, 2000; Babits and Van Tilburg 1998) and Australia

(Staniforth and Hyde 2001;Richards and Nash 2005; Richards and Staniforth 2006; Richards

2008) have developed a considerable body of work that illustrates how solid and explicit

theoretical framework and research design contributes new and useful information to society in a

variety of ways beyond technical or methodical descriptions.

New theoretical approaches have the potential to provide multiple interpretations and

perspectives for maritime archaeological heritage. For example, ships are often reified as

national symbols of exploration, military might, colonialism, and national identity, but

indigenous cultures that were conquered, suppressed, or enslaved will have a different

perspective towards a ship that brought hardship or misery to their ancestors (Flatman 2003,

2007a, 2007b). McGhee (1998) is particularly critical towards maritime archaeologist's

reluctance to engage in discussions about other maritime heritage and histories, such as Chinese

naval supremacy, slave ships and African Diaspora, and indigenous cultures.

Further, the emphasis on discovery and documenting ships and shipwrecks of "national

significance" has overshadowed the importance of ships and maritime industries at regional and

local scales. "Everyday" vessels, like fishing trawlers, schooners, freighters, or bulk carriers, are

utilitarian in nature but also come to symbolize communities and societies whose cultures

depended on them for their livelihood. This relationship creates more personal and intimate

connections to ships and boats because they represent heritages of industry, family, and lineage

that community members use to identify themselves from others. Recent studies have explored

what impacts these vessels and associated abandonments or shipwrecks have had on local

communities' heritage as well as how they represent global, national and local indicators of economic prosperity, recession, or depression (Richards and Nash 2005; Price 2006; Richards and Staniforth 2006; Seeb 2007; Friedman 2008; Richards 2008; Marcotte 2011).

Shipwrecks also have played an important role in heritage at the global scale. Ships formed the primary element in exchange systems of most societies with coastal access. They carried and represented aspects of their parent cultures to other societies and imported aspects of these societies back to their parent cultures. Careful analysis of shipwrecks has great potential to alter our understanding of these global communication networks and provide new information about the expansion, trading patterns, and contributions from disenfranchised groups by transcending the presumption of European seafaring omnipotence that permeates maritime archaeology (Watson 1983; Murphy 1983; McGhee 1998; Flatman 2003).

With maturing theoretical constructs and questions, maritime archaeology has the potential to add multivocality to maritime archaeological heritage resources. These resources are subject to the same social and political processes that are inherent in any heritage resource, and maritime archaeologists are part of this process. The quality of their interpretations affects how the public perceives the purpose of maritime archaeology and understands the relevance of maritime heritage. Such relevance is necessary as archaeologists argue that these resources need to be protected by government policies and legislation.

Policy and Archaeological Heritage

One of the ways that value – or the way people value a resource – is established, is through policy. Since 1906, the United States has created over 25 federal laws and executive orders to protect cultural historic and archaeological resources (CRNPS 2006). Historic Preservation laws in the United States are a patchwork. Some apply to specific types of resources

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(properties, shipwrecks, or archaeological sites) while others protect broader definitions of historic places. Some apply on federal and tribal land while others govern federal actions regardless of land status (Sebastian 2004:4). Other acts – such as the National Park Service Organic Act, National Trust for Historic Preservation, National Marine Sanctuaries Act, and Coastal Zone Management Act – have had indirect influence by setting up agencies, regulations, or funding opportunities for preserving cultural heritage resources as part of their missions (CRNPS 2006). In addition to the federal laws, there are several Executive Orders and Code of Federal Regulations that also apply to preservation of historic resources (CRNPS 2006:198-201).

One of the most important and far reaching pieces of legislation was the National Historic Preservation Act (NHPA) of 1966 (Public Law (P.L) 89-665) as it set up important agencies, regulations, and processes to assess a site's *significance*, including the National Register for Historic Places (NRHP), State Historic Preservation Officers (SHPO), Advisory Council on Historic Preservation (ACHP), and the "Section 106 Process" (Hardesty and Little 2000; King 2001; CRNPS 2006). Significance is a fundamental concept for archaeologists when they ascribe value to sites and resources "significance" is interpreted relative to some other frame of reference (Schiffer and House 1977:239). Hardesty and Little's (2000) *Assessing Site Significance* and *National Register Bulletin #20* (Delgado et al. 1987) are the authoritative texts in explaining the criteria and requirements for terrestrial and maritime sites to be considered significant enough to be placed on the National Register of Historic Places. King's (2001) *Federal Planning and Historic Places: The Section 106 Process* provides an excellent and detailed review of the "Section 106 Process," the purpose of which is to accommodate historic preservation concerns with needs of Federal undertakings and other parties interested in the outcome of the undertaking through early consultation of the project.

The Section 106 Process has come to play most often in the field of Cultural Resources

Management (CRM) where choices need to be made between what is preserved and destroyed

due to construction projects. Originally called, "salvage," "emergency," or "rescue"

archaeology, CRM was founded on the recognition that the supply of archaeological resources

were finite and sources once lost could never be replaced (Lipe 1977; Schiffer 1977). Since

CRM's foundation was intimately connected to legislation, it is not a coincidence that the

profession grew along with the federal preservation laws protecting archaeological resources

during the urban and housing sprawl of the 1960s and 1970s. During its development, CRM

underwent similar debates about its purpose and goals as academic discussions in terrestrial and

maritime archaeology, but it tended not to focus on the destruction of maritime sites. This was

partly due to the fact that legislation for the protection of underwater cultural heritage developed

more slowly than for terrestrial archaeological resources.

The delay in recognizing the importance of preserving maritime archaeological sites

stemmed from the following two traditional concepts in Admiralty Law (Phelan and Forsyth

2004:121):

- *Law of Finds:* designates as owner of marine property the person who takes possession
  of lost or abandoned property and who exercises control and dominion over it.

- *Law of Salvage:* encourages rescue of imperiled or derelict marine property by providing
  a reward to those who recover the property.

Professional salvagers have usually used these laws to justify claims of ownership and

exploitation of shipwrecks. The United States Congress has admitted that the principles of these

laws are not well-suited for the preservation of shipwrecks (Phelan and Forsyth 2004:128).

Before 1987, federal and state governments tried to enact federal preservation laws (such as the

Antiquities Act (P.L. 59-209) and the Archaeological Resource Protection Act (P.L. 96-95)) to

protect shipwrecks and other underwater sites. These attempts were often unsuccessful with court cases in the early 1980s ruling in favor of treasure hunters (Giesecke 1999).

These rulings led to the creation of the Abandoned Shipwreck Act (ASA hereafter) in 1987, which asserted federal ownership of abandoned vessels up to three miles off the coastline and then immediately transferred that ownership back to the states (Public Law 100-298). This law was soon challenged in court by treasure hunters with mixed results where one ruling favored treasure hunters' claims and the other for State's right of ownership (Giesecke 1999; Mather ad Watts 2002; Hutt et al. 2004). Pelkofer (1996), Giesecke (1999), Workman (2008), and Silver (2009) provide background and discussion over the development of the ASA and its mixed track record in protecting shipwrecks at great length. Despite the criticisms and legal challenges to ASA, Giesecke (1999) notes the following accomplishments of the law: 1) states have expanded or initiated their historic shipwreck programs; 2) public money that would have gone to pay for shipwreck litigation has been re-directed to shipwreck interpretation and protection projects; and 3) ASA has helped to educate states and the public about the value of the resource base.

ASA is now not the only piece of legislation providing explicit protection for underwater cultural heritage resources. Recently, Congress passed the Sunken Military Craft Act (SMCA hereafter) (P.L. 108-375), which states that the U.S. never extinguishes its rights and claims of ownership to any American sunken military craft (including non-ship vehicles like airplanes, tanks, trucks, or cars) no matter the passage of time. It also extends this right to other nations' sunken military craft (CRNPS 2006:191-197). There is no ambiguity about ownership with this bill as there is with ASA, but it is only applicable to vehicles deemed to be military craft. So its scope is limited in protection of non-military submerged resources.

Other acts of Congress that are focused on maritime issues (but not solely on maritime cultural resources) also have had impacts in preservation of underwater cultural heritage. For example, the National Marine Sanctuaries Act (NMSA) (P.L. 92-352) authorized the Secretary of Commerce through the National Oceanic and Atmospheric Administration (NOAA hereafter) to set aside, protect, and manage discrete marine areas possessing "conservation, recreational, ecological, historical, scientific, educational, cultural, archaeological, or aesthetic qualities…[with] national, and in some cases international, significance." This Act has shown promise in protecting submerged cultural resources within sanctuary boundaries primarily because of two sanctuary regulations that prohibit the following: 1) removal of, or injury to, historic sanctuary resources and (2) any alteration of the seabed. These regulations have provided broad protection of underwater cultural heritage, and though challenged legally, both have been upheld in court (Varmer et al. 2010:137-139).

ASA, SMCA, and NMSA combined with the other federal laws for all archaeological resources suggest an increasing awareness of underwater cultural resources' potential significance and cultural value, but the US policies are still a patchwork that are not applicable to many underwater cultural resources and still lag behind more comprehensive policies, such as found in Australia (Hosty and Stewart 1994; Green 1995; Nutley 1998; Jeffrey 2002) or Sweden (Grissell and Randall 1999; Kristiansen 2000). Outside of national waters, there have been attempts to establish international policy for protection of underwater cultural heritage led by UNESCO (United Nations Convention on the Law of the Sea 1982 (UNCLOS III) and UNESCO *Convention on the Protection of the Underwater Cultural Heritage* (2001). The comprehensive

regime of the latter convention has reignited debates between those who favor such a policy

(Phelan and Forsyth 2004:119-139) and those who find it too restrictive and filled with too much

regulation (Bederman 2004:140-161).

Policy debates over ownership, protection, preservation, and management of shipwrecks,

highlight the special relationship ships have to heritage in general. Since ships are not as limited

by geographical boundaries as terrestrial sites, they represent various societies and heritages

simultaneously throughout their life spans. As discussed previously, a ship is a focal point for

overlapping heritages on global, national, and local scales (Figure 2.1). As the remains of ships,

shipwrecks inherently possess this overlap too, and discussions about their place in heritage are

contested between competing perspectives, which find ultimate manifestation in policy, upheld

or removed through litigation, but often begin through ethical considerations. The relationship

between the law and professional ethics is important to understand as archaeological ethics have

helped determine the nature and scope of cultural resource legislation and vice versa (Mather and

Watts 2002:603).
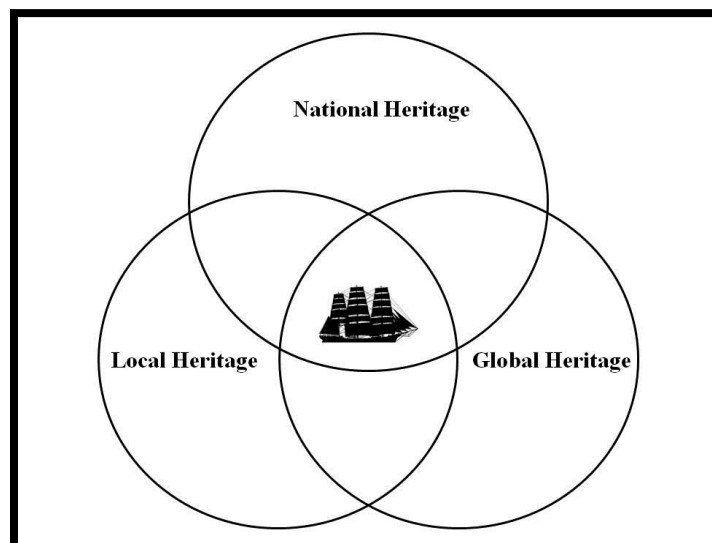
Figure 2.1: Ships were vectors of cultures and could simultaneously represent all three
scales of heritage during their careers (figure by author).

Archaeology in general – and maritime archaeology in particular – is obsessed with establishing an identity through expressions of 'ethical' and 'unethical' behavior and has long maintained a set of informal ethical principles (Flatman 2007a:85). Many archaeological organizations and societies have produced formal codes of ethics, which vary in length, detail, and content (Mather and Watts 2002). Two reasons for the field of maritime archaeology to focus much of its attention on ethical behavior are that as a young field, it is still trying to legitimize its own identity, and in doing so, it is still struggling to separate itself from treasure hunting – with which it is continually confused and conflated in the public, the media, and by treasure hunters themselves (Flatman 2007a).

In fact, many treasure hunters offer their own code of ethics which are similar to archaeological code of ethics in many ways – except for the ethic of dispersion of artifacts through the private market (Odyssey 2010). Further, they argue that they do the same activities that archaeologists do, such as recruiting trained professionals, publications, and museum exhibits. They also proclaim that they only sell "redundant" artifacts after thorough documentation (Mathewson 1996, 1998; Mather and Watts 2002; Odyssey 2010).

Maritime archaeologists counter that the failure to keep collections together, the sale of artifacts, and the destruction of the resource base for commercial purposes is a violation of the basic archaeological code of ethics. Further, any work done for profit creates conflicts of interests that inevitably result in abandoning proper research methodology and creating unnecessary damage to the cultural resources. Even the most responsible treasure salvage damages the resource base for private gain and not for the public good (Cockrell 1980; Nutley 1987; Jameson 2000; Moe 2000, 2002; Giesecke 2002; Mather and Watts 2002; Phelan and Forsyth 2004).

The recriminations continue back and forth, again illustrating the zero-sum quality of maritime archaeological heritage resources. Often in these contested arenas, the archaeologist creates self-inflicted wounds with the public and allows treasure hunters to construct the archaeologist as another "preachy," scientific elitist, who wants to keep the public off shipwrecks for their own selfish research agendas. (Cockrell 1980:333-334). The dissonance and contention between the two sides are struggles for political, social, and economic control over the use, ownership and meanings of maritime heritage resources. Each stakeholder is trying to establish its own identity and definition of what a shipwreck means as a heritage resource. In this way, shipwrecks are no different than any other type of heritage. The contention over the dominant meanings and use of shipwrecks are played out in different arenas: policy, litigation, ethics, and most visibly – public opinion.

Public Outreach as Heritage Construction in Archaeology

The one area where there is agreement among all stakeholders (terrestrial, maritime, and CRM archaeologists – and even treasure hunters), most policies, and codes of ethics is the importance of public outreach and education. They are the means to raise awareness about different interest groups' perspectives toward archaeological heritage resources, thereby raising interest and investment in the values of the resource base. For archaeologists, it is almost axiomatic that archaeological heritage should be preserved and disseminated for and in the public interest (Cleere 2000; Lipe 2002; Smith 2002; Watts and Mather 2002).

There are several reasons for the intense focus on public outreach, ranging from altruistic to practical self-interest. First, there is the obvious component of education. Archaeologists have long recognized that a significant portion of the public is intrigued by archaeology (Fagan

1984; Allen 2002; Smith 2002; Scott-Ireton 2007). It stirs the public interest like few other topics. It is solving a detective story, finding missing pieces of the puzzle, understanding an instilled sense of identity, making emotional and intellectual connections, entering global discourses and debates on heritage and heritage preservation. These characteristics are what Jameson and Scott Ireton (2007:1) call "the nexus of cultural values that define the meaning of archaeology to individuals and public at large." In a poll sponsored by the Society of American Archaeology (SAA), 99% of respondents believed that the one of the primary values of archaeology is education (McManamon 2002:37).

Museums are the traditional and natural formats to educate the public about archaeological resources. They have developed a myriad of ways to engage the public, ranging from conventional exhibits to internet resources and online curricula for schools (Smith 2002:586-587). However, archaeology has other avenues for public outreach that can be as educationally effective (Allen 2002:244-245). Innovative programs transcend museum walls and allow people to experience a site or dig to varying degrees. Examples include allowing people to visit or even participate on an archaeological excavation, providing information on the internet, and offering public symposia or workshops (Lerner and Hoffman 2000; Childs 2002; Moe 2002; White 2002).

Compared to terrestrial sites, creating effective interpretive and outreach initiatives for maritime archaeological heritage resources present specific challenges because "The fact that the general public rarely has the opportunity to view shipwrecks sites immediately poses problems in persuading them of the importance of something that they cannot see" (Staniforth 1994:13). Since raising, conserving, and displaying a full-sized shipwreck is cost prohibitive, material must be disseminated about shipwrecks laying *in-situ*. Maritime archaeologists must employ

innovative interpretive strategies, rather than relying on museum exhibition techniques, to illustrate and emphasize the cultural value of the shipwreck (Scott-Ireton 2007:20-21).

Fortunately, modern technology has opened up more opportunities and greater access to submerged sites, vessels, artifacts, and data (Jameson 2007:15). Jameson and Scott-Ireton's (2007b) edited work, *Out of the Blue*, provides great examples of some of these strategies. Frequent efforts include community programs (Nutley 2007; Mastone and Trubey 2007), heritage and diving trails (Leshikar-Denten and Scott-Ireton 2007; McKinnon 2007; Smith 2007), recreational diving programs (Wilde-Ramsing and Hermley 2007); and virtual trails leveraging the internet for multi-media experiences (Watts and Knoerl 2007). Maritime trails in particular are a favorite tool for public outreach, used worldwide partly because they are cost effective, allow flexibility to change information when new data is available, allow public to learn at their own pace, and can offer non-diving and diving populations a chance to learn about the same shipwreck in different ways (Watts and Mather 2002). Scott-Ireton (2007:20-23) compared preserves and trail programs around the world and found three common ingredients for success regardless of the type of resource or environment: (1) community involvement, (2) effective interpretation, and (3) active management. The three ingredients are most successful when applied cooperatively so that each compliments the other to create a program that balances public use with resource preservation.

Additionally, an educated public maximizes the effectiveness of legislation, management, and preservation efforts. The role of outreach is explicitly acknowledged and required in several pieces of federal legislation (National Historic Preservation Act of 1966; Archaeological Resources Protection Act of 1979; Abandoned Shipwreck Act of 1987). Direct mandates

through these policies, government agencies, and financial agencies such the National Science Foundation have increased the role and importance of outreach in most archaeological projects.

Managers and archaeologists consistently argue that the most effective way to preserve archaeological sites, whether on land or underwater is to instill in the public the concept that these places and objects have value. The ultimate goal of archaeological education is to protect archaeological heritage resources by delivering messages that foster stewardship values and preservation ethics. The belief is that if people are better aware of an archaeological sites' significance, they will become more invested in their preservation and become stewards themselves (Lerner and Hoffman 2000; Metcalf 2002; Moe 2002; Philippou and Staniforth 2003; Jameson 2007; Nutley 2007; Scott-Ireton 2007). Still, the public has continued misunderstandings about basic archaeological goals for preservation such as not fully realizing that sites and artifacts are irreplaceable and the role they play in heritage (McManamon 2002; Moe 2002).

A final reason for the importance public education is probably the most self-practical one for the discipline of archaeology: funding. If archaeologists do not reach out to the public, whose taxes usually support projects, they will not only lose public support but also financial support as Hocker (as quoted in Young 2002:240) commented when a professor was not able to describe what archaeologists do:

> [It is] one of the worst habits developed by many research professionals and a primary reason for the difficulty of funding archaeological research in US. If archaeologists could pay for work and if it were only important to archaeologists we could be as obtuse as we like but we do not have that luxury…like it or not we are in the public education business. It goes without saying that with diminishing federal funds…the public's understanding of the mission of archaeology is essential if the discipline is to survive.

Professional archaeologists must assign credit and status to efforts to engage with the general public because it is ultimately the public who pays the bills for archaeological research (Potter 1994; Lipe 2002).

While archaeologists and managers struggle to change public perceptions of what shipwrecks represent and endeavor to develop engaging interpretations, there are conscious choice about what and what not to include (Jameson and Scott-Ireton 2007a; Scott-Ireton 2007). Like other forms of knowledge, the nature of this information is susceptible to social and political influences. For instance, archaeologists and heritage managers have different interpretations of artifacts and sites based on their viewpoints or theoretical frameworks. Potter (1994) calls for archaeologists to be self-reflective towards the societal processes affecting them to prevent them from unknowingly affirming dominant meanings of heritage and interpretation. He states, "One does not make archaeology political; archaeology *is* [sic] political" (Potter 1994:40). He urges professionals to reflect and identify which interests their interpretations are serving and then decide whether those are interests they care to support.

Presented interpretations are often derived from processes of discussion and negotiation, and they may change through time (McManamon 2002:32-35). In this way, archaeological sites are no different than any other places of heritage. They do not simply exist passively, but are actively constructed and influence the present. Likewise, presentation of archaeological sites as a form of knowledge are often far from neutral, and like all texts, have the capability of being read differently from the intentions of those selecting messages (Shurmer-Smith and Hannam 1994). Those who manage, study, and present the past to the public should be aware of how the past is understood within the context of socio-economic and political agendas (Leone et al. 1987; Potter 1994; McManamon 2002; Jameson 2007). Maritime archaeologists also need to be self-

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reflective and critically analyze the material they are presenting to avoid simple promotion and promulgation of dominating narratives of national, local, or global heritage (Samuel 1998; Flatman 2003, 2007a, 2007b).

People bring their own expectations and preconceptions of what the past was like and what various aspects of archaeological record might mean (Lipe 2002). Since archaeological sites are places associated with past people, events, and historical processes, contemporary individuals use these associations to evaluate their own personal conditions. Therefore there is not a "one size fits all" message. Effective interpretations allow room for multiple viewpoints and message. Maritime archaeology has the potential to bridge between disparate communities by focusing on common stories of the sea, such as immigration, and cultural intermixing of ships' labor force and shore-side communities (Potter 1994; McManamon 2002; Metcalf 2002; Flatman 2003, 2007a, 2007b).

Conclusion

This chapter has taken a broad look at various, important aspects of heritage and the role archaeology plays within it. Of course, for each subject area much more could be said as each contributes significantly to meanings and constructions of heritage. Any heritage resource is a cultural product and political resource that conveys knowledge and meaning of the past to the present and the future, and is often said to have "cultural capital."

Popularized by French sociologist and anthropologist, Pierre Bourdieu, the concept of cultural capital refers to forms of knowledge, skills, education, and education that provide rank and status in society (Bordieu 1986). Heritage is one form of this knowledge with profound consequences to a group's cultural capital if it is able to establish its meaning of heritage as the

dominant version (Graham et al. 2000). Constructs of identity, legitimization, and validation are all affected by the outcome of these processes. Therefore, the social and political stakes over construction of heritage are high as one group's definition of heritage often (but not always) disinherits another's identity. This is why heritage is considered inherently dissonant and contested.

However, there is another form of capital that exacerbates these contentions characteristics of heritage: the economic capital. Heritage resources' exist in space, place, and landscape, and each of these are areas of consumption that are arranged and managed to encourage that consumption (Sack 1992). This fact creates a duality within heritage because it shifts the debate away from heritage resources' cultural values and focuses it on the economic benefits and costs of preservation. The next chapter discusses the issues, debates, and literature surrounding economic values of heritage and maritime archaeological heritage resources.

CHAPTER 3: VALUING ARCHAEOLOGICAL HERITAGE

Introduction

Valuing archaeological heritage resources is challenging due to the dual nature of the values inherent in them. The previous chapter explored the first part of this duality, which are the cultural values society places on these resources. This chapter turns to the second type of value inherent in cultural resources: their economic value. It discusses the challenges of trying to estimate the economic value for public goods such as cultural heritage resources. It examines the theory and methods of the private market, and how these mechanisms have influenced the trade of archaeological resources. Since the influence has not always been positive, there is a brief examination of the illicit antiquities trade as well as how the ethos of private ownership has influenced maritime archaeology and why it is difficult to counter. The chapter also discusses legal market practices such as cultural tourism and discusses its benefits and costs. After exploring the private market, it then explores non-market values, defining them and presenting the challenges of measuring them within a relatively new field of Cultural Economics. The theory of cultural capital is explained and methods used to measure cultural and economic values. This includes an overview and literature review of non-market valuation methods with discussion over the methods used for this study: choice experiment along with its structural economic theory of random utility model. Finally, the chapter examines the role economics plays in shaping and influencing policy and public opinion, and why it is important for managers to recognize this for maritime archaeological heritage.

Estimating Value as a Contested Value

Placing economic value on cultural resources comes with its own process of contention and dissonance. Economist Douglas Noonan (2002:1) suggests, "It is perhaps pouring gasoline onto the fire to invite an economic approach to the issue of cultural value." The reason is that when economists enter in the arena of placing value on cultural resources, they are often regarded with suspicion or simply dismissed. This attitude is usually held by professionals and scholars involved and associated with preservation of heritage (such as, preservationists, conservators, archaeologists, heritage managers). Individuals in these fields often value cultural resources for their intrinsic, intangible, and collective merits, and reject that these qualities can simply be reduced to monetary worth. They therefore distrust applying economic theories associated with profit-maximizing firms to cultural resources (Graham 2000:131; Scott-Ireton 2007:19). Cultural economist, David Throsby (2001:12-14) offers another, concise proposition why heritage professionals distrust economic valuation: "*the economic impulse is individualistic, the cultural impulse is collective* [sic]." This statement asserts that economic behavior expressed through private markets reflects individual goals of consumers and producers trying to maximize their satisfaction and profits. Contrarily, cultural behavior reflects a desire for a collective experience, production, or consumption derived from a set of cultural beliefs, aspirations, and identity.

Throsby's pithy assertion captures the considerable tension and distrust among different stakeholders over use of heritage resources where goals of preservation and consumption via tourism are desired but often conflict (Morgan and Pritchard 1998; Graham et al. 2000; Chhabera et al. 2003; Pretes 2003). Tourism professionals tend to come from the business worlds of tourism or marketing and serving primarily commercial stakeholders. They value cultural

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resources for economic value, or their ability to generate tourism activity and wealth. The goals

for professionals in fields of cultural heritage and preservation maintain are to serve the

collective good of society through stewardship of resources, and their stakeholders tend to be

from the public sector.

McKercher and du Cros's (2002) *Cultural Tourism* provides an excellent synthesis and

summary of the mechanisms, perspectives, and agendas behind these conflicts by deconstructing

various elements into components and offering models that demonstrate the complex interplay

between different stakeholders. Managers must balance the needs of the different stakeholders

and consumers with the needs for the resource in order to sustain, preserve and maintain it. This

often means adopting a pragmatic approach, which requires some type of valuation to establish

priorities and realistic goals. This approach may be distasteful to some, but at some point,

however, three simple propositions are the basis for its justification. First cultural heritage costs

money to preserve and maintain. Second, cultural heritage earns money and has potential

benefits for both the resource and society. Third, public policy is often made based on economic

cost-benefit analysis, and policy makers will often base their judgments on numbers over

anecdotes. These propositions place heritage within an economic system and create the necessity

that heritage management be approached in part as an economic phenomenon (Graham et al.

2000:129-130). They also make some type of economic valuation necessary. The field of

economics has some useful insights and tools that can be utilized towards this aim, but

historically the most appropriate tools have not been used.

The Private Market and Cultural Heritage

Economics is the study of how society and individuals allocate resources under the condition of scarcity. This definition implies choices and *opportunity costs*. An opportunity cost is the economic cost of undertaking an action equal to the value of the next best alternative sacrificed (Waldmen 2004:2-3; Snowball 2008:3). Most economic textbooks begin with detailed explanations of utility, consumer, and producer behavior theories as they are the foundations for economics and the private market system (Varian 1987; Waldmen 2004). A private market is a system that attempts to solve problems of resource allocation by allowing buyers and sellers to pursue their own self-interests and make individual decisions, operating under the well known components of supply and demand. Demand reflects preference of consumers' willingness to pay for a good, while supply reflects the quantity of the good producers would like to sell at a given price (Waldmen 2004).

Consumers are assumed to want to maximize their satisfaction (or *utility*) with a good or service given their particular constraints (e.g. income and time). This is known as the theory of utility maximization, and it is the foundation for understanding consumer behavior. Consumer behavior involves consumers choosing between bundles of different goods or services and is based on several assumptions about consumers' preferences. A primary assumption about behavior is that individuals are rational decision makers. Here rationality is not a philosophical term, but a mathematical construct allowing for consistent preference mapping. For any bundle of goods or service, a consumer must decide how much he or she is willing to pay to acquire goods or services. The consumer may be willing to pay more than the actual price. The difference between the maximum amount someone is willing to pay for a good or service and the amount he or she actually has to pay is known as *consumer surplus* (Figure 3.1) (Tietenburg

2003:64; Waldman 2004:102). Conversely, producers want to maximize their profits in order to

consume their own goods and services. Profit maximization is the fundamental behavioral

assumption that producers always attempt to make the largest profit possible by maximizing the

difference between total revenues and total costs, or *producer surplus* (Figure 3.2) (Varian

1987:262; Tietenburg 2003:64-65; Walden 2004:174). Operating under these theories and

assumptions, market demand and supply can be calculated to model market equilibrium. The

actual price level will adjust until consumers and sellers each maximize their particular surplus,

or when supply equals demand. This is known as *market equilibrium* (Figure 3.3). Market

equilibrium is achieved when every economic agent (consumers and producers) is doing the best

it can, and therefore no agent wants to change its behavior. It is at this point the market is also

said to be operating *efficiently*.
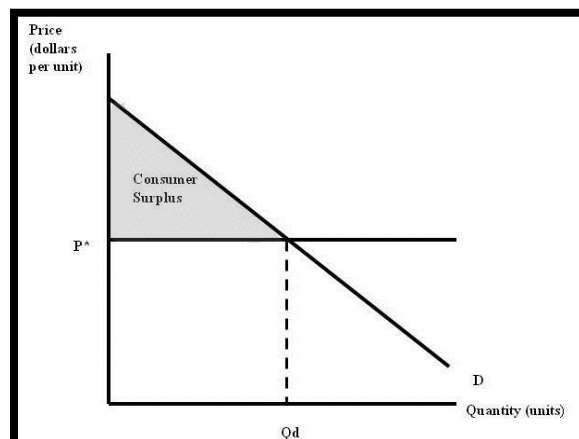
Figure 3.1: Consumer surplus is geometrically shown by the shaded area under the
demand curve (D) minus area under the price line (P*) representing costs of given
commodity (figure by author).
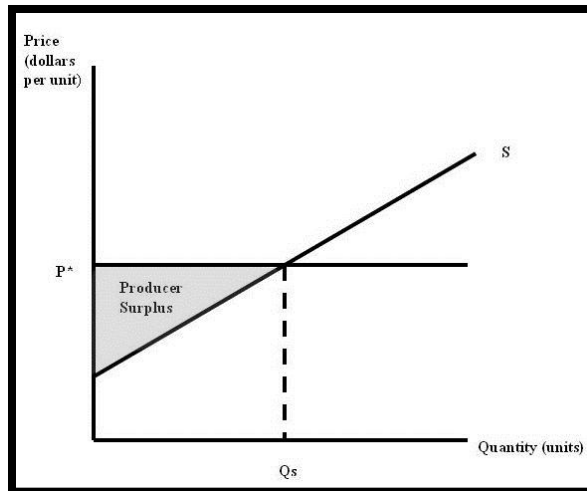
Figure 3.2: Producer surplus is geometrically shown by the shaded area under the price line (P*) over the marginal cost curve (S) (figure by author).
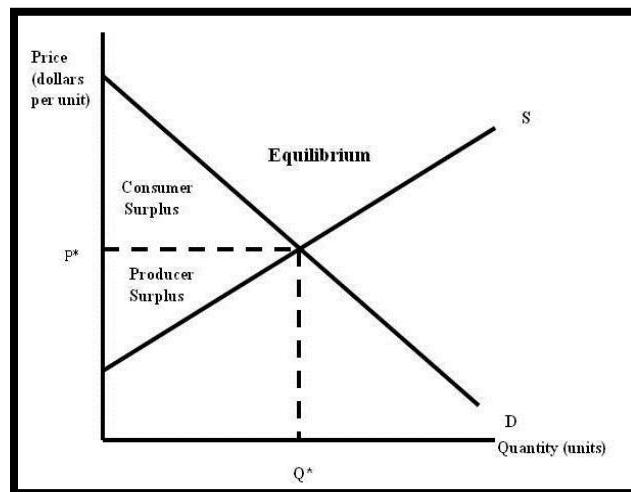
Fig 3.3: Market equilibrium is achieved when consumer and producer surpluses are equal at intersection of P* and Q* (figure by author).

Efficiency is not achieved because agents are seeking it. Rather, each agent is acting out of self-interest to maximize their own surplus, or net benefits. In order to achieve this efficiency, there needs to be well-defined property rights that state owner's entitlements, privileges and limitations for use of a resource. An efficient property right has three main characteristics (Throsby 2001:22; Tietenburg 2003:62; Walden 2004:4-22):

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1. Exclusivity: all benefits and costs of property accrue to owner
2. Transferability: property can be voluntary transferred from one owner to another
3. Enforceability: property cannot be violated by others

In a perfectly competitive market system with well-defined property rights, the individual

behavior of consumers and producers, working for their own self-interest, guarantees the

efficient allocation of society's resources (Tietenburg 2003:62-66; Nicholson 2004:14; Waldmen

2004:530).

This system may operate well for some cultural goods, such as art, furniture, and other

collectibles. For these commodities a set of prices may be derived through the principles of

supply and demand as they generally have efficient property rights. Archaeologists acknowledge

the role of the private market in these legitimate activities (Renfrew 2000:16-17), but there are

significant problems – in theory, practice, and policy – with relying on the market to determine

value for all cultural resources. Setting aside for the moment the difficulty in establishing the

economic value for cultural resources, a critical issue regarding these resources involves

ownership: can the past be "owned?"

While the answer depends on the perspective of different stakeholders and interested

agents (Skeates 2000:19), professional preservationists and archaeologists hold that the past and

its material remains represent the collective efforts of past cultures and also represent

contemporary cultures' heritage and identity. Therefore, they argue that the past belongs to no

single individual but is a communal and collective good. As a matter of policy, governments and

international agencies have consistently and repeatedly reinforced this viewpoint by passing laws

that make collecting and selling of archaeological artifacts illegal (UNCLOS III; UNESCO 2001;

Churchill 1993; National Park Service Cultural Resources Program 1993; Nutley 1998; Jeffrey

2002; Phelan and Forsyth 2004). These laws often are insufficient, however, due to limited

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ability to enforce them and a strong demand by private collectors to consume and own antiquities.

This demand has created a black market that encourages looting of archaeological sites for illicit sale of artifacts that has been tacitly supported and encouraged by private collectors, dealers, and in some cases museums (Renfrew 2000; Skeates 2004). Demand for antiquities is founded on a strong tradition of collecting in North America and Europe. During the Italian Renaissance, princes, aristocrats, and museums (such as the Vatican's Belvedere) sought to stock their private collections with Classical Statues and Art. In the 18th century nations like Britain and France were competing to fill their national museums with most impressive artifacts they could find, usually by taking them from other countries.

This process is echoed today when private collectors, galleries, and museums constitute the main consumers of illicit antiquities. These consumers are often genuinely interested in the historical and archaeological artifacts, but ironically provide incentive for continual looting and damage of the resource base (Renfrew 2000:17-27; Skeates 2000:41-42). Looting – defined as the illicit, unrecorded, and unpublished excavation of ancient sites to provide antiquities for commercial profit – is closely connected with archaeology and archaeological heritage (Renfrew 2000:15-16). Renfrew's *Loot, Legitimacy, and Ownership* (2000), Skeates's *Debating the Archaeological Heritage* (2000), and Atwood's *Stealing History* (2004) illustrate the history, rationale and legacy of looters and looting of the archaeological record.

Skeates (2000:39-42) provides a good account of the supply chain along which stolen antiquities flow (Figure 3.4). It starts with local looters. In underdeveloped countries they are generally unorganized, driven by poverty, and exchange found artifacts for money and food, while in more developed regions they are organized and driven either for profit, or for their own

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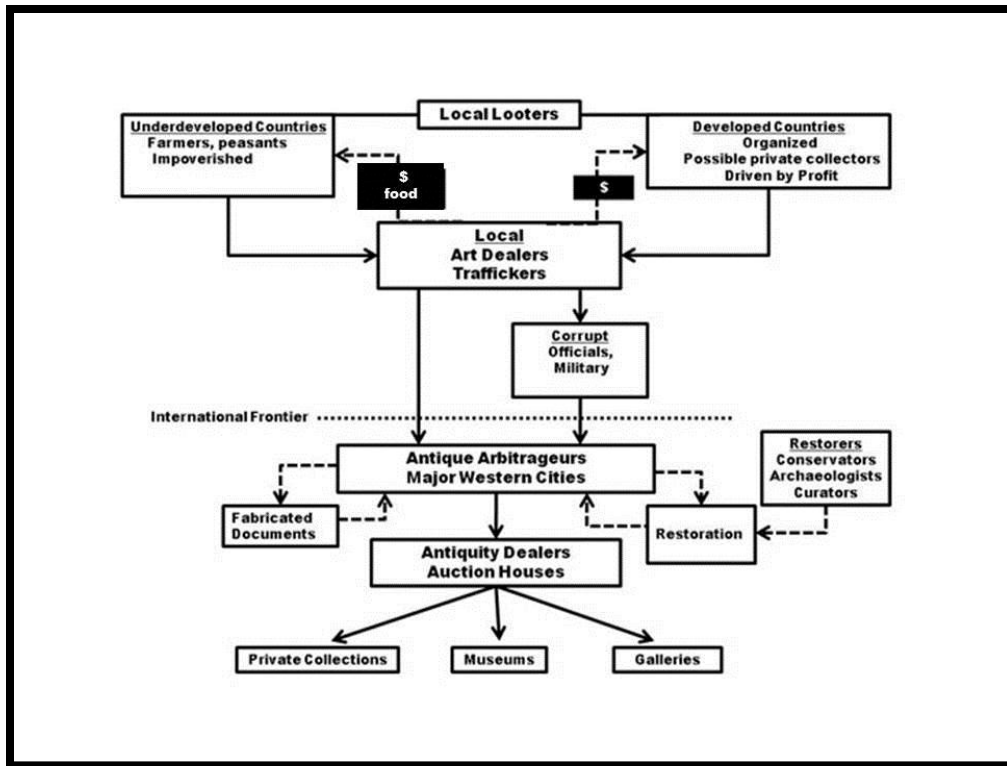
Figure 3.4: Diagram illustrating flow of illicit antiquities (figure by author; created using Skeates 2000:39-42).

collections. Local art dealers and traffickers often helped by corrupt officials facilitate the

transfer of artifacts internationally to major cities in Europe and North America. Here antique

dealers, also known as arbitrageurs (intermediaries who buy goods at low price to sell at higher

price), provide fabricated documentation of ownership along with significant mark-up in price.

Then the objects are restored through unethical practices of conservators, curators and

archaeologists. By the time illicit artifacts reach antique dealers and auction houses, their

ownership and provenance have been laundered and obfuscated to the point where they are sold

legally to their main consumers of private citizens, museums, and art galleries (Walker Tubb

1995:257; Skeates 2000:39-40; Waldmen 2004:29). Often, suppliers are unapologetic, viewing

their roles as honorable and dutiful, represented by the following from a New York art dealer (as

quoted in Atwood 2004:31-32):

I don't care what the provenance of an object is. It's like a baby. The piece is out there, someone has got to take care of it, and it's much better off with someone who loves it than an archeologist who sees it as just the subject of his dissertation. That is the difference between the archaeologists and us. To them, it is simply a document. To me, it is a work of art. It moves me...It's against human nature to tell people not to buy beautiful objects. It's like telling them not to have sex. We can't stop purposeful plunder from here because it has to do with each country's reality. So the argument is that we should restrict the flow of objects to stop plundering, but that will not work because people who collect know that they are not harming a piece but protecting it…

My government is working to put me at a severe disadvantage to European art dealers. But is that going to stop someone in Peru from doffing up tombs? Of course not. These pieces go to Europe now. They will find there a market.

These sentiments are echoed by those who loot maritime archaeological artifacts. In general there are two groups who intentionally damage underwater cultural resources: 1) professional salvagers, who are also known as "treasure hunters;" and 2) recreational divers who seek souvenirs from shipwrecks to take home. Out of the two, the first group is more organized and purposeful. They spend considerable effort and capital trying to legitimize their activities to the public, and they are often successful in their endeavors. Image conscious and savvy with media and public relations, they construct an image of charismatic entrepreneurs risking both financial and personal assets simply to live the American dream of opportunity for a better life through the romantic pursuit of underwater treasure. They create the perception that they are symbols of American free enterprise on the high seas. They simultaneously legitimize their actions by stressing the scientific aspects of their enterprise, using archaeological jargon, aligning themselves with sympathetic professional archaeologists, creating exhibits for the public and manufacturing ethics that conflate archaeological and private market principles (Cockrell 1980; Mathewson 1986; Delgado 1997; Odyssey Marine Exploration 2014a).

They acquire funding for their projects through advertising schemes that attract either investors through the stock market or consumers who purchase real artifacts they removed from

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a shipwreck or replicas (Odyssey Marine 2014b). In either case, they are allowing the public to participate in the market system. This makes their arguments an easy sell because they appeal to Americans' sensibilities of individualism, free enterprise, capitalism, and equal opportunity (Cockrell 1980; Kingdon 1999).

These attitudes are also reflected by the second group, recreational souvenir hunters, who view taking home "trophies" from shipwrecks their right. Popular books on diving, shipwrecks, and divers who died on shipwrecks (Marx 1975, 1990, 1993; Berg 1990, 2010; McMurray 2001; Kurson 2004) all discuss or explicitly promote a culture of looting. There are also several websites that list vessels and offer advice or equipment to "salvage" artifacts, such as portholes, vessel superstructure, or artifacts located inside the shipwreck. Often these items will be put up for sale on internet auction sites. While these activities are illegal, there is little enforcement and so the activity seems legitimate as divers display their "trophies" creating positive feedback for other recreational divers who want to participate in the illicit activity. Further, some claim that they are the benefactors of shipwrecks and maritime history through their removal of artifacts that they argue is actually "rescuing of artifacts…from mother nature." It is the "scientific community" that wants "nothing…displayed to the public and no unidentified shipwrecks would be identified" (Berg 2010:6). Again, they put forth the image of sport divers as intrepid pioneers of underwater exploration whose sole purpose is to save maritime heritage by removing it from danger of the environment – all with no cost to taxpayers.

Meanwhile archaeologists have a harder challenge explaining their position because they perceive archaeological resources are a *collective* public good for all people that should be protected and preserved for current and future generations (Jameson 2000; Moe 2000; Little 2002; Lipe 2002). Kingdon (1999:43-50, 98-100) claims this notion is antithetical to American

Idealism. This puts archaeologists at an immediate disadvantage trying to educate the public about the potential economic values of preserving maritime cultural heritage.

As discussed in the previous chapter, maritime archaeologists usually describe the value of preservation through terms of stewardship, common heritage, ethical principles, and they cite federal and international laws to back up their case (Cockrell 1980, 1981, 1990; Nutley 1987; Jameson 2000; Moe 2000, 2002; Mather and Watts 2002; Phelan and Forsyth 2004). They continually assert the need to educate the public about the importance of the preservation and the benefits educational efforts will have for people and the resource (Little 2002; La Roche 2003, Scott-Ireton 2007). These arguments have the potential to come across as "preachy," elitist, and possibly hypocritical to the general public who wishes to know why "professionals" are allowed to remove archaeological objects and not "amateurs" (Cockrell 1980:333-334). Further, archaeologists must acknowledge that to preserve and protect shipwrecks from looters requires state regulations, and that financial support for their projects usually comes from public funding such as grants, which in turn comes from people's taxes (MacLeod 1977; Lipe 2002; Young 2002). These factors create a dissonance between archaeologists and the public who may have interest in maritime archaeological resources but wonder how preservation of shipwrecks benefits them while simultaneously perceiving only the costs through taxation (Cockrell 1980:333-339).

There have been few efforts to show the potential benefits of preserving maritime archaeological heritage in an explicitly economic context (Throckmorton 1990; Riganti and Willis 2002; Whitehead and Finney 2003; Apostolakis and Jaffry 2005). Of these sources, Throckmorton's (1990) "The World's Worst Investment: The Economics of Treasure Hunting with Real-Life Comparisons," presents the first economic arguments for the benefits of

archaeology versus private salvage in private market terms. According to Throckmorton, the

economic impacts of visitors to maritime museums provide a better return on investments than

investing in private treasure hunting projects, which are usually inefficient projects

(Throckmorton 1990:9-10).   While it is a strong and pragmatic attempt to compare the costs and

benefits of archaeological projects and subsequent exhibits against those of private enterprise, it

is limited in its discussion of the value of archaeology, which indirectly weakens his conclusions.

One of its weaknesses is that it leaves the door open for illegal salvage activities to

assume legitimacy by building a maritime museum to display artifacts and contribute to the

economic impact of the community. It also promotes a perspective of archaeological theory that

does not necessarily follow best archaeological practices as it requires total excavation of a site

without having an explicit research design (Gould 1983; Lenihan 1983; Murphy 1983; Watson

1983). Further, Throckmorton's emphasis on excavation of artifacts, museum exhibits and

tourism expenditures, such as museum entrance fees and diving charters, are often considered the

only economic values of a shipwreck (Whitehead and Finney 2003). This is understandable

since these market values create a recognizable economic impact that is associated with the ever

increasing and influential industry of cultural tourism. Generally, archaeologists link the

economic benefits of archaeological and cultural sites to heritage tourism and private market

models (Scott-Ireton 2007:20).

Cultural heritage tourism is a demand and profit driven activity influenced by market

forces. Tourists demand to consume experiences and the tourism industry seeks to supply them

by using cultural assets as raw materials for these experiences. Travel and tourism contributes

over $759 billion to the United States economy, employs over 7.4 million people, creating over

$188 billion of income, and raises $113 billion in tax revenues for federal, state, and local

governments. Over 118 million (78%) of U.S. leisure travelers participate in cultural and/or heritage activities, spending on average $994 per trip (National Trust for Historic Preservation 2012). The growth of cultural tourism has coincided with increased appreciation of the need to protect and conserve cultural heritage, but also has created problems and challenges for heritage management.

The economic benefits and costs of cultural tourism are well documented (Tribe 1995; Vellas and Bercherel 1995; Graham et al. 2000; McKercher and du Cros 2002). On the one hand, it provides economic stimulus, financial support, and political justification for maintaining and expanding preservation efforts for cultural resources. On the other hand, it can impinge on cultural values and integrity to the resources by damaging sites, overcrowding of cultural facilities and communities, overuse, inappropriate use or development of businesses in culturally sensitive areas, and valuing material worth of cultural assets without regard for cultural value (Graham et al. 2000:20; Leader-Elliot 2001:69; Throsby 2001:129-130; McKercher and du Cros 2002:2; Jameson and Scott-Ireton 2007:3).

One economic tool that is commonly applied to estimate the benefits and costs of tourism to a local community is the economic impact study (EIS). An EIS attempts to calculate all economic activity (such as admission fees, food expenses, travel expenses, lodging, entertainment, and shopping) that impacts an area due to the event or site. It tries to answer the question, "If the event or site had not occurred or existed, what would the loss of revenue to the area have been?" Since EIS focuses on private market transactions relevant to cultural resources, it provides "bottom line" figures that can be easily understood, compared, and influence future policy and funding decisions since (Goldman and Nakazawa 1997; Johnson and Sack 1996; Vogelsong and Graefe 2001; Snowball 2008).

Economic impact studies, however, are prone to manipulation and bias due to the assumptions made about inputs such as visitor numbers, the size of the multiplier and data collection time and method (Crompton 2006; Bragge and Snowball 2007; Loomis 2007). Some criticize the method because it focuses only on the area being studied and ignores the opportunity costs for other regions. This means that communities outside the studied area might suffer economically because there has been a spending redistribution towards the impacted community (Seamen 1987; Madden 2001). Additionally, these studies only measure the short term net increases in economic activity and does estimate longer term non-market benefits, such as the benefits received from the cultural resource's' existence, enhancement of local identity, and opportunity for future generations to visit and experience it (Seamen 2003; Quinn 2006). Because the more non-market values a cultural resource has the smaller the benefits captured by environmental impact statements will be, an EIS may disappoint policy makers who rely heavily on it and could incur public anger who believes money has been wasted (Snowball 2008:43).

Non-market values inherent in cultural resources often represent unseen benefits and are challenging to estimate economically. Neither empirical studies based on private market models nor environmental impact studies will capture these types of values adequately. This is one reason why preservationists in various fields are dubious about an economic approach to valuation of cultural resources. There is a misperception that the economic approach is imperialistic and relies on soulless, cold and calculating actors, but it has a wide range of human behaviors to which its analysis may be applied. Many economists acknowledge that cultural heritage resources do not operate like normal goods in the private market and typically consider them *public goods* (Morey 2001; Throsby 2001; Noonan 2002; Ready and Navrud 2002a; Ready and Navrud 2002b; Snowball 2008).

Public goods require different methods to estimate the benefits associated with their inherent non-market values. Economists have created several different methods for this purpose. The field of cultural economics was developed to understand and investigate the value people place on cultural resources, often adapting and utilizing these methods from another field of economics with similar challenge of estimating value: environmental economics.

Non-market Values and Cultural Economics

Any public good has two defining properties. First, it is *non-excludible*, meaning that it is not possible to keep users from enjoying, or consuming the benefits of a good without payment. Second, a public good is *non-rival*, which is when two or more people can consume the good simultaneously without diminishing each other's enjoyment. For instance, if one person looks at a statue in a park it does not interfere with someone else's enjoyment of the statue at the same time (Ready and Navrud 2002a:4; Tietenburg 2003:72; Nicholson 2004:546-547). Additionally, public goods have different types of values than private goods that cannot be satisfactorily captured by private market models of supply and demand. These non-market values contribute to the total economic value of a resource (Figure 3.5). Economists have categorized the total economic value for public good resources into the following components (Navrud and Ready 2002a:7; Tietenburg 2003:37):

1. *Use Value* is the direct use of resource. In the case of cultural resources, the definition can be refined as the maximum WTP to gain access to the site, such as an entrance fee into an archaeological site or museum.

2. *Option Value* is the value that people place on using that resource in the future. For example, someone might not be currently visiting an archaeological site, but is willing to pay for its preservation so he or she might have the option to visit in the future.

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3. *Non-Use Values* includes benefits that people enjoy because they know a site is being preserved without them participating in its use directly or in the future. Non-Use Values may be further broken down into the following:

    a.   *Bequest Value* is the value people attribute for future generations
    b.   *Vicarious Use Value* is the value people attribute for other uses
    c.   *Existence Value* is the value people attribute to the site's preservation, even if no one ever visits, or simply for its own existence.
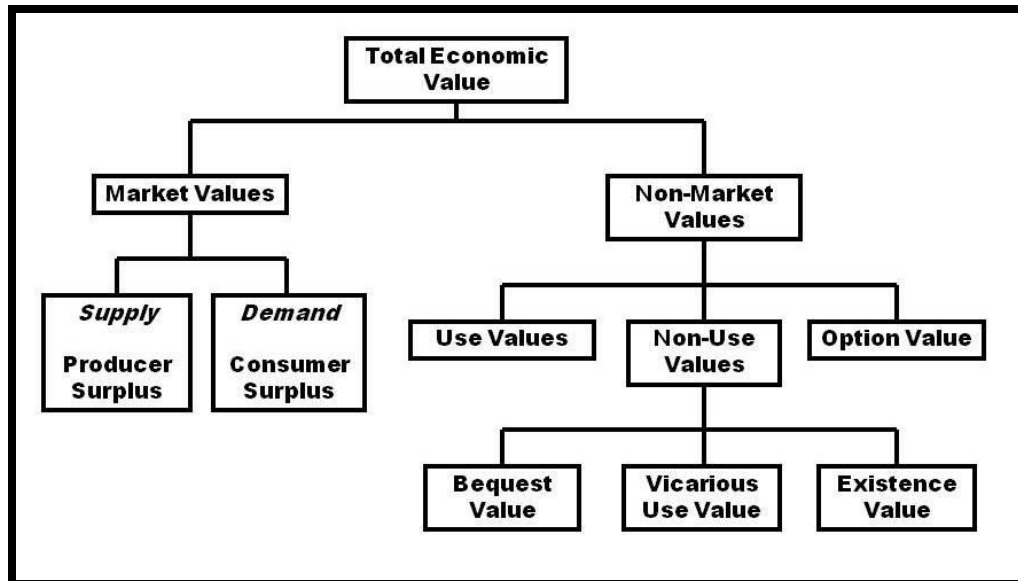
Figure 3.5: Chart illustrating different types of economic values that comprise Total Economic Value (figure by author; created using Navrud and Ready 2002a:7)

These types of values are sometimes referred to as positive *externalities* because they are external to the market (Snowball 2008:77). An externality is defined as an action or decision taken by an economic agent that affects others whose welfare the economic agent does not consider (Waldmen 2004:582). There are also negative externalities. A common example of a negative externality is second hand smoke. Any externality creates market inefficiency since it violates the principle of exclusivity.

Another violation of efficient property rights that is associated with public goods is *free-riding*. A person who is a *free-rider* is someone who receives benefits from a resource or commodity without contributing to its supply. Free rider effects tend to diminish incentive to

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contribute to or to fund adequately a resource (Tietenburg 2003:75; Waldmen 2004:606). This has important consequences and implications for efficient provisioning of public goods like cultural heritage resources.

For example, Ready and Navrud (2002a:4-5) present the case of a hypothetical castle overlooking a town. While the owner of the castle may be able to charge fees to enter, he or she cannot charge, or exclude, people from deriving benefits simply by looking at the castle, or who simply benefit knowing it exists. Further, many people can observe it simultaneously without diminishing the benefits to others who are also looking at it. Since there is no way to capture the non-use values associated with the castle nor keep people from enjoying these benefits at the same time, the owner may allow it to deteriorate since he or she will have little incentive to bear all the costs without receiving all the benefits. Because of its public good qualities of non-excludability and non-rivalry, its preservation would be underfunded.

If private, for-profit providers will not support preservation of cultural resources sufficiently, then it leaves governments and non-profit organizations to do so. Each of these actions has to rely on public funding through taxation and subsidies. These are not mechanisms the American public tolerates well. Kingdon (1999:43-45) describes how Americans view taxes as confiscating their wealth which they believe is their natural right to obtain and keep. They dislike subsidies almost as much as taxes to the point where the United States has tried to hide subsidies for various activities, like the arts and cultural heritage, through manipulation of tax code via charitable deductions or credits (Kingdon 1999:19-21). The implications of either taxation or subsidization for cultural heritage resources create lasting effects since priorities must be set among competing preservation and restoration goals.

The challenges and questions facing valuation of cultural heritage resources are remarkably similar to another area of public policy: environmental resources. Both resource arenas are considered public goods to various degrees, and therefore have issues surrounding proper levels of funding for particular programs, how to fund them, "free rider" issues, and the opportunity costs for other programs (Ready and Navrud 2002:3). Environmental economics was developed to study and deal with environmental cases of conflicting priorities and goals, motivated in part by actual disasters and subsequent national policies. To estimate the total values for natural resources, environmental economists developed a variety of theoretical frameworks and empirical tools that have influence policy decisions at all levels of government (Haab and McConnell 2002). These theories and methods are increasingly being applied to cultural resources through a growing branch of economics known as *cultural economics* (Graham et al. 2000; Throsby 2001; Navrud and Ready 2002a, Snowball 2008)

Snowball's *Measuring the Value of Culture* (2008) provides a solid and readable summary of the various debates and issues within cultural economics, such as defining culture, how to estimate value these resources economically and socially, and justification for government funding to preserve them. Snowball (2008:8-16) asserts that while cultural economics uses theories and methods similar to valuing natural resources it is less developed as a field compared to environmental economics for two reasons. First, economists have been reluctant to discuss 'value' [of cultural goods] as being represented by anything other than market price. Second, the debates over market versus non-market characteristics – and therefore values – are complicated again by the nature of some cultural resources (Snowball 2008:8-16). Cultural resources can display both private and non-market characteristics. For instance, the owner of the hypothetical castle discussed above could exclude visitors from entering the site by

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charging an admission fee, but could not exclude them from enjoying looking at the castle from the outside. Therefore, the castle can be more accurately described as a *mixed* good, or a good with both private and public attributes (Carson et al. 1996; Chambers et al. 1996).

A shipwreck also may be considered a mixed good to a limited extent. Price of admission accrues through the costs for diving gear and to rent a spot on a charter vessel or buy a boat to reach a shipwreck. Once on site, however, there are no limitations to access or what the diver may touch or remove from the shipwreck. This also makes the shipwreck a *res nullius*, or *open-access* resource, where no individual or group has legal power to restrict access and so the resource can be exploited on a first-come, first-serve basis. Open-access resources have given rise to the phrase the "tragedy of the commons," which is applicable to shipwrecks when divers remove artifacts from the vessel. "Tragedy of the commons" refers to open-access resources that have non-exclusivity but are *rival* in nature. This means that any diver can exploit the shipwreck, but when they take an artifact they subtract part of the resource from the amount available, and thus diminishing the benefits to others. Open access to resources will ultimately lead to inefficiency and market failure (Tietenburg 2003:71).

The field of cultural economics is also trying to find appropriate frameworks to handle the inherent dissonance and duality of cultural and heritage resources that make them so often intensely contested. Blaug (2001:124) points out that the field lacks "a single dominant paradigm or overarching intellectual theme that binds all its elements together." There have been calls to abandon neoclassical economic theory altogether because of its focus on rational choice and utility may devalue cultural goods (Klamer 2003:3-10). This assertion has been countered that the abandonment of utility theory is unnecessary since it does not reject non-market values (McCain 2006:150). Cultural economist, David Throsby (2001, 2005) has offered

an alternative theory of Cultural Capital that could provide a more inclusive framework for

understanding the value of cultural resources within an economic context.

Theoretical Framework of Cultural Capital

David Throsby introduced the theory of "cultural capital" as a conceptual means to

bridge "the gap between economics and culture." Throsby argues that cultural capital is a fourth

form of capital, distinct from the following three forms of capital usually identified in

contemporary economic analysis (Throsby 2001:45):

> 1. *Physical capital* is the stock of real goods such as plant, machines, and buildings
> which contribute to the production of further goods
>
> 2. *Human capital* arises from the realization that embodiment of skills and experience in
> people represents a stock that is important in producing economic output
>
> 3. *Natural capital* means the stock of renewable and non-renewable resources provided
> by nature, including the ecological processes of their existence and use
> (physical capital, human capital, natural capital).

He distinguishes cultural capital from these other types of capital stating, "Cultural capital gives

rise to both cultural and economic value, 'ordinary' capital provides only economic value." A

cultural resource may have economic value derived simply from its physical material alone, but

it may be augmented because of its cultural value and offers the following example to illustrate

his point (2001:43 47; 2005:3):

> A heritage building may have some commercial value as a piece of real estate, but
> its true value to individuals or to the community is likely to have aesthetic,
> spiritual, symbolic, or other elements that may transcend or lie outside of the
> economic calculus.

Like physical, human, and natural capitals, cultural capital has its own stock of resources

(e.g. the number of shipwrecks at a given time) and flow of services that may be directly

consumed (e.g. museum exhibits and recreational diving) or used for further goods and services

(e.g. public outreach and avocational training activities). Throsby explains that cultural value stocks exist in two forms: tangible and intangible. Examples of tangible stocks include artworks, buildings, sites, locations, and shipwrecks. Examples of intangible forms of cultural capital include forms of ideas, practices, beliefs, values, or heritage shared by a group. Throsby (2001:46) envisages "both tangible and intangible cultural capital existing at a given point in time as capital stock valued in both economic and cultural terms in its own right as an asset."

Throsby's theory of cultural capital asserts that there is a strong correlation between cultural values and economic values. The challenge is the means of measurement for each type of value. Due to the multi-faceted nature of cultural value, any attempt to evaluate it will have to involve perspectives from different disciplines and various methods. Throsby (2001: 29-30, 86) sets forth some possible methods for assessment of cultural value:

1. *Spatial mapping*: Contextual analysis of object of study, including physical, geographical, social and anthropological to establish framework that informs assessment of elements of cultural value.

2. *Expert analysis*: Input of expertise from different disciplines for purposes of cultural assessment.

3. *"Thick" description:* A means of interpretive description of a cultural object or process which rationalizes…inexplicable phenomena by exposing the underlying cultural system at work and deepens the understanding of the context and meaning of observed behavior.

4. *Content or symbolic analysis:* Methods aimed at identifying or codifying meaning, appropriate for measuring various interpretations of the symbolic value of the work or other process under consideration.

5. *Attitudinal analysis:* Approaches such as social surveying to assess social aspects of cultural value and may applied at the individual level to gauge response or at aggregate level to study group attitudes or seek out patterns of consensus.

In terms of measuring economic value, the challenge is capturing and estimating the non-market and the non-use values associated with cultural resources. Expressing these values in monetary

terms is not always possible but such value estimates can be a useful indication of public (non-expert) opinion and reveal values not associated with purely financial gains.

For this study, the theory of Cultural Capital provided a framework to develop and implement a methodology that would take into account these different types of measurement and the different types of perspectives help by various stakeholder groups. Discussed further in Chapter 5, this methodology involved a multi-staged process designed to explore and understand the differences in attitudes and preferences by various stakeholders who would be directly or indirectly affected by policy decisions regarding preservation of maritime archaeological heritage resources off the Outer Banks. This process adapted information and methodologies from archaeology and social sciences to investigate the six methods Throsby listed for understanding cultural value. Additionally and at the heart of the final survey instrument, a discrete choice experiment was created that not only had the potential to capture economic non-market values, but also measure choice preferences for cultural programs.

Stated Preference Techniques and Discrete Choice Modeling

There are a number ways non-market values may be measured and estimated, and they can be broadly broken into two categories: revealed and stated preference methods. Revealed preference techniques rely on *observed* behavior of consumers, such as travel cost and hedonic pricing methods (Tietenberg 2003:38-41). Stated preference techniques directly ask respondents what value they place on a particular good, service, or change in the status quo for a resource. There has been debate over the effectiveness that of stated preference techniques versus revealed preferences (which are generally preferred), but they are the only way to capture non-use values, such as existence and bequest values which are unobservable and cannot be captured by revealed

preference techniques (Navrud and Ready 2002b; Haab and McConnell 2003). Further, studies have shown that results have proven valid, as Haab and McConnell (2003: 3) state "The debate about valuation by stated preferences is over…" but are quick to caution that no amount of analysis can overcome a poorly designed questionnaire.

The primary stated preference technique used to measure WTP for non-market goods and their associated non-use values has been *contingent valuation methodology*, or CVM. The CVM uses survey questions to elicit preferences for public goods. It asks people what they would be willing to pay for specified changes to the resource. It solves the problem of market-absence by presenting hypothetical markets in which they have the opportunity the good in question (Mitchell and Carson 1989). Developed by environmental economists to estimate values for natural resources, there has been extensive application of CVM in environmental economics for the past thirty years, and there is well-developed corpus of literature, discussing the advantages and problems associated with a CVM study (Mitchell and Carson 1989; Carson et al. 2001; Carson 2009; Haab and McConnell 2003; Arrow et al. 2002; Navrud and Ready 2002b; Haab and McConnell 2003).

The issues debated heavily in environmental economics are present in CV studies of cultural resources, but the literature is more limited. Noonan (2002) provided an annotated bibliography that detailed to varying degrees 52 CV studies published between 1980 and 2002, and classified cultural goods in nine categories. Almost half of these CV studies investigated historic sites and usually focused on issues of preservation or access to a historic building -- such as a church (Willis 1994; Pollicino and Maddison 2001; Navrud and Strand 2002), a castle (Powell and Willis 1996; Willis and Garrod 1998; Scarpa et al. 1998) -- a group of buildings in a city (Garrod et al. 1996; Carson et al. 1997; Santagata and Signorello 2000), a city (Pagiola

1998), or monuments (Morey et al. 1997). A topic area that has only been addressed in two studies is the application of CVM to maritime archaeological resources (Noonan 2002; Riganti and Willis 2002; Whitehead and Finney 2003).

Of the two, Whitehead and Finney's (2003), "Willingness to Pay for Submerged Maritime Cultural Resources," is especially germane and important for this dissertation. The authors examined North Carolina's residents WTP to maintain shipwrecks in their pristine state. They conducted a telephone survey and asked what people were WTP for various levels of shipwreck preservation at various prices. They found that households were willing to pay about "$35 in a one-time increase in state taxes" (Whitehead and Finney 2003:231). They aggregated this estimate using 2000 census data for the sampled regions (approximately 850,000 households) and found that the aggregate WTP was $27.90 million (2001 U.S. dollars), and a 30-year annuity yielding 5% would generate $1.73 million for management of the park. They concluded that if the park could be managed for less than $1.73 million annually, its benefits outweighed the costs (Whitehead and Finney 2003:238-239). This study hopes to build upon Whitehead and Finney's findings and add detail to the value NC residents have for maritime archaeological resources by using different methods and asking different questions. This study was influential as a starting point for this dissertation, but based on the framework of Cultural Capital, a second, less prevalent stated preference technique was chosen – the choice experiment.

A choice experiment (CE) is a type of stated preference technique for analyzing preferences for non-market goods and has significant advantages over CVM. Instead of being asked their WTP for one hypothetical scenario, respondents are presented with a series of choices (profiles) that are formed by bundles of attributes and levels of attributes with price being one of the attributes (Hanley et al. 2001; Snowball 2008). To fit within the discrete choice

theoretical framework, the set of choices must exhibit three characteristics. First, it must be mutually exclusive – meaning that choosing one alternative excludes choosing any other possible choice. Second, it must be exhaustive in that all possible alternatives are included. On a survey, an option that allows decision makers to choose "none of the above" alternatives satisfies this condition. Third, the number of alternatives must be finite. This condition is the defining characteristic of discrete choice models and distinguishes them from regression models since with regression models the dependent variable is continuous, and therefore infinite. Due to these characteristics, CEs are also often referred to as discrete choice experiments (Train 2009).

CE models are derived under the presumed utility-maximizing behavior of consumer behavior, through a subset of consumer theory known as random utility theory (RUT). Originating from the field of psychology and later incorporated into economics, RUT posits choice behavior as probabilistic because researchers have incomplete behavioral information due to a variety of factors that lead to inevitable randomness. Models that account for this uncertainty and randomness by separating the observable and stochastic (unobserved) components are random utility models (RUMs).

RUMs are derived as follows: an individual (n) chooses an alternative (i) among a set of alternatives (j = 1…, J) if and only if $U_{ni} > U_{nj} \forall j \neq i$. Utility itself cannot be measured, however, because there are aspects of utility that cannot be observed, and utility cannot necessarily be compared across people (Train 2009). Utility is decomposed as $U_{nj} = V_{nj} + \varepsilon_{nj}$, where V_{nj} are the observable factors that are presumed to influence utility and ε_{nj} represents the unobserved components of utility that also effect choice. In linear models, V_{nj} (observed factors) is further broken down as $V_{nj} = \beta' x_{nj}$ (where β' is a vector of parameters, x_{nj} is a vector of variables) yielding the representative behavioral model,

$$U_{nj} = \beta'x_{nj} + \varepsilon_{nj}. \tag{Eq. 3.1}$$

Since $\varepsilon_{nj} \ \forall \ j$ is unobservable and therefore unknown, an individual's choice cannot be predicted exactly. Instead, the *probability* of any particular outcome is estimated. The unobserved terms are treated as random with the vector of their joint density ($\varepsilon'_n = \langle \varepsilon_{n1}, \ldots, \varepsilon_{nJ} \rangle$) being denoted as $f(\varepsilon_n)$. The probability that the individual (*n*) chooses alternative *i* can be written is

$$
\begin{aligned}
P_{ni} &= \text{Prob}(U_{ni} > U_{nj} \ \forall \ j \neq i) \\
&= \text{Prob}(V_{ni} + \varepsilon_{ni} > V_{nj} + \varepsilon_{nj} \ \forall \ j \neq i). \\
&= \text{Prob}(V_{ni} - V_{nj} > \varepsilon_{nj} - \varepsilon_{ni} \ \forall \ j \neq i)
\end{aligned}
\tag{Eq 3.2}
$$

This probability is a cumulative distribution. Using the joint density of the random vector ($f(\varepsilon_n)$), this cumulative probability can be rewritten as

$$
\begin{aligned}
P_{ni} &= \text{Prob}(V_{ni} - V_{nj} > \varepsilon_{nj} - \varepsilon_{ni} \ \forall \ j \neq 1) \\
&= \int_{\varepsilon} I(V_{ni} - V_{nj} > \varepsilon_{nj} - \varepsilon_{ni} \ \forall \ j \neq 1) f(\varepsilon_n) \, d\varepsilon_n
\end{aligned}
\tag{Eq 3.3}
$$

In this equation, I ( ) is an indicator function, equaling 1 when the expression in parentheses is true and 0 when false. This is a multidimensional integral measured over the density of the unobserved portion of utility. Different discrete choice models are obtained from different assumptions of this density (Train 2009). The conditional logit model, in particular, is frequently used due to its ease of estimation, and will be discussed further in Chapter 5: Methodology as it was employed in this study.

Compared to CVM studies listed above, there have been few CE studies, but they have been used successfully in the cases where it was applied, such as cultural events (Snowball and Willis 2006); cultural heritage (Garrod and Willis 1999) and archaeological sites (Apostolakis and Jaffry 2005). This is in part due to the following advantages of a CE have over CVM (Snowball 2008: 187-190):

1. Able to describe a good's attributes and trade-offs more accurately
2. Can be less costly due to ability to measure different scenarios with one survey instrument

3. Are better for measuring marginal values of changes which might provide more useful information for policy design
4. May limit biases
5. Provide more detailed description of good

There are still potential biases associated with a CE, however. In particular, there is always risk of hypothetical bias, which is the divergence between real and hypothetical behavior. It is a major criticism of stated preference techniques since hypothetical markets tend to overestimate WTP. Hypothetical bias has been the subject of many studies and discussions designed to attenuate its effects (Bohm 1979; Arrow et al. 1993), such as comparing revealed with stated behavior (Cameron 1992; List and Shogren 1998; List and Gallet 2001; Whitehead et al. 2000), or through questionnaire design considerations, such as consequential design (Landry and List 2007).

Consequential design is a mechanism to attenuate hypothetical bias by presenting a scenario that includes potential real impacts. It is applied in a straightforward manner by simply informing participants that "their responses matter in a probabilistic sense and they should truthfully reveal their preferences" (Landry and List 2007). The implication is that if respondents believe that their responses may actually influence public policy, they will view the hypothetical scenario as real – or at least probable. Consequently, there is no incentive for them to misrepresent their preferences because their best strategy is to answer presented questions as honestly as possible. Often this consequential design is presented through a referendum format, and while there are specific and important methodological reasons for this form, it is evident that people perceive real consequences when attached to public policy mechanisms, such as referendums (Cumings and Taylor 1998; Carson et al 2000; Landry and List 2007).

Economics and Policy

The relationship between economics and culture is perhaps most pronounced in the area of public policy. It is well documented how economics plays a dominant role in the public arena, and its influence with decision makers regarding public goods (Graham et al. 2000; Throsby 2001; Noonan 2002; Ready and Navrud 2002a, 2002b; Haab and McConnell 2003; Kingdon 2003; Tietenburg 2003; Kraft and Furlong 2004; Waldmen 2004). As has been shown, cultural heritage resources will not be adequately funded under private market structures due to their public good characteristics. Therefore, they fall under the auspices of public funding, which puts policy makers in charge of deciding what levels of funding are allocated. When issues involve budgets, benefits and costs, they will naturally turn to economics.

Much legislation and many governmental practices give cost-benefit analysis an important role in the public sector. It is widely used in government decision making because it forces policymakers to define what they expect the government action to do and to consider associated costs with that action. The premise of the cost-benefit analysis is simple: if the benefits exceed the costs, the policy should be accepted. This straightforward premise relies on efficient allocation of resources, which has emerged from economic theory and tools of estimating. Yet, these tools are not full-proof, and abuses occur when only some costs and benefits are considered and inappropriate measures are used to estimate value. If done properly, however, cost-benefit analysis can help justify public policy that might otherwise be ignored or challenged (Haab and McConnell 2003:1-3; Kraft and Furlong 2004:161-165).

Economic assessment of non-market benefits can provide information for policy makers as they make their choices. In their edited work, *Valuing Cultural Heritage* (2002), Navrud and Ready present several case studies of economic estimation for cultural heritage resources. Many

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of these case studies (Mourato et al. 2002; Navrud and Strand 2002; Riganti and Willis 2002) apply a benefit-cost analysis and provide suggestions for policy decisions for the different cultural resources. Riganti and Willis (2002:155) state, "Valuing cultural heritage should not represent a purely academic activity, but *must* be linked with…planning decisions."

Conclusion

The principle of efficient allocation of resources under conditions of scarcity that is the foundation for economic theory is a powerful concept that has strong influence in the public and policy arenas. It is then not surprising that the process of placing economic value on cultural heritage resources becomes itself a source of contention and dissonance within the domain of heritage preservation. Often, this discord centers on private market principles of supply and demand, which has been shown to be inefficient due to the public good characteristics of cultural heritage. As part of the private market system, cultural tourism is usually viewed as a driver of financial benefits through the economic impacts of visitors, but these impacts also come with costs and place managers in a position between balancing the needs of the consumer against those the needs of preserving the resource. Additionally, there are unseen benefits to preservation that neither private market models nor environmental impact statements can capture adequately.

These non-market values are difficult to estimate and some can only be measured through stated preference techniques like the choice experiment. These techniques also have limitations in estimating the true value people have towards preserving cultural heritage. These limitations serve as other points of contention in the process of understanding economic value. For instance, there is skepticism and uncertainty (even among economists) over the applicability of economic

theory capturing the full intrinsic worth of resources that are viewed through the lens of cultural values.

The theory of Cultural Capital was adopted and adapted for this dissertation not as a panacea to these concerns, but to recognize them and to acknowledge the influence both cultural and economic values play in creating the duality inherent in any heritage resource. It served as a beneficial framework in developing the final survey instrument for this study, which combines mixed-methodology framework with a discrete choice experiment to incorporate the different metrics Throsby (2005) discussed for estimating both cultural and economic values. Since this study is the first to attempt this application towards maritime resources like shipwrecks, one purpose is to provide baseline that may be built upon for further studies. Deriving from this baseline data, an auxiliary goal is to offer applied data towards helping policy decision makers understand how the public views and values the maritime cultural heritage of the Outer Banks as well what they consider the benefits of preserving shipwrecks. Economic estimations from this study will inform others as certain decisions are made and progress in terms areas of strength and weaknesses that need to be addressed.

Thus far, Chapters 2 and 3 have taken a broad look at the duality of cultural and economic values ascribed to cultural heritage resources in order to illustrate the different issues and reasons why heritage is considered to have inherent dissonance. They also have provided a general background and context for the various processes as the public negotiates and contests meanings, identities, and values over and about heritage. The focus now shifts focus to how these processes are influencing the specific heritage resources under investigation, beginning with an overview of the Graveyard of the Atlantic.

CHAPTER 4: BACKGROUND TO THE GRAVEYARD OF THE ATLANTIC

Introduction

Ships have sailed, steamed, and motored along the Outer Banks for over 500 years, representing different cultures, industries, and technologies from around the world. Facing numerous challenges and threats as they travelled along the coast, many did not succeed in reaching their intended destination. Instead, they wrecked, succumbing to natural or human factors, or a combination of both, and possibly suffering loss of life and cargo. Some were able to be salvaged if they were close to the shore. Others were not as fortunate and sank to the bottom of the Atlantic Ocean. All became another victim in the area that has ominously been called the Graveyard of the Atlantic (Stick 1952; Farb 1985; Duffus 2007; Brooke 2008; Lawrence 2008).

This chapter provides an overview to the Graveyard of the Atlantic. It first looks at the environmental factors that made North Carolina's coastline one of the busiest shipping corridors in the world, and subsequently how these factors contributed to causing shipwrecks. Next, it presents some of the human causes of shipwrecks, such as naval wars, criminal acts, and navigational errors. These environmental and human factors potentially caused over 2,000 ships to be lost in the Graveyard of the Atlantic, and only a small fraction of these vessels have been relocated – fewer have been archaeologically studied. The third section discusses the role maritime archaeology has played in investigating, documenting, and preserving shipwrecks today. Finally, it examines how shipwrecks have influenced North Carolina's maritime cultural heritage and the construction of identity for the Outer Banks.

Environmental Factors for the Graveyard of the Atlantic

A discontinuous chain of low, narrow, and sandy islands, stretching 325 miles from Virginia to South Carolina defines North Carolina's coastline. These are the barrier islands, and they are the first part of a complex coastal system that has two distinct zones: the Northern Coastal Zone (NCZ) and the Southern Coastal Zone (SCZ). These zones can be divided by drawing a line from Raleigh to Cape Lookout (Figure 4.1). The SCZ stretches from South Carolina to Cape Lookout. It has a steep continental slope that creates miles of wide, sandy beaches resting on short, stubby barrier islands with many inlets and narrow estuaries. The NCZ begins at Cape Lookout and runs northward to Virginia. It has a gentle continental slope that produces a series of long, thin barrier islands with only three inlets consistently open (often small inlets are temporarily created after a powerful storm, but soon close), and expansive
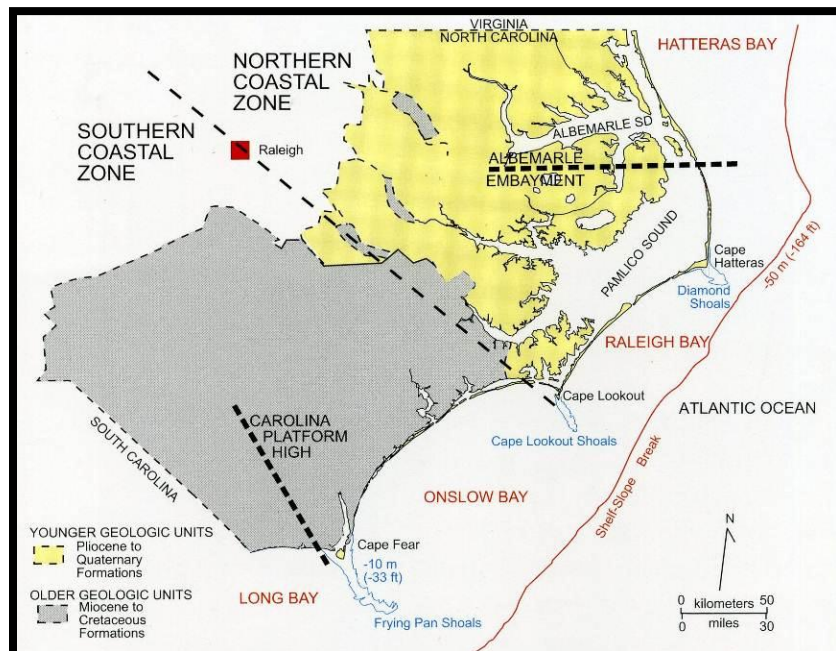
Figure 4.1: Northern Coastal Zone (yellow area) and Southern Coastal Zone (grey area) (Riggs et al. 2011).

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estuaries. Although the barrier islands in both zones are technically outer banks, the epithet – the "Outer Banks" – is usually ascribed to the islands and the 175 miles of coastline of the NCZ (Stick 1958; Brooke 2008; Riggs et al. 2011).

Barrier islands literally act as barriers between the Atlantic Ocean's salt-water to the east and the fresh and brackish waters of the rivers and estuaries to the west. They shelter inland waters and shores from some of the highest energy an ocean storm (a hurricane, for example) can generate, thereby protecting leeward ecosystems. They are geologically characterized by migration and change. Over short time periods, storm-dominated processes build and maintain them. Over longer time periods, rising sea levels and storm dynamics move them westward to North Carolina's mainland. In addition to storm driven processes and sea level rise, the size, shape, and migration patterns of barrier islands are also affected by inlets (Stick 1958; Riggs et al 2008; Riggs et al. 2011).

Inlets are openings between barrier islands that act as pathways for the exchange of fresh and marine waters and are driven by the tides. Where tidal energy is high such as in the SCZ, many inlets are needed to accommodate the exchange of seawater, resulting in numerous short, stubby islands. Where tidal energy is minimal, inlets act primarily as outlets for fresh water flowing out of estuaries, resulting in fewer inlets and longer barrier islands. This is the situation in the NCZ where there are three major inlets: Ocracoke Inlet, Hatteras Inlet, and Oregon Inlet. There are three more, smaller inlets along the Core Banks (New Drum, Drum, and Ophelia inlets), and frequently storm events open temporary inlets, which soon close. Another essential role inlets provide is the transference of sand from the ocean side of the island towards the mainland (Mallinson et al. 2008).

Sand typically moves north to south along the Outer Banks in the long shore current. When it encounters an inlet during flood tides, it is carried through and deposited on flood-tide deltas (FTD) (Figure 4.2). FTDs become colonized by marsh plants when an inlet closes, and provide foundations for barrier islands as they migrate landward. When the tide recedes out of an inlet, sand is pushed seaward and again is deposited, creating ebb-tide deltas (ETD) (Figure 4.2). ETDs are reworked by the ocean's waves and currents into shoals. The shoals eventually merge with the down-current islands, and are essential both to nourish down-current beaches and extend capes, which are points of land projecting into the Atlantic Ocean body of water (Mallinson et al. 2008:1-3).
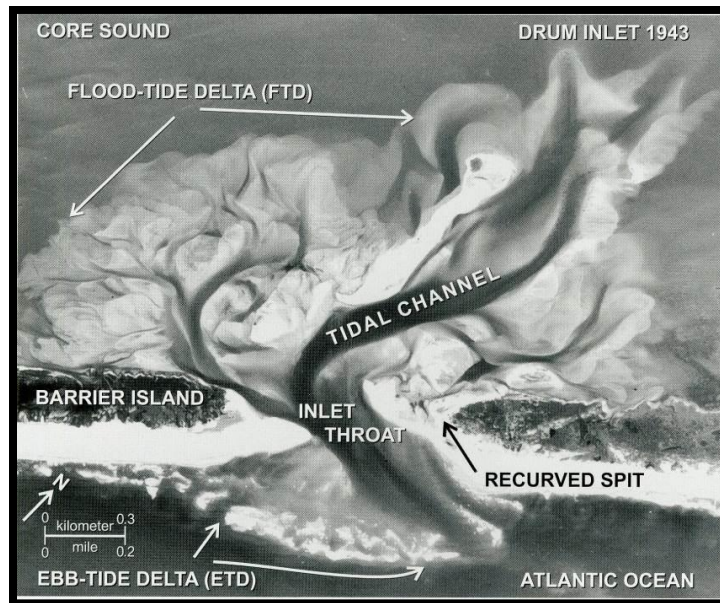
Figure 4.2: Sand transport through an inlet, creating flood-tide (FTD) and ebb-tide (ETD) deltas (Riggs et al. 2011).

North Carolina has three defining capes: Cape Fear, Cape Lookout, and Cape Hatteras (Figure 4.1). For each cape, there are associated shoal systems, known as cape shoals (Table 4.1). Cape shoals are shallow sand bodies that extend perpendicular and seaward from the cape

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(Riggs et al. 2008:3). These cape shoal systems have helped the Outer Banks earn the nickname, Graveyard of the Atlantic, more than any other geological factor. In fact, Diamond Shoals has often been called the "heart of the graveyard." As Duffus (2007:1) states, at Diamond Shoals "geography, hydrology, and meteorology…the principle points of Poseidon's trident…have conspired to cast ships upon the sandy banks of North Carolina's barrier islands." Historian David Stick (1952:1) goes even further in describing the intense scene at Diamond Shoals:

> You can stand on Cape…Hatteras on a stormy day and watch two oceans come together in an awesome display of savage fury; for there…the northbound Gulf Stream and the cold currents…from the Arctic run head-on into each other, tossing their spumy [sic] spray a hundred feet or better into the air and dropping sand…and sea life…Thus is formed the dreaded Diamond Shoals, its fang-like shifting sand bars pushing seaward to snare the unwary mariner.

It is at Diamond Shoals where two powerful ocean currents collide and have created havoc for mariners for hundreds of years.

Table 4.1: North Carolina's Capes and Associated Cape Shoals

CAPE	CAPE SHOALS	DISTANCE (miles projecting seaward)
Cape Fear	Frying Pan Shoals	30
Cape Lookout	Lookout Shoals	15
Cape Hatteras	Diamond Shoals	10

The predominant current of the Atlantic Ocean is the Gulf Stream. Starting in the Caribbean and flowing north along the eastern seaboard, the Gulf Stream brings warm tropical waters to the Outer Banks. It passes closer to Cape Hatteras's eastward projection than at any other location along the American coastline north of Florida (Stick 1958:1-3; Farb 1985:3; Lawrence 2008:3). Since the first European explorers, sailors understood the power of the Gulf Stream and used it to travel from the Caribbean to Europe as it was the most efficient, time-

saving way to sail. Opposing the Gulf Stream is the Labrador Current (Stick 1958:12; Lawrence 2008:3).

A narrow extension of the Labrador Current flows south from northwestern Greenland. It transfers Arctic waters down the coast to North Carolina where it meets the Gulf Stream at Diamond Shoals (Figure 4.3). The Labrador Current's cold waters and winds collide with the Gulf Stream's warm surface waters and trade winds. This collision creates unstable weather conditions, intense seasonal storms, thick fog, and shifting shoals (Stick 1952:1; Lawrence 2008:4).
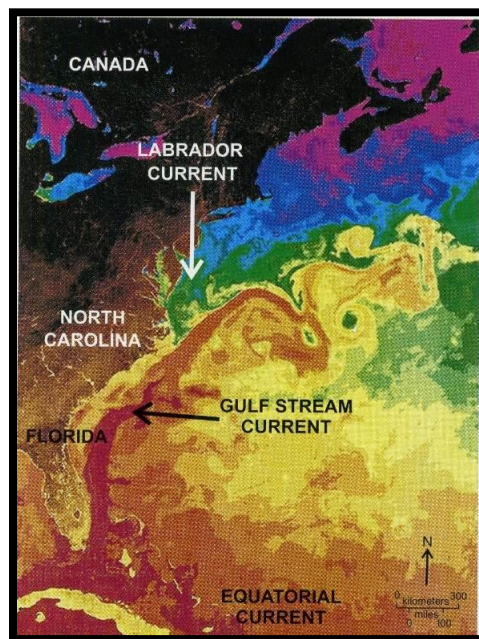
Figure 4.3: The confluence of the Gulf Stream and the Labrador Current near Cape Hatteras, North Carolina (Riggs et al. 2011).

These natural phenomena made travelling past the Diamond Shoals treacherous for mariners. For example, the prevailing winds around Cape Hatteras blow from the southwest and can last for weeks. These winds combined with the powerful current of the Gulf Stream forced

southbound sailing vessels to remain north of Hatteras for weeks. They simply could not beat their way around Diamond Shoals. Sometimes as many as 75 to 80 ships could be seen stalled north of Cape Hatteras. Then when the winds suddenly shifted out of the north, they were often gale force northerlies that thrust ships into the shoals, frequently resulting in shipwrecks (Stick 1952:170). Further, when the wind and sea currents were in opposition, towering waves formed that rolled ships onto their beams, submerged their bows, and smashed their deckhouses, sterns, and rudders. Finally, when the cold north winds of the Labrador Current mixed with the Gulf Stream's warm waters, dense fog formed and blinded a ship's lookouts from the treacherous navigational hazards until it was often too late for the ship (Duffus 2007:27). These types of weather conditions seem innocuous, however, compared to the damage to major weather events that both the Gulf Stream and the Labrador Current could produce. The Gulf Stream is a conveyor of tropical storms and hurricanes. The Labrador Current is a harbinger of nor'easters. All three types of storms have the potential to cause great damage to ships and coastal communities.

Tropical storms and hurricanes are by far the most powerful of these weather events. The breeding and nurturing grounds for these storms are the warm waters of the North Atlantic Equatorial Current, the Gulf Stream, the Caribbean Sea, and the Gulf of Mexico. They usually begin as low pressure systems moving west from North Africa. They build water evaporates creating hot, moist air that rises and slowly starts rotating counterclockwise around a low pressure center. As long as there is warm water to fuel the system, the storm begins to organize with intensifying winds and increasing precipitation. If winds reach 39 to 73 miles per hour (mph) for a sustained period, it is considered a tropical storm. If sustained winds are greater than 73 mph, the storm system is now a hurricane (Riggs et al. 2011:27-28; NOAA 2012).

Both the geography of North Carolina's coastline and its proximity to the Gulf Stream makes the Outer Banks a consistent target for hurricanes and tropical storms. Records of these events began to be kept in the early 1850s. Since then hundreds of tropical depressions and tropical storms and 93 hurricanes have passed within a 200 mile radius of Cape Lookout. Between 1900 and 1999, no less than 64 hurricanes made landfall in North Carolina (Figure 4.4) (Riggs et al. 2011:25-26). These storms often brought immediate and lingering devastation to anything in their paths.
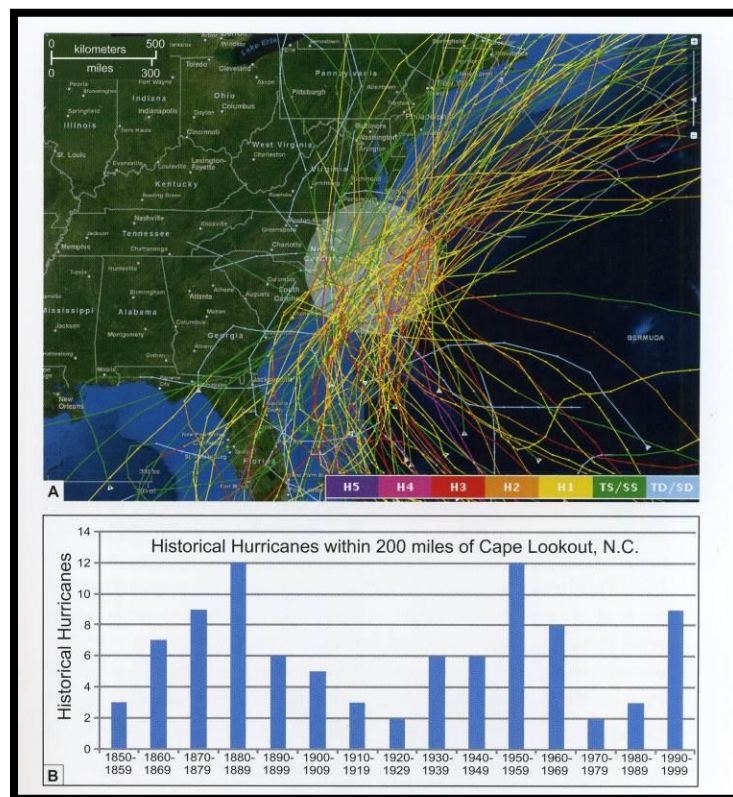
Figure 4.4: Panel A shows hurricane tracks between 1850 and 1999 within a 200-mile radius of Cape Lookout, NC (gray circle). The colors for H5 through H1 represent hurricane strength ranging from categories 5 through 1 respectively. Panel B illustrates the frequency of hurricanes between 1850 and 1999 within the same radius (Riggs et al. 2011).

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For example in 1899, a hurricane named San Ciriaco struck the Outer Banks. San Ciriaco was the longest-lived Atlantic storm ever tracked, and was likely a Category Five (a hurricane with sustained winds greater than 156 mph) when it hit North Carolina. It wiped out fishing villages, flooded entire islands, and wrecked and sunk more than a dozen ships along with their sailors and fisherman (Stick 1952:161-169; Walsh et al. 2009; NOAA 2012). Over 480 ships have been documented as wrecked due to hurricane events along North Carolina since the 17th century. This number could be much higher, however, because of the lack of historical records before 1850 (Jones 2012).

Hurricanes and tropical storms are not the only destructive storm events that hit North Carolina. "Extratropical storms" – also called northeasters or nor'easters – form outside of the tropics, and like hurricanes, they are low pressure systems with counter-clockwise rotation. When low-pressure fronts travel east across the United States during the late fall, winter, and spring months, they meet the strong temperature gradient between the cold land of the Outer Banks and the warm water of the Atlantic. Nor'easters develop around these "Hatteras lows" when the low-pressure system reaches steep pressure gradients created by configuration of the Cape Hatteras coastline where the Gulf Stream's warm waters interact with the Labrador Current's cold waters. Winds typically exceeding 30-40 mph with gusts up to 60-70 mph build high seas that pummel the shoreline. While not as strong as hurricanes, nor'easters can occur any time between November and March generally. They are more frequent and slower moving than hurricanes, and can last several days. This results in sustained impact to a region. If two or three nor'easters occur within a short period of each other, they are potentially as devastating as any major hurricane (Lawrence 2008:5; Riggs et al. 2011:29-31). The October Storm of 1889 provides an illustrative example. At the end of October, a powerful nor'easter swept along the

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Outer Banks, occasionally reaching hurricane forced wind speeds. In one day, this storm wrecked 5 vessels totalling more than 1,400 tons and drowned 24 crewmen (Stick 1952:119-124).

To produce a large number of shipwrecks in any given body or stretch of water, interplay of two factors needs to exist. First, there must be navigational hazards. It has been shown that the Graveyard of the Atlantic has an overabundance of these hazards in many forms. Geological features – such as the barrier islands, shifting inlets, protruding capes, and treacherous shoals – and weather events – hurricanes, tropical storms, and nor'easters as well as changing winds and heavy fogs – have all conspired to ground, sink, and destroy numerous vessels. Still, if it were not for a second factor these natural phenomena would not be factors. The second factor for a high quantity of shipwrecks is not surprisingly a high frequency of vessel traffic. The oceanic highways of the Gulf Stream and the Labrador Current again are the reasons that the Graveyard of the Atlantic has been one of the busiest shipping conduits throughout time (Lawrence 2008:2-9; Mallinson 2008:1).

This high trafficked corridor meant that ships not only faced natural navigational hazards, but human navigational hazards as well. Human factors played major roles in wrecking ships, too. Some were nefarious and dramatic, such as piracy, privateers, wreckers, and naval battles from the Revolutionary War to World War II. Others were mundane and common place events, such as ship groundings, navigational errors, poor seamanship, and collisions. The next section examines some of these events through North Carolina's maritime history.

Historical Background to the Graveyard of the Atlantic

In 1524, an Italian explorer, Giovanni de Verrazano sailed along the Outer Banks, producing the first written records of them. Working for the French government to find a route to the Pacific Ocean, Verrazano mistakenly thought the Outer Banks were an isthmus and that the expansive Albemarle and Pamlico Sounds were the Pacific. For more than 150 years afterwards, French and other Europeans made fruitless searches for what was known as "Verrazzano's Sea" (Stick 1958:12-13). Of course, North Carolina's ocean and estuarine shorelines were not unpopulated lands as Native American habitation of the region can be traced back 12,000 years. By the time Verrazzano "discovered" the Outer Banks, there were already three distinct groups of Native Americans in Eastern North Carolina. The Algonkians lived along the coast, the Iroquian had settled along sounds and inner coastal plain, and a small group of Siouan was in the Cape Fear region (Hanbury Preservation Consulting et al. 2012)

It was probable that Verrazzano encountered some members of the Algonkian tribe. He recounted how a group of Native Americans came to the shoreline when he sent some of his crew to retrieve fresh water from one of the islands. When his sailors could not navigate their tender through the high surf, one of them swam to the shore. He threw gifts to the Algonkians, and then tried to swim back to the boat. He almost drowned, however, because the surf was too strong for him, and would have died if the Algonkians had not rescued him. They took care of him until he was strong enough to return to the boat. It was also the Roanoke Algonkians that provided some of the earliest accounts of European shipwrecks, reporting vessels wrecking at Ocracoke sometime in 1559 and 1564 (Stick 1958:13-14).

Sixty years after Verrazzano, two English ships under the commands of Captains Philip Amadas and Arthur Barlowe arrived at the Outer Banks in 1584. Their mission was to explore

the Outer Banks and the estuaries for suitable location of an English settlement. Barlowe wrote a positive account of the expedition and presented it to Sir Walter Raleigh. Raleigh was motivated to start an English colony at Roanoke. With financial help various London merchants, ship captains, and Queen Elizabeth, Raleigh spearheaded the immense project over the next three years, sending more than 40 vessels and 100 soldiers to Roanoke Island. These efforts produced the first accurate English descriptions of North America via the writings and drawings of Thomas Harriot and John White, respectively. In 1587, Raleigh sent another expedition carrying women and children for the first time. When all the colonists disappeared mysteriously (including the first English born child, Virginia Dare), this attempted colony became infamously known as "the Lost Colony" (Stick 1958:14-21). After the failure of the 1587 Roanoke colony, the English turned their focus away from North Carolina to Virginia and the Chesapeake Bay.

It was not until the late 17th century that English colonists returned to North Carolina in substantial numbers. They first settled in the Tidewater regions partly because the Outer Banks's coastal shoals and the shallow waters of the sounds discouraged development of major shipping ports. By 1710, however, they had established inland towns, such as Edenton, Bath, New Bern, and Beaufort, which developed notorious reputations as safe havens for a growing maritime industry in North America: piracy (Stick 1952; 1958; Wilde-Ramsing 2006; Lawrence 2008).

During the "golden age" of piracy (1713 to 1718), a number of notorious pirates operated off North Carolina, using the isolation of the Outer Banks to attack merchant vessels and then retreating through the inlets to hide in the sounds and rivers. One pirate in particular became strongly associated with North Carolina maritime history, Blackbeard. This was due to Blackbeard's consistent activity along the Outer Banks, surreptitious partnerships with North Carolina governors, the scuttling of his flagship, *Queen Anne's Revenge*, and its sister ship,

Adventure, at Beaufort Inlet, and his fabled, dramatic death at Ocracoke Inlet where his decapitated body supposedly swam around his ship several times (Stick 1952, 1958; Wilde-Ramsing 2006). The shifting sands and shallow waters around the Outer Banks did not only provide pirates like Blackbeard with protection, but also gave shelter to a closely related maritime industry: privateering.

Unlike piracy, privateering was a legal, state sanctioned profession. Privateers were privately owned and operated ships licensed by their governments to carry out attacks on enemy ships during times of war and were employed until the early 20th century. The Roanoke Colony was in fact established originally to provide a base for English privateers to sail out and attack Spanish galleons (Stick 1958; Howard 2004). Yet, it was the Spanish and French who were the first to conduct successful privateering activities along the Outer Banks. During the 18th century, Spanish and French vessels attacked British ships and hid behind the Outer Banks when behind when necessary. They even came ashore to steal fresh beef and mutton at Ocracoke (Stick 1958:299-309). During the Revolutionary War, American privateers were essential in damaging logistical capabilities of the British military and navy, and in providing materials to the colonies. Privateers were a cost-effective way for states to protect their own coastlines without having to finance and outfit a navy or to rely on a national navy (Howard 2004). North Carolina was never at the epicenter of the Revolutionary War or its major naval battles, but the Outer Banks did have some naval engagements. The only physical pieces of evidence of the Outer Banks's involvement after the war ended, however, were a fort built at Cape Lookout, and "the hulks of vessels wrecked or destroyed" (Stick 1958:44-71; Howard 2004).

Piracy and privateering undoubtedly led to ships destroyed or sunk, but sinking a vessel was not the primary goal. Pirates and privateers were more interested in capturing and

commandeering vessels for their own needs. Pirates would take stocks of food, materials, crew members or the other ship itself to suit their own purposes, such as expanding their own crew and fleet. Privateers would make their wages based on the value of a captured ship's cargo. So there was little incentive to wreck a ship, unless it was to send a message, or there was no other choice (Stick 1952, 1958; Howard 2004). There were a maritime industries, however, that made profits from wrecked vessels – and sometimes by *purposefully* wrecking them.

Salvaging cargo from ships that accidently wrecked was an important industry to residents of the Outer Banks, who were often referred to simply as "Bankers." Shipwrecks often provided money and materials for Bankers, who found stranded cargo and then claim shares of the proceeds raised during an *ad hoc* public "vendue," or sale of the goods. Homes, churches, schools and other buildings were built wholly or in part from lumber salvaged from wrecked vessels (Figure 4.5). Practical items were put to immediate use, such as unspoiled food, spirits,

Figure 4.5: The Corrola Schoolhouse reputedly partially constructed from timber of salvaged shipwrecks (photo by author).

cooking utensils, china, furniture, lamps, books, clothing, and tackle. In fact, it has been said that pallbearers would drop a casket on the way to burial if they heard the cry of "Ship Ashore!" (Stick 1952:4; Duffus 2007:30).

Whereas salvagers were pursuing a legal and legitimate profession, some Bankers adopted a more nefarious practice of purposefully causing ships to wreck, or even murdering shipwreck victims to salvage a wreck. These people became known as "wreckers" and gained a reputation of "proverbial crudity." North Carolina's governor described wreckers in 1750s as a "set of indigent desparate [sic] outlaws and vagabonds" (as quoted in Stick 1952:4). The town of Nags Head supposedly received its name because wreckers placed a lantern around a horse's (or nag's) neck and lured ships into the shallow waters where they foundered. This story is probably apocryphal, but the maintenance of law and order was a problem for authorities, who created "wreck districts" and dispatched armed vessels and armed men to recover stolen property (Stick 1952:3-4; 1958:75-77, 298-299; Duffus 2007:32-33). In 1815, a federal investigation looked at whether the keeper of the Cape Hatteras lighthouse was intentionally luring ships to the shallows because he had family and friends who were known wreckers. There were other, more favorable views of wreckers, however, that insisted they were not murderers or scurrilous opportunists. Instead, they were helpful and hospitable to shipwreck survivors and lent assistance in saving cargo (Duffus 2007:33). This assessment likely conflated wreckers with salvagers.

It is difficult to know how many shipwrecks occurred between 1585 and 1815 as accounts are fragmentary and inconsistent. By the 1820s, however, newspapers regularly featured news of shipwrecks and relevant information, such as a ship's name, cargo, passengers, survivors, and location of the wreck. Between 1815 and 1860, at least 116 ships were totally lost. This is an average of over 2.5 shipwrecks per year and does not include other ships that

were partially damaged or were able to be recovered. By the beginning the of Civil War, the Outer Banks had so many shipwrecks that news of them became as routine as traffic accident reports (Stick 1952: 9-49, 244-246).

Unlike the Revolutionary War, the Civil War brought major naval battles, blockades, and wartime shipwrecks directly to the coasts, sounds, and rivers of North Carolina. In 1861, Union forces captured Fort Hatteras and control of Hatteras Inlet. During the winter and spring of 1862, the Union navy swept through eastern North Carolina destroying or capturing Confederate gunboats, forts, and towns, culminating in April with the Union takeover of Fort Macon that protected Beaufort Inlet. This effectively gave Union forces and fleets control of the Outer Banks for the remainder of the war. By 1863, the Federal Navy had control of most of the coastal seaports south to Florida. An exception was Wilmington, North Carolina, which remained open to Confederates throughout the war until January 1865 (Stick 1952:50-60; 1958:117-153).

Federal control of the Atlantic seaboard forced the Confederate States to adopt a strategy of running the Union blockades rather than engage in direct combat. These "blockade runners" evolved a system where they waited for night and then ran full speed as close to shore as possible. Many foundered on sandbars, while others were spotted and chased down by Union vessels. The most frequent result of these pursuits was the Confederates abandoned their ships and then set them afire so the Union troops could not possess them (Stick 1952:50-63; 1958:117-153). Since Wilmington was unblocked until 1865, it became the primary port for blockade runners coming up from Nassau and Bermuda. The remains of a few blockade runners have been discovered in the Albermarle and Pamlico watersheds, however, indicating that they were active in the sounds but to a lesser degree (Stick 1952:60-63; Snyder 2006).

One of the most famous Civil War shipwrecks in the Graveyard of the Atlantic never saw action in North Carolina. USS *Monitor* was an ironclad ship designed by a brilliant Swedish-American inventor and engineer, John Ericsson. It was completely iron-hulled, sat almost totally submerged in the water, and had a rotating gun turret that could fire rounds in a full 360 degree arc. On 9 March 1862, it fought CSS *Virginia* at Hampton Roads, Virginia, in one of the most celebrated battles in U.S. naval history. While neither ship destroyed the other, the battle proved the capabilities of ironclad ships, and henceforth both the Union and the Confederate navies put the energies into developing these types of ships. On 30 December 1862, *Monitor* was being towed by the steamship, *Rhode Island*, from Virginia to Beaufort, North Carolina, to await further orders. As they were rounding Cape Hatteras, gale force winds sprang up and forced *Monitor*'s crew to cut its tow lines. *Rhode Island* sent boats to aid *Monitor*'s crew and took most of them off the struggling vessel, but a few were still trapped inside. Since it sat low in the water and was taking in water, it was only a matter of time before USS *Monitor* sank into the Graveyard of the Atlantic (Stick 1952; Broadwater 2012).

The end of the Civil War did not bring the end of naval warfare along North Carolina's coast. Slightly more than 50 years later, a brief, but silent and deadly war was waged. When America entered World War I in 1917, Germany sent seven submarines, or U-boats, to the United States to attack American vessels. Three of these U-boats (*U-151, U-140,* and *U-117*) created havoc along the Outer Banks, sinking ten ships between June and August 1918 and threatening many others. All three U-boats successfully returned to Germany (Stick 1952:193-208).

U-boats returned to the Outer Banks during World War II. Two days after the Japanese attack on Pearl Harbor and America's official entry into World War II on 7 December 1941, U-

boat captains received orders to attack and sink any American vessel (Wagner 2010:44). Before December ended, five German submarines were moving under the Atlantic towards the United States. By January 1942, U-boats started to attack ships in New England, New York, and North Carolina. On 18 January 1942, *U-66* identified, targeted, and sank *Allan Jackson* – a 6,635 gross ton tanker carrying 72,870 barrels of crude oil – 50 miles east of Cape Hatteras. This was the first victim of Germany's infamous "wolf pack" of U-boats in the Graveyard of the Atlantic, but it would not be the last by far. Soon the waters off Cape Hatteras became the primary battleground along America's coast. The Germans recognized that the busy shipping conduits of the Gulf Stream and Labrador Current formed a "natural choke point" around Diamond Shoals (Hickam Jr. 1989:11). Soon more U-boats arrived, and the Graveyard of the Atlantic began to be called by a new name: Torpedo Junction. Throughout the spring of 1942, 19 different U-boats sank over 40 ships travelling past the Outer Banks (Freeman 1987; Hickam Jr. 1989; Wagner 2010).

By April 1942, the United States began to respond to German attacks through a three-pronged approach of mine fields, convoy systems, and aerial surveillance. The first strategy of laying a strategic network of mines off Cape Hatteras had unintended consequences, blowing-up Allied ships that mistakenly ran into them. The convoy system and aerial surveillance proved more effective in not only protecting ships but also attacking and destroying U-boats. The number of Allied vessels sunk by U-boats had decreased from 24 in April to four between the months of May to July. The number of U-boats destroyed increased from one in April to five between May to July. Attacks continued through July, but in August not one Allied vessel was attacked in North Carolina waters. Unbeknownst to the Americans, Germany had recalled their U-boats from the American East Coast in July, effectively ending the U-boat war in North

Carolina, which has recently been called "The Battle of the Atlantic" (Freeman 1987; Hickman Jr. 1989; Wagner 2010; Monitor National Marine Sanctuary 2011).

Naval warfare, piracy, privateering and wrecking comprise dramatic ways humans caused shipwrecks in the Graveyard of the Atlantic, but there were other, more mundane reasons for ships to sink. A mixture of navigational errors, mechanical or rigging failures, collisions, poor seamanship, and unseaworthy vessels all led to ships failing to reach their intended destination. These reasons were not always exclusive, and one mishap frequently led to another in a cascade of failure (Duffus 2007:27). Perhaps they were not as dramatic causes as warfare, but their effects were equally as costly in terms of loss of a ship, its cargo, and the lives aboard. From 1893 to 1899, an average of almost one ship per week was stranded somewhere on the Outer Banks. Many were able to be saved, however, through the tireless and heroic efforts of a few (Stick 1952:144).

A series of lifesaving professions developed after the Civil War, starting with lighthouses and lighthouse keepers. Although there had been lighthouses on the Outer Banks before the Civil War at Bodie Island, Cape Hatteras, and Cape Lookout, all of them had been damaged during the war. From 1867 to 1875, new lighthouses were constructed, or reconstructed. Cape Lookout Lighthouse was refurbished first. Next, the Cape Hatteras Lighthouse was rebuilt, and the new version became the largest brick lighthouse in the world. Then, the Bodie Island Lighthouse – destroyed completely during the Civil War was also rebuilt. Finally, new lighthouse at Currituck Beach was erected (Stick 1958:169).

At the same time, the United States was expanding its Life-Saving Service (USLSS) into North Carolina, building seven stations by 1874. Unfortunately in the beginning, these stations could be described as "poor," meaning they were poorly funded, poorly staffed, and staffed with

poorly trained crews. It took two shipwreck disasters to highlight these conditions and make

improving the USLSS a Federal priority.   First, USS *Huron*, a Civil War gunboat, was steaming

south from Virginia when it grounded on the shallows near Nags Head in 1877. Although a

there was a lifesaving station two and half miles south of where the ship was stuck, the station

was unmanned and locked. Although a crowd had gathered on the Nags Head beach watching

Huron and its crew struggle in the surf, no one dared go to the station and break in because they

feared they could suffer some type of Federal punishment. Furthermore, if any had tried to

retrieve the lifesaving equipment, they still did not know how to properly use it. Because of this

situation, *Huron*'s crew had to fend for themselves. Only a few hundred yards away from dry

land, most did not survive the powerful breakers. Out of the 132 men aboard USS *Huron*, 98

died (Stick 1952: 73-85).

The second shipwreck occurred a year later in 1878 when *Metropolis*, another Civil War

gunboat and a steamship known to have structural and engineering problems, foundered in high

seas near Currituck Beach with over 240 people onboard. A lifesaving crew did arrive on the

scene to aid the vessel, but made a series of mistakes by both crews on shore and on the sinking

vessel. These mistakes resulted in the loss of 85 lives, the destruction of the ship, and a media

firestorm that swept through newspapers across the country. The intense scrutiny and

subsequent investigations and litigation around the sinking of *Metropolis* highlighted the poor

funding, training, and conditions that were endemic of the Life-Saving Service in North Carolina

(Stick 1952:73-104).

The losses of the *Huron* and *Metropolis* forced the Federal Government to provide more

funding to the USLSS, to build more stations along coasts across the country, and to standardize

training for surfmen who worked them. By 1915 when the USLSS was absorbed into the the

Revenue Cutter Service (which in turn became the U.S. Coast Guard), North Carolina had 29 lifesaving stations, ten of which were on Hatteras Island alone. The surfmen also were receiving better pay and training. It is estimated that nationwide, the USLSS responded to 28,000 shipwrecks with 178,286 people in peril on those ships. It saved 177,286 of them, a 99% success rate, which was a marked improvement from the 52% success rate of the USS *Huron* and *Metropolis* (North Carolina Department of Commerce 2008; James Charlet 2012, pers. comm).

Struggle and conflict characterize the human endeavors to travel along North Carolina's coast through the Graveyard of the Atlantic. Whether facing natural or human threats, ships captains and crew had to remain vigilant. A lapse in judgment or attention at many levels could cost them everything. If they could have avoided the Graveyard without losing time, they almost certainly would have chosen to do so. However, the Gulf Stream and Labrador Current created a superhighway for ships, and the benefits of riding these currents outweighed the risks. As technology and lifesaving techniques improved, the rate of shipwrecks dropped throughout the twentieth century. Yet the Graveyard of the Atlantic still can provide lessons of its danger to contemporary sailors who fail to head warnings. In the fall of 2012, a sailing replica of HMS *Bounty* sailed into Hurricane Sandy, as the storm swept along the eastern seaboard. It was a fatal error as the ship proved no match for the hurricane and sank 90 miles southeast of Cape Hatteras. Two people lost their lives. It was a contemporary reminder how both environmental conditions and human decisions can still yield more victims to the Graveyard of the Atlantic.

Archaeology in the Graveyard of the Atlantic

It has been estimated that there are over 2,000 ships have wrecked seaward of the Outer Banks (Figure 4.6) (Lawrence 2008). Most of these shipwrecks will not be found because time
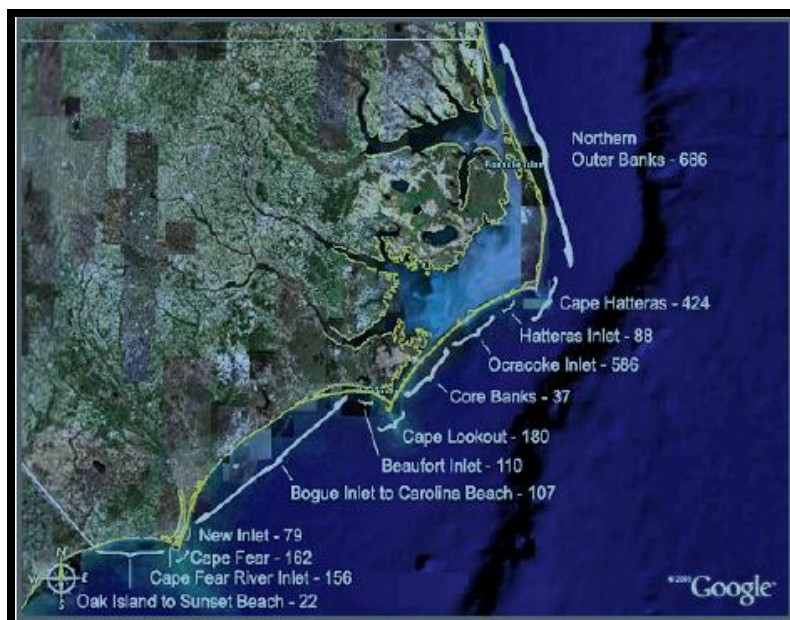
Figure 4.6: Shipwreck distribution along the North Carolina's coasts (Lawrence 2008).

and the Atlantic Ocean have obscured or destroyed their remains. Still, those shipwrecks that

have been located make an impressive range of maritime archaeological resources. By

themselves or as a collection, many of these shipwrecks meet the criteria of significance set forth

by the National Register of Historic Places (Delgado et el. 1987). There are sites strongly

associated with historical events (Criterion A) that have made significant contributions to

national, state, or local history. For example there are shipwrecks from the Civil War (USS

Monitor), World War I (USS *Schurz*), and World War II (HMT *Bedfordshire*, *U-352*, *U-701*, and

U-85). There are sites strongly associated with historical figures that have made contributions to

national, state, or local history (Criterion B) (the Beaufort Inlet Shipwreck, alleged to be

Blackbeard's flagship *Queen Anne's Revenge*). There are several vessels that embody distinctive

characteristics of type, period, and method of construction or represent works of a master

(Criterion C). For instance, USS *Monitor* represents a unique technology and a work of a master

ship designer (John Ericsson). Additionally there are shipwrecks that represent at least nineteen

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different types of vessels and ship technology, such as schooners, freighters, tankers, and submarines. Finally, there is significant archaeological information (Criterion D) left to be yielded from these sites (Delgado et al. 1987; Hardesty and Little 2000; Lawrence 2008).

Shipwrecks in the Graveyard of the Atlantic have received attention from various literary sources. There are popular histories about shipwrecks (Stick 1952; Duffus 2007; Brooke 2008). There are scuba diving books describing locations and details of shipwrecks that are popular dive sites (Farb 1985; Gentile 1992, 1993). There are few published archaeological sources, however. This does not mean that shipwrecks along the Outer Banks have been ignored by archaeologists, but it does indicate that there is plenty of room for them to receive more attention and more rigorous studies from the archaeological community.

According to the North Carolina Underwater Archaeology Branch's (UAB) "Bibliography of North Carolina Underwater Archaeology" (Brooks et al. 2009), the state has 696 documents dealing with maritime cultural resources in North Carolina.   Out of these 696 sources, 139 (19.9%) discuss maritime archaeological resources at various locations along the beaches or in the ocean (Figure 4.7) (Brooks et al. 2009).   Of these 139 reports, 119 (85.6%) are gray literature, meaning they are initial site surveys, site assessments, inventories, cultural resource projects, or annual reports; 14 (10%) are published sources, and 7 (6%) are graduate theses. These numbers are not definitive as they are some important qualifications to consider. First, they do not reflect the amount of shipwrecks that were documented as some of the reports covered multiple sites. Second, the bibliography contains *only* the sources that the UAB has on file. Third, the UAB does not list the reports it has conducted on the *Queen Anne's Revenge* site, which the state has worked on since 1996. Instead, it refers the reader to a website that is currently inactive. A Google Scholar search uncovered 24 reports that were not in UAB's

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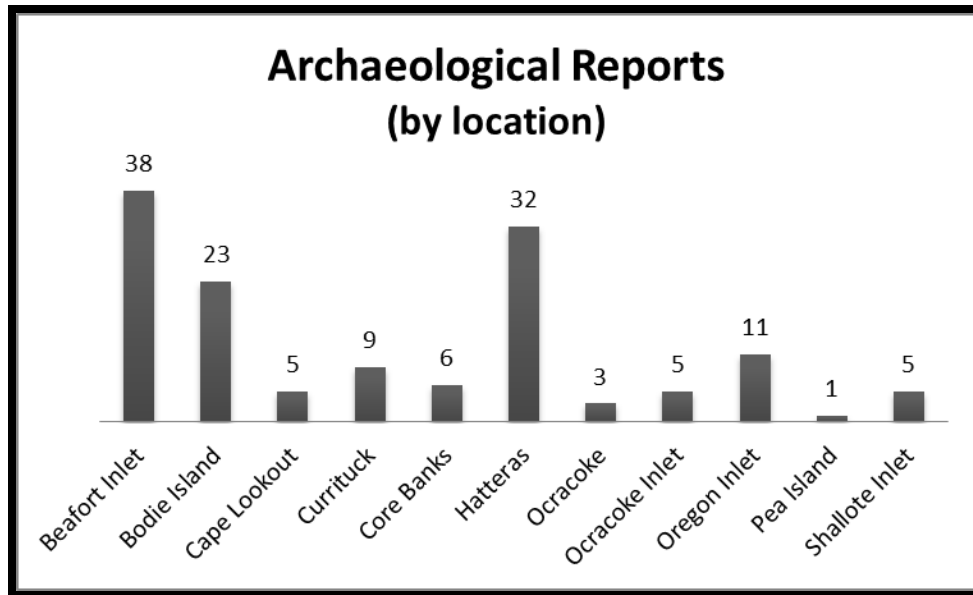
Figure 4.7: Archaeological reports conducted along the Outer Banks at various locations (figure by author; data from Brooks et al. (2009))

bibliography about the *Queen Anne's Revenge* site. Finally, there of course have been additional

studies on shipwrecks since 2009 (Wagner 2010; Bright 2012; Schnitzer 2012). Still, they do

provide a picture about where archaeologists have focused their efforts on the Outer Banks.

There are two dominant areas: Beaufort Inlet (38 sources, or 27%) and the Hatteras area,

which includes sites on beaches and in the Atlantic Ocean (32 sources, or 23%). For each of

these areas, there was a particular shipwreck that received the most attention. At Beaufort Inlet,

it was the shipwreck alleged to be *Queen Anne's Revenge*, Blackbeard's flagship. 28 out of the

38 reports (73.6%) were about this site. At Hatteras, documents discussing USS *Monitor*

prevailed with 18 of 32 (56%) reports on file at UAB. It is not surprising that these shipwrecks

have dominated archaeological discussions.

The *Queen Anne's Revenge* site is a particular *cause de célèbre*. The state of North

Carolina has more investment in this shipwreck than any other, and like the pirate that possibly

captained it, the shipwreck is not without controversy. There have been debates over its identity,

management, politics, ethical issues, and use to promote tourism and cultural identity (Rodgers et al. 2005; Moore 2005; Lusardi 2006; Wilde-Ramsing 2006). Since 1997, the state through the UAB has conducted yearly excavations at the site, raised artifacts, invited scholars from around the world to participate and publish reports, leased a conservation facility at a state university, and created public outreach programs that allow scuba divers to visit the site and school children to talk to archaeologists while they worked on site (Wilde-Ramsing 2006; Wilde-Ramsing and Hermley 2007). Due to its association with Blackbeard and pirates, it has received considerable media attention, some unsolicited and some promoted by the state, such as when canons are raised from the site (Wilde-Ramsing 2006:187-191). Not all of this attention has been positive as the shipwreck project has been used as an example of North Carolina's wasteful ("pork barrel") spending (Bass 2008). In 2011, the state decided to confirm the shipwreck site as Blackbeard's *Queen Anne's Revenge* based on 15 years of excavation and recovered material. This was likely good news to state administrators as there is a difference between opening a large scale museum exhibit called "Blackbeard's *Queen Anne's Revenge*," versus one called "Artifacts From the Purported *Queen Anne's Revenge*" (Drye 2011).

While certainly not as controversial as *Queen Anne's Revenge* in terms of identity, the shipwreck of USS *Monitor* is another important and famous site for reasons that have to do both with archaeology and policy. The ship which sank in 1862 had been sought since the 1950s by naval officials, archaeologists, and technicians wanting to test the latest developments in sonar imaging and magnetometer technology. In 1973, USS *Monitor* was relocated 16 nautical miles south-southeast of Cape Hatteras Lighthouse in 220 feet of water. It was laying upside down on its gun turret. This caused initial confusion for archaeologists, but once its position was determined, it was not difficult to identify it as USS *Monitor* based on its particular shape and

design. Announcement of the find generated a large amount of interest and excitement around the world. Issues of ownership of the site also quickly developed, but rival claims were rendered moot when the site became NOAA's first National Marine Sanctuary in 1975 (Broadwater 2012).

This designation was possible under the Marine Protection, Research, and Sanctuaries Act of 1972, which authorized the Secretary of Commerce to designate and manage protected areas, or marine sanctuaries. Currently, there are 14 National Marine Sanctuaries (NMS) along the Atlantic, Gulf, and West Coasts and in Hawaii and American Samoa. The *Monitor* NMS is one of only two sanctuaries (Thunder Bay NMS is the other) with the explicit mission of protecting shipwrecks. It is also the smallest of all the sanctuaries with a mile square boundary around the wreck site (Figure 4.8). Between 1977 and 2005, research in the sanctuary was directed toward documenting the wreck, examining the site processes affecting it, and recovering
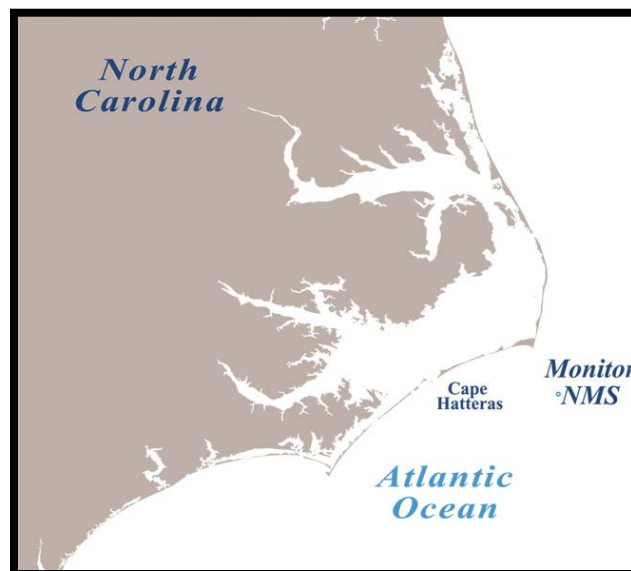
Figure 4.8: Location of *Monitor* National Marine Sanctuary (MNMS 2012)

parts of the shipwreck. From 1998 to 2001, the vessel's propeller, steam engine, and over 250 artifacts were recovered. In 2002, a multi-million dollar, 41-day effort raised the gun turret and two cannons. All the artifacts were taken back to *Monitor* NMS headquarters at Newport News, Virginia, and conserved at the Mariners Museum. Since 2002, conservators and archaeologists have been excavating down through the turret, which had become packed with sediment during its submersion (Chandler and Gillelan 2005; *Monitor* NMS 2012; Broadwater 2012).

The Monitor National Marine Sanctuary (MNMS), however, is not the only preserve *in* North Carolina waters that focuses on a shipwreck. In 1991, the remains of USS *Huron* became North Carolina's first underwater preserve. The UAB chose this site for four reasons. First, the shipwreck was already a popular dive site. Located 245 yards off Nags Head beach where it wrecked in 1877 and resting in only 20 feet of water, the shipwreck has been a convenient site for scuba divers and snorkelers since the 1970s. Second, the site had an interesting and significant history. In addition to being one of the shipwrecks that motivated the U.S. to improve the USLSS (the wreck of *Metropolis* was the other), USS *Huron* was one of the last American naval vessels to be built with an iron hull and to be equipped with sails that supplemented its steam engines. Third, the site had undergone historical and archaeological documentation that allowed for public dissemination of its history, wrecking, and archaeological interpretation. Fourth, the Town of Nags Head was interested in the project and willing to provide material assistance and site monitoring. This final reason was essential in successfully having the site designated as a preserve. Town officials were strongly in favor of the concept and agreed to maintain marker buoys on the site during diving season, make monitoring inspections to the shipwreck, monitor divers, keep track of visitation figures, and develop interpretive exhibits like the $3,000 exhibit gazebo built at a beach access point near the site that was filled with

informational material and placement of an underwater commemorative marker. The town has endeavored to fulfill all these objectives since. Between 1991 and 2001, an estimated 3,000 divers have visited *Huron* with only one reported act of vandalism (Friday 1988; Lawrence 2003. In 2012, new studies undertaken by East Carolina University's Program in Maritime Studies and University of North Carolina Coastal Studies Institute to determine *Huron*'s corrosion and site stability started with support from Nags Head township.

Recently, archaeologists have started in-depth investigations of shipwrecks later than the Civil War. Since 2008, a team of researchers from federal, state, and local levels have been studying shipwrecks lost along the Outer Banks during World War II (1939-1945). They have documented the remains of the German submarines, *U-85, U-352,* and *U-701*, British vessel, HMT *Bedforshire,* and American vessels, *Dixie Arrow, E.M. Clark,* and *Kashena* as well conducted remote sensing operations in search of new sites. These expeditions have generated site plans (Figure 4.9), photographs and photomosaics (Figure 4.10), multi-media public outreach products, and two master's thesis (Wagner 2010; NOAA 2011; Bright 2012).
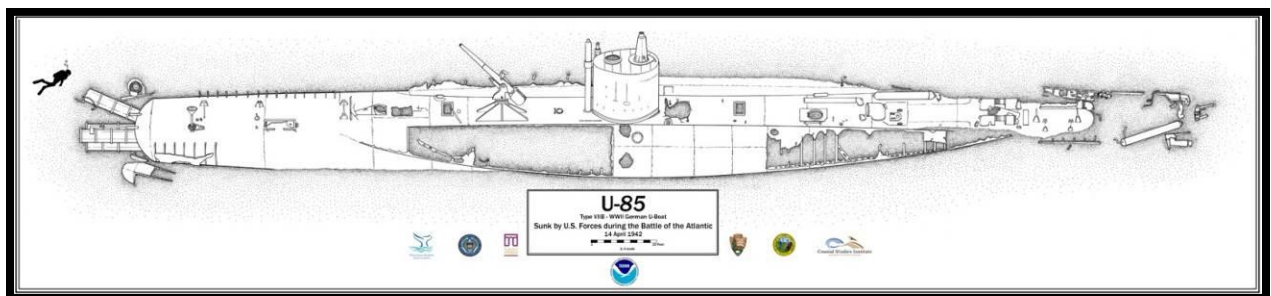
Figure 4.9: Archaeological site plan of *U-85* (photo courtesy of MNMS).

Figure 4.10: Photomosaic of *U-85* (photo courtesy of MNMS).

Pirate, Civil War, and World War II shipwrecks create immediate public interest because they represent some of the most dramatic and significant moments in North Carolina's maritime history. Their stories appeal to a large audience because they represent national maritime heritage that can be easily understood and consumed. Yet for each of these vessels, there are more submerged ships that once were used by whalers, fishermen, crabbers, oystermen, traders, and recreational boaters every day. Vessels like schooners, freighters, steamships, tugboats and vernacular craft like sharpies, shadboats, and spritsail skiffs (Figure 4.11) represent a smaller scale of local heritage that (as has been discussed in Chapter 2) is often more personal and intense than national heritage resources for different possibilities.
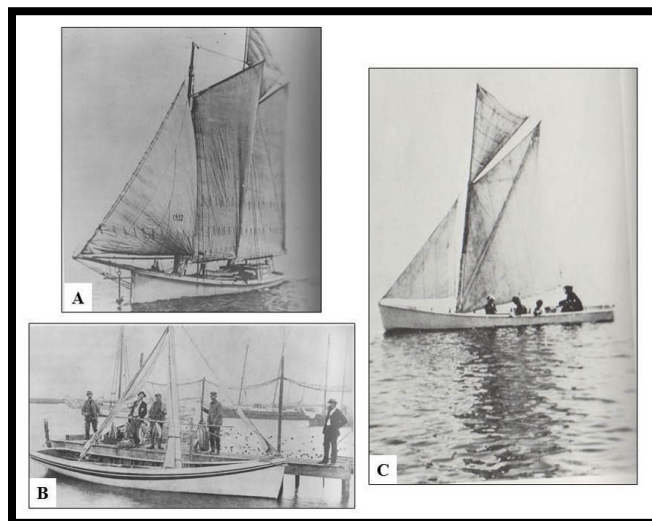
Figure 4.11: Three different types of vernacular craft in North Carolina. A (top left): 19-ton sharpie, *Iowa*; B (bottom left): a shadboat from 1900; and C (right): a spritsail skiff (Barfield 2005; figure by author).

First, these shipwrecks provide information about sailors and crews, whose lives were not recorded in historical documents but only remain in the archaeological record. Second, the maritime industries that these vessels were used for still exist. Those that still work in these professions have a connection to the past through common experiences of labor. Finally, as many of these boats were made locally without ship plans, the archaeological record is a primary means to understand local ship construction techniques, technology, and traditions of different communities along the Outer Banks. These vessels may not have the wider audience appeal as pirate, Civil War, and World War II shipwrecks, but for certain segments of the population they may have more importance. Therefore, it could be argued that maritime archaeology has a more vital role at the local level both to investigate these types of shipwrecks, and more importantly to share this understanding with the public so they may have a better understanding of how shipwrecks represent their maritime past and contemporary cultural heritage.

Maritime Cultural Heritage along the Graveyard of the Atlantic

For hundreds of years, shipwrecks were part of life for all residents of the Outer Banks, not only those whose professions were directly related, such as salvagers, light housekeepers, and lifesaving crewmen. Wreckage could be found by anyone walking along the beach, picked up and reused for their own needs and purposes. Children would play on the skeletons and hulks of abandoned vessels on the beaches. Adults hosted parties and dances on them. Even by the middle of the twentieth century, it was still common to see "wreck after wreck after wreck" remaining on Outer Banks's beaches (Figure 4.12) (Duffus 2007:30). Today the situation is different. There are still shipwrecks on the beaches, but they are not as conspicuous as they once

Figure 4.12: Shipwrecks on the beaches of the Outer Banks (Lawrence 2008).

were. They either have been partially or completely buried by the sand or lost entirely through

decay and salvaging. Pieces of timbers or iron fasteners protrude from the sand here and there,

the only indicators that there is a shipwreck connected to them, resting under feet of sediment.

The most intact wreck sit offshore and underwater where only scuba divers may visit.

Today, the most visible and tangible pieces of maritime heritage remaining on the coast

are lighthouses and lifesaving stations. Of the two, lighthouses are by far the most recognizable

icons. They literally tower over the landscape for miles, and are distinctly marked through

special patterns and colors that create immediate and easily understood connections of identity.

They are associated with towns or environments, anchoring a sense of place that a community

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uses in its marketing or literature to denote a sense of permanence, durability, perseverance in the face of challenges, and safety (Blake 2007:9-15). Their cultural significance to the Outer Banks maritime may be illustrated through the case study of efforts to save the Cape Hatteras Lighthouse. It was moved 2,900 feet inland at a cost of $11.8 million, when the surrounding shoreline had eroded so much that the lighthouse threatened to slip into the Atlantic Ocean (Blake 2007; National Park Service (NPS) 2012a).

After lighthouses, the next most visible signs of cultural maritime heritage are the lifesaving service stations. Unlike lighthouses, they are far from recognizable or permanent. Out of the 29 original lighthouses, only two (Chicamacomico in Rodanthe and Little Kinnakeet, north of Avon) are in their original positions. Of these two stations, only Chicamacomico is open to the public regularly as a museum. It is one of few USLSS sites in the United States with all of its original buildings. Of the other USLSS stations on the Outer Banks, many were destroyed by storms or fires, some were rebuilt or moved to another location, six became private homes, a couple are used as offices, one is now a restaurant, and one is part of condominium complex (Chicamacomico 2010; The Outer Banks Chamber of Commerce 2012; James Charlet pers. comm.).

Other types of educational facilities offer the public informal educational opportunities to learn about North Carolina's maritime heritage. For example, Roanoke Island Festival Park, has a replica of one of the seven English ships that sailed to Roanoke in 1585, called *Elizabeth II*. Visitors can tour the vessel, talk to actors dressed as soldiers and sailors from the time period, or take a cruise during regularly scheduled voyages. The park also has a settlement site, a Native American site, museum, and performances that depict the history of the area (North Carolina Department of Cultural Resources 2009). Northwest of Festival Park on Roanoke Island is Fort

Raleigh National Historic Site, the location of the legendary "Lost Colony" of 1587. It is run by

the National Park Service and hosts the longest-running outdoor play, "The Lost Colony," started

in 1937 (The Lost Colony 2011; NPS 2012b). As tourism is a chief economic driver of the Outer

Banks, it begs the question of how well these cultural heritage centers are attended by the public.

Although there are no published visitation rates for The Roanoke Island Festival Park, a

2012 report to the North Carolina House Appropriation Subcommittee provides a rough

assessment. Recently, the park had to raise its entrance fees, cut staff positions and programs,

and reduced some of its hours of operations. This perhaps indicates a decrease in visitation as

well as state budget reductions. The 2012 report indicated that the park anticipate over 35,000

visitors based on revenue from admission fees. Most of the Festival Park's revenue, however,

comes from other sources such as non-profit organizations, facility rentals, and its performing

arts series (Department of Cultural Resources 2012). Fort Raleigh Historic Site has on average

seen 295,510 visitors since 1990, but has experienced a slight downward trend of visitation level

(Figure 4.13) (NPS 2012c). This may be due to hurricane events of hurricane Isabelle (2003)

and Irene (2011). It also parallels a slight downward trend of visitors to Cape Hatteras (Figure

4.14).

According to the National Park Service (2012d), Cape Hatteras National Seashore

(CAHA) receives on average over 2.3 million visitors per year since 1990. This can be

considered a conservative estimate of visitors to the Outer Banks overall. There is a large

contrast between the possible visitors to the Outer Banks and visitation levels for the Fort

Raleigh National Historic Site. Comparing averages, fewer than 13% of those that visited
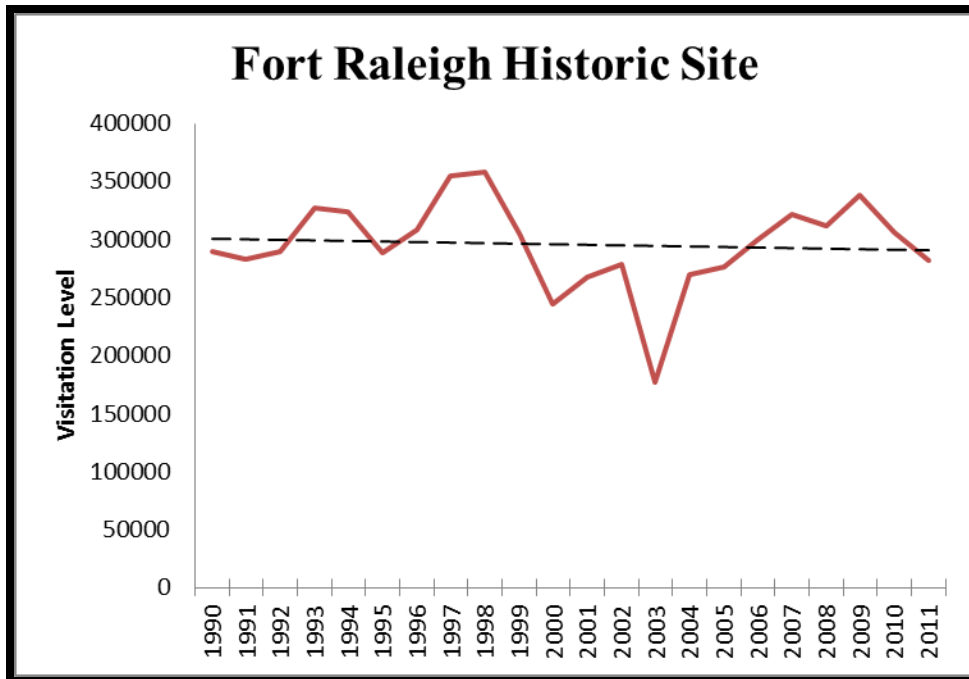
Figure 4.13: Visitation Levels to Fort Raleigh Historic Site between 1990 and 2011 (NPS 2012c; figure by author)
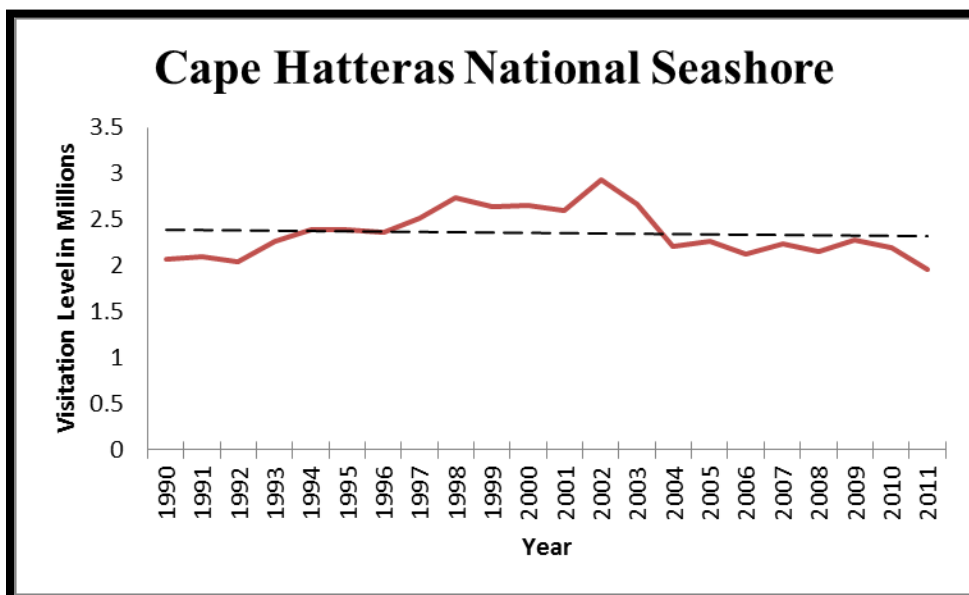
Figure 4.14: Visitation levels (in millions) to Cape Hatteras National Seashore (CAHA) between 1990 and 2011 (NPS 2012d; figure by author).

CAHA visited Fort Raleigh Historic Park. However, this percentage is consistent to visitor motivations according to a 2006 research survey for the Outer Banks Visitors Bureau (Strategic Marketing and Research, Inc. 2006). Figure 4.15 shows that overall 14.2% of people were motivated by "Interesting historic sites and landmarks" when they visited the Outer Banks. This was second on the list of motivations for visiting the Outer Banks, but a distant second to the top reason, "beautiful beaches" (40.7%).

Motivations for Visiting the Outer Banks

Visited for...	Overall	Summer	Fall	Winter	Spring
Beautiful beaches	40.7%	49.0%	34.0%	22.1%	30.9%
Interesting historic sites & landmarks	14.2%	8.1%	19.3%	22.1%	24.5%
Scenic areas or scenic drives	11.5%	8.4%	13.3%	24.7%	12.8%
A clean and safe environment	9.8%	10.5%	9.1%	7.8%	9.6%
Good accommodations	10.2%	9.2%	11.0%	15.6%	8.5%
Wildlife viewing and bird-watching	1.9%	1.5%	1.4%	1.3%	7.4%
Family attractions	3.5%	4.4%	2.8%	1.3%	3.2%
Good restaurants	2.3%	2.3%	2.8%	1.3%	1.1%
Good shopping opportunities	0.4%	0.3%	0.5%	0.0%	1.1%
Fishing opportunities	4.7%	5.0%	5.1%	3.9%	1.1%
Arts or cultural activities	0.1%	0.2%	0.0%	0.0%	0.0%
Sporting activities	0.7%	1.0%	0.5%	0.0%	0.0%
Good golf courses	0.2%	0.3%	0.2%	0.0%	0.0%
Visual arts or performing arts	0.1%	0.2%	0.0%	0.0%	0.0%

Figure 4.15: Survey results of tourists "Motivation for Visiting the Outer Banks" (Strategic Marketing and Research, Inc. 2006).

While lighthouses, USLSS stations, parks, and historic sites either represent maritime cultural heritage, teach people about maritime cultural heritage, or both, their focus on shipwrecks varies, but it is not their primary mission to tell the histories and stories of shipwrecks of the Graveyard of the Atlantic beyond how shipwrecks influenced their existence. The record is mixed, however, when it comes to how shipwrecks are perceived as part of North

Carolina's maritime heritage. There are two major museums that display shipwrecks as their primary exhibits.

The Graveyard of the Atlantic Museum is a public, non-profit museum located in Hatteras Village, NC. Its 19,000 square foot facility sits at the southern end of Hatteras Island next to the Hatteras-Ocracoke ferry terminal. The museum houses artifacts from shipwrecks, lifesaving stations, and lighthouses, and currently exhibits featured material culture from the Civil War and World War II (Graveyard of the Atlantic Museum 2012). A second museum, the North Carolina Maritime Museum in Beaufort, sits at the southwestern edge of the Outer Banks at Beaufort, North Carolina. Its primary exhibit focuses on Blackbeard's life and *Queen Anne's Revenge* shipwreck. It has displays on vernacular craft and North Carolina maritime industries, like fishing. It also offers educational opportunities to learn traditional boatbuilding techniques, including a separate facility where small vessels are designed and constructed (North Carolina Maritime Museums 2012). Visitation numbers to these museums, however, reveal the mixed record regarding public's attention and interest to shipwrecks.

In 2011, the Graveyard of the Atlantic Museum had 69,164 visitors (North Carolina General Assembly 2012). This was only 3% of the possible 2.3 million people who visited CAHA. The museum's remote location at the end of Hatteras Island likely played a role in this low visitation rate relative to CAHA, but it cannot be the sole reason. Next to the museum is the Hatteras-Ocracoke ferry, the busiest ferry in North Carolina transporting more than 1 million passengers annually (FindtheData 2012) – passengers who while waiting for the next ferry, or disembarking from the Ocracoke ferry, have the option of visiting (for free) the museum. If only 10% of these passengers chose to enter the museum, visitation numbers would easily exceed 100,000, putting it closer to the percentage of tourists who are motivated to visit cultural and

historical sites. Further, if one hypothesized that all visitors to the museum were spill-over from passengers waiting for or leaving a ferry (which they are not), the 69,000 visitors are only 6.9% of this population. Clearly, people are not choosing to visit the museum in proportionate numbers. The news is not all bad for the museum, however. Since 2009, there has been a 16% increase in visitation to the museum from 59,399 to 69,164.

The North Carolina Maritime Museum in Beaufort fares better than its Hatteras counterpart. In 2011, the museum in Beaufort had 270,532 visitors, or almost 12% of CAHA visitation levels (North Carolina General Assembly 2012). However, this is not a fair comparison. This is because the North Carolina Maritime Museum sits at the southwestern edge of the Graveyard of the Atlantic, separated from CAHA by three chains of barrier islands and no direct connection to the Cape National Seashore. Therefore, it is unlikely that visitors to CAHA significantly affect visitation to the Beaufort Maritime Museum. The estimates were provided as a *rough* comparison, illustrating that the museum does have a high percentage of visitation relative to Graveyard of the Atlantic Museum. The Beaufort Maritime Museum location explains in part its higher percentage. It is located next to a large, tourist town (Morehead City), several beaches (Atlantic Beach, Pine Knoll Shores, and Emerald Isle), and other tourist sites (Fort Macon and North Carolina Aquarium at Pine Knoll Shores). The town of Beaufort has its own historic waterfront and offers maritime festivals and events throughout the year (The Town of Beaufort, NC 2010). All of these surrounding attributes help bring more people to the museum. Additionally, the Beaufort Maritime Museum's exhibits about Blackbeard and *Queen Anne's Revenge* shipwreck site are popular and easily marketed exhibits as people are often already fascinated by pirates and pirate mythology (Ewen 2006; The Town of Beaufort, NC 2010).

In addition to these "brick and mortar" facilities, there are several books discussing the history of shipwrecks along the Outer Banks (Stick 1952, 1958; Barfield 1995; Duffus 2007; Brooke 2008). A few books examine a single shipwreck (Simpson 2005; Olson 2011; Broadwater 2012). There is a work of historical fiction that uses the real events of the sinking of USS *Huron* as its source (Douglas 2012), and another that describes how to fish on various wrecks (Ulanski 2011). There are scuba diving related books that provide brief histories of shipwrecks that can be accessed by recreational and technical divers (Farb 1985; Gentile 1992, 1993). There is also a ubiquitous map with several alternative versions that shows a list of shipwrecks in the Graveyard of the Atlantic, sold in souvenir stores along the coast (Figure 4.16). There are few serious archaeological publications available to the public, however.

Figure 4.16: Map of shipwrecks in the Graveyard of the Atlantic (Graveyard of the Atlantic Museum 2012).

Conclusion

As noted above, most of the archaeological publications regarding shipwrecks on the Outer Banks are grey literature, and those that have been published focus primarily on two wrecks: *Queen Anne's Revenge* and USS *Monitor*. There have been recent efforts to engage the public through media other than print (websites, virtual tours, public workshops and lectures), but there is much room for improvement by maritime archaeology to illustrate how shipwrecks inform and contribute to North Carolina's maritime heritage. It is one of primary goals of any field of archaeology to bridge the past to the present through cultural resources. If heritage is a process of contemporary society interpreting and identify with its past, then maritime archaeology plays a critical role in helping connect visitors to and residents of North Carolina to a cultural heritage expressed through the remains of watercraft remaining in the Graveyard of the Atlantic. The field can illuminate the nature and extent of the resource base, but as it does, other question arise that are important to understand and consider as well.

These questions concern the public's attitudes towards shipwrecks as cultural heritage resources. What do people know about shipwrecks? Do they think of them as part of North Carolina's maritime history and heritage? Do they value preserving them for future generations? The answers to these and similar kinds of questions are essential for maritime archaeologists and coastal managers concerned with maritime cultural resources to understand in creating successful and intelligent policies that benefit both the resource and the public. The following chapters discuss this project's attempt at providing some these answers and baseline information of how residents in North Carolina perceive and value the preservation of shipwrecks as part of North Carolina's maritime heritage.

CHAPTER 5: METHODOLOGY

Introduction

While the Graveyard of the Atlantic contains a maritime cultural heritage as rich as anywhere in the United States, it is uncertain how people today perceive and value the existence of this heritage. This uncertainty creates further questions regarding the public's knowledge of, attitudes towards, and willingness to pay (WTP) for these resources, their preservation, and who should manage them. Any attempt to answer these questions and evaluate them has to be sensitive to the different viewpoints held by diverse stakeholders. Chapters 2 through 4 discussed in length these important considerations in terms of heritage, value, and maritime archaeology, as well as the role each have played in the Outer Banks and the Graveyard of the Atlantic. This chapter shifts attention to the methods and processes used to start to address this uncertainty and its corollary questions regarding how contemporary society perceive and value the preservation and management of maritime archaeological resources (in general), and shipwrecks (specifically).

Some of the first steps in evaluation is identifying the stakeholders for the resource, understanding their possible differing viewpoints over the resource, and determining which stakeholder group (or groups) will be studied (Graham et al. 2000; Klamer 2002, 2003). For this project, four stakeholder populations were identified: recreational scuba divers; preservation and management professionals; residents of the Outer Banks and North Carolina coastal areas; and the general population of North Carolina residents. The most obvious stakeholder group for shipwrecks is recreational scuba divers, who are direct users and consumers of the resources.

Another prominent stakeholder group is made up of professionals in the fields of preservation and management, such as (federal or state agents, archaeologists, conservationists, and museum operators). They also are direct users of the resources to various degrees as they conduct research on them, display conserved material culture from them, and present public education events about them. While not mutually exclusive, these two groups often have divergent goals over use of shipwrecks as resources. For instance, divers and dive companies who promote souvenir hunting are concerned with keeping shipwrecks as openly accessible as possible and may protest efforts for limiting access. Contrary to this position, agencies focused on preservation goals may call for limited access to some shipwrecks and more stringent enforcement of artifact removal.

In addition to these stakeholder groups, policy decisions regarding preservation of shipwrecks as coastal resources affects non-use stakeholders as well, primarily North Carolina residents. North Carolinians will live under any policy decision made concerning these maritime heritage resources and potentially will have to support them through public taxation. There are two groups of residents that were considered in determining the population parameters for this study: 1) residents who live on and along the coast and sounds in counties under North Carolina's Coastal Area Management Act (CAMA); and 2) the general population of North Carolinians across the state. Both of these stakeholder groups may be considered non-use beneficiaries of preserving North Carolina's maritime heritage resources as they may never directly experience shipwrecks or other types of maritime heritage resources. Further, these populations may consider paying for preservation of heritage resources an unnecessary and intrusive cost due to the same reason that they will never experience them.

In selecting which stakeholder group would be studied, different factors were considered. The obvious groups to engage first would be the direct users (divers and managers), however, there are previous studies and other outlets through which for divers and preservation professionals have been able to express their opinions. For instance, previous studies have investigated the thoughts and attitudes of managers, government agents, and archaeologists towards preservation, policy, and management of maritime archaeological resources and governing laws (Workman 2008; Silver 2009; Catsambis 2012). Recreational scuba divers have also had the opportunity to provide feedback through a series of public scoping and open meetings as well as being vocal about their thoughts on different internet forums (MNMS 2012a, 2012b, 2012c, 2012d, 2012e).

Second, this study was from the beginning interested in learning the opinions of those who may not directly use the resource and consequently not have had their feelings or opinions noted or studied, but whom any policy decision would still affect. Therefore, the question became which group of North Carolina residents would be surveyed. Due to proximity of the resource in question and to the marine environment, residents of CAMA counties were expected to have a higher interest in policy decisions regarding coastal resources than the a general population of North Carolina residents. A stratified sample of CAMA residents was discussed as a possible and feasible selection. However, at the center of this study is the economic portion, which uses a tax as a payment vehicle for its hypothetical situation (discussed in detail below). This type of payment vehicle would be levied across all of North Carolina. A selection of CAMA residents was viewed as a possible source of bias, and thus, a random selection of North Carolina residents (n = 2000) was chosen for analysis.

The next step was to design the survey instrument. As discussed in Chapters 2 and 3, cultural resources have both cultural and economic values that have the potential to conflict with each other. The goal of this study was to develop a survey instrument that was sensitive to these different values and had the potential to evaluate each type within the instrument. The Theory of Cultural Capital was chosen as an organizing framework as it recognized, acknowledged, and attempted to account for each type (Graham 2000; Throsby 1994, 2001, 2005). According to this framework, there are several ways to estimate cultural value (such as expert analysis, interviews, content (or symbolic) analysis, and social surveying techniques like attitudinal analysis). Each has its own strengths and weaknesses due to the subjective and often contested qualities inherent in cultural resources (Throsby 2001, 2005). The options to estimate economic value were limited since only stated preference techniques (contingent valuation or choice experiments) can capture non-use values associated with the preservation cultural resources.

A choice experiment (CE) was chosen as the foundation for designing the final survey instrument. One of the primary reasons for this decision was the multi-stepped process needed to create and design a CE. Table 5.1 lists these steps and provides a brief, general description of each. This process proved advantageous and provided several useful insights in creating the final survey instrument. First, it revealed areas of agreement and disagreement among different stakeholder groups. Second, it uncovered feelings, concerns, and issues that were unknown – and seemingly irrelevant to shipwrecks – initially but had immense influence over attitudes and opinions towards resource use. Third, many of these identified themes were incorporated into different portions of the survey beyond the CE portion in order to understand possible cultural values and to determine if there were any significant relationships between these values and economic ones. Fourth, the process allowed a more informed set of trade-offs for the CE from

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Table 5.1: Methodological Steps in a Choice Experiment Design and Implementation

	Step	Description
1	Identification of Attributes	Identification of relevant attributes of good, including a monetary cost to estimate WTP. Literature reviews, focus groups, and interviews identify attributes relevant to the public while input from experts identify attributes affected by policy.
2	Assignment of Levels	Levels of attributes should be feasible, realistic, non-linearly spaced, and include a wide range of respondents' possible preferences. Again, literature reviews, focus groups, interviews, expert consultation and pretesting survey are means for selecting appropriate attribute levels. A baseline "status quo" level is usually included
3	Choice of Experimental Design	Statistical theory is used to combine the levels of the attributes into a number of alternative scenarios, or *profiles* to be presented to respondent
4	Construction of Choice Sets	Profiles identified by the experimental design are then grouped into multiple choice sets to be presented to the respondent
5	Preference Measurement	Choice of survey procedure to measure individual preferences. Common types are ratings, rankings, or choices.
6	Estimation Procedure	OLS regression or maximum likelihood estimation procedures, such as logit, probit, ordered logit, conditional logit, or nested logit.

(adapted from Hanley et al. 2001)

which respondents had to choose, creating a more complete picture of welfare estimates for preserving maritime archaeological resources. Finally, the process was flexible enough to not only identify attributes but also themes and categories that could measure cultural values along with the CE.

Design, implementation, and analysis of the final survey instrument involved four stages (Reconnaissance, Survey Design, Implementation, and Analysis) that incorporated the steps in Table 5.1 for creating a CE as well as social questions to measure the following issues:

- Motivations: Why do people visit the Outer Banks and the Graveyard of the Atlantic?

- Knowledge: What do people know about maritime archaeological heritage resources?
- Attitudes: What are peoples' attitudes towards maritime archaeological heritage resources, their preservation and management, and future potential resources such as heritage tours or museums?
- Perceptions: What are peoples' perception and viewpoints towards shipwrecks and the role they play in contemporary society?

For each stage, the appropriate approval was requested and received through East Carolina University's Institutional Review Board (ECU-IRB) (Appendix A). Funding and support were graciously provided by the North Carolina Sea Grant Maritime Heritage Fellowship and ECU's PhD Program in Coastal Resources Management. The following describes these stages in detail.

Stage I: Reconnaissance

To begin, this study wanted to identify attributes and other themes held by experts, residents, and divers (Step 1 of CE process). This occurred in a series of three simultaneous phases:

- *Phase 1* was an internet survey of experts from academic and government fields concerned with and involved in preserving shipwrecks off the Outer Banks.
- *Phase 2* involved a series of interviews with residents of the Outer Banks (non-divers and non-professionals in preservation fields)
- *Phase 3* was a review of public opinions, including recreational scuba divers, dive store operators, and fishermen through public comments made during NOAA's Monitor National Marine Sanctuary public scoping hearings meetings (NOAA Monitor NMS 2012a, 2012b, 2012c, 2012d, 2012e).

Each phase was designed to identify attributes and emergent themes from the different groups of stakeholders. Its goal was to acquire basic and general information about attitudes, perspectives and opinions these stakeholder groups held towards preserving shipwrecks and other maritime heritage resources in the Graveyard of the Atlantic. The following describes each phase in detail.

Phase 1: Expert Panel Survey

The goal of Phase 1 was to acquire viewpoints from experts in fields concerned and involved with preserving, conserving, and documenting maritime heritage resources in the Graveyard of the Atlantic and the Outer Banks. Twenty-seven participants were selected as a purposive sample based on their connections and their influence on North Carolina's maritime cultural resources through research, policy making, and management. Participants represented state and federal agencies, research institutions, and universities. Since selected participants were spread across the United States, it was determined that an internet survey would be the most cost effective and efficient way to facilitate participation. Fifteen questions were created using Qualtrics Survey Software. These questions were organized by categories (Heritage, Preservation, Management, and Education), and were open-ended, allowing respondents to expand as they desired on each presented theme. Table 5.2 provides a list of these questions and a brief summary of their purposes. A full justification and rationale for each question can be found in Appendix C.

Participants were sent an introductory email with instructions to access the survey via a link provided to them (Appendix B). This email also informed them of the following: 1) survey purpose; 2) types of questions; 3) ECU Institutional Review Board (IRB) approval; and 4) participation was voluntary and anonymous. A reminder email was sent few months after the first to members who had not yet responded (Appendix B) asking for their participation. Responses were recorded by Qualtrics Software.

Phase 1 was originally proposed to follow a Delphi survey methodology, which is a technique designed to transform individual opinions into group consensus via rounds of questions. After analysis of the first questionnaire, however, a consensus of themes among

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Table 5.2: List of Questions and Their Purpose for Expert Panel Survey

Category	#	Question	Purpose
Heritage	1	How do you define maritime heritage?	To elicit expert definitions of maritime heritage.
	2	What do you think are the benefits of preserving maritime heritage, if any?	To understand what experts explicitly state as benefits of maritime heritage.
	3	What are some costs of preserving maritime heritage, if any?	To understand what experts believe to be costs associated with preservation.
	4	Where do shipwrecks fit in as maritime heritage?	To have experts reflect on the nature of shipwrecks within the context of heritage.
Preservation	5	What do you think are the 5 biggest threats (natural or anthropogenic) to the preservation of shipwrecks?	To identify what experts think are the primary threats to the preservation of shipwrecks.
	6	What do you think are the biggest challenges in the preservation of shipwrecks?	To allow experts to expand on their answers from Question #5
	7	Are all shipwrecks significant archaeological resources worthy of protection? Why or Why not?	To understand experts' views on prioritizing preservation for shipwrecks.
	8	How would you determine if a shipwreck is significant and worthy of protection?	To have experts express their thoughts and opinions towards the subject of significance.
Management	9	What do you consider the best practices for preservation of shipwrecks?	To understand what experts believe are the best practices for preserving shipwrecks
	10	In your opinion, what are effective management strategies that promote best practices of preserving shipwrecks?	To allow experts to expand on their answers to Question #9 based on their experiences.
	11	What are three questions, you would like to ask (or have asked) other experts, colleagues, and managers, regarding preservation of shipwrecks?	To provide opportunity for experts to put forth questions and issues they considered important to answer about preservation of shipwrecks.
	12	If you were to ask five questions on a survey regarding people's perceptions, attitudes, and values towards preservation of shipwrecks, what would they be?	To learn what types of questions experts would ask, and therefore would want to know from, the public.
	13	Do you think people would be willing to pay for the preservation of shipwrecks?	To acquire explicit opinions from experts about study's primary research question.
Education	14	What do you consider the biggest challenge archaeologists face in educating the public about shipwrecks? How have you approached this challenge?	To understand where efforts in public outreach are needed and possible successful strategies.
	15	What are five common questions you face from the public? How have you answered them?	To understand what questions the public thinks are important and how these questions have been answered.

responses emerged to meet the goals of Phase 1 in identifying attributes and attribute levels for the final survey instrument. For this reason, a second questionnaire was not created.

Phase 2: Interviews with Residents of the Outer Banks

Phase 2 was a series of interviews with a limited number (between 10 to 20) of residents of the Outer Banks. The purpose of these interviews was to acquire an understanding of their backgrounds, attitudes, perceptions, and thoughts about issues involving shipwrecks and other maritime archaeological resources. As discussed in Chapter 2, local attitudes towards heritage are often different from outside perspectives. It was therefore important to learn how residents related to shipwrecks based on their personal experiences. By learning about these experiences, themes and issues that residents considered important could be identified.

Similar to Phase 1, Phase 2 involved a purposeful sampling procedure. A list of possible participants was provided by the University of North Carolina's Coastal Studies Institute (CSI hereafter). CSI is an inter-university research institute created to undertake research, offer educational opportunities, provide community outreach programs, and enhance communication among stakeholders concerned with the culture and environment of North Carolina's maritime counties (csi.northcarolina.edu). CSI's familiarity with residents, who were knowledgeable enough through their life experiences to speak comfortably about maritime heritage resources, made it a good source for identifying and locating potential interviewees. Candidates represented a wide range of professions, including fishing, tourism, education, cultural heritage sites, town managers, artists, architects, real estate, private business, and board councils.

Potential interviewees were contacted via email or by phone and asked if they would be willing to participate. If the individual agreed, a face-to-face meeting was arranged at the time

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and place convenient to the participant. All interviews were conducted by the author. Before commencing the interview, participants were presented with and asked to read and sign a consent form. This consent form informed the individual of their rights, ECU IRB approval, recording procedures, and that their participation in the interview was voluntary, could be ended at any time, and that all information they provided would be anonymous (Appendix B). Once the consent form was signed, the interview began. Interviews ranged in length from 30 minutes to over 120 minutes. They were recorded on a digital recording device (Sony ICD-P620), and later transcribed.

Interviews were conducted using a semi-structured methodology. Semi-structured interviews use an open framework that encourages focused, conversational communication between interviewer and respondent. The objective is to understand the participant's point of view. Its questions are general and open ended allowing room and flexibility to probe details or discuss issues in greater depth. It allows respondents to talk about an issue in depth and detail. This creates the opportunity for the meanings behind an action to be revealed as the respondent is able to speak for themselves with little direction for the interviewer which increases internal validity. It also allows clarification for complex issues allowing the interviewer to probe areas suggested by the respondent's answers that had either not occurred to the interviewer or of which the interviewer had no prior knowledge. Additionally, it removes pre-judgment which is determining what will or will not be discussed in the interview. Finally, it is useful when there is not the opportunity or design for follow-up interviews, and the information will be acquired only at that time (Bernard 1988; Ryan and Bernard 2003).

Since semi-structured interviews require a framework of questions to guide the process, a list of general questions was created designed to discuss and explore the themes of shipwreck

preservation, education, and management. Figure 5.1 shows examples of these types of

questions, and Appendix 5D contains the complete list. These questions mirrored those asked of

the expert panel to a degree, but it was assumed that interviewees would not have the same

background and experience with maritime heritage resources as the experts. Therefore, the

questions were designed to have general, "conversational," tone while simultaneously inquiring

about each participants own relationship with maritime history, heritage, and shipwrecks -- a

strength of the semi-structured interview format. Respondents also had opportunities to answer

the question and then go "beyond" the core subject, providing new information about

circumstances that have affected their opinions. For example, some themes arising from the

interviews revealed strong opinions and attitudes that potentially affect their perspective towards

preserving shipwrecks, although the issues discussed were not directly related to cultural heritage

resources. Such themes would not have been identified without conducting these interviews.

- Describe your knowledge of and interest in shipwrecks in general and those off coast of North Carolina?
  - Interest in seeing and learning about shipwrecks? Level of interest (e.g. diving, museums, books)?
- Are shipwrecks important? Why or why not? If so, to whom are they important? What kinds of shipwrecks are important?
- What things would you like to know and learn about shipwrecks?
  - If you dived on a shipwreck, what you would like to see, or do?
  - Would shipwreck trails on land and in the water interest you? If so, what type of information would you be interested in regarding shipwrecks?
- Who do you think benefits from or enjoys shipwrecks? Who should be able to enjoy shipwrecks?
- Do you think shipwrecks need to be preserved? Why or why not? How should we preserve them? Or not?
  - Role of local, state or federal government, divers, and public?
  - Sanctuaries or protected areas?
- What criteria should be used to preserve a shipwreck? [age, events, persons, use?] Who should decide?
- Who owns a shipwreck?

Figure 5.1: Sample questions from resident interviews (figure by author).

Phase 3: Review of Recreational Diving and Fishing Industry Comments

Recreational scuba diving represents the most direct use of shipwrecks in the Graveyard of the Atlantic. While scuba divers are not the intended population to be studied for this project as it is focused on general citizenry that typically do not directly use, but who will still be affected by any public policy, it was important to understand the concerns of the diving community. Fortunately, when it comes to shipwrecks, divers have been some of the most vocal stakeholders. To acquire an understanding of their perspectives, a content analysis of several public hearings held by MNMS was conducted (MNMS 2012a, 2012b, 2012c, 2012d, 2012e). These public meetings allowed concerned citizens, many of whom represented the diving and fishing communities, the opportunity to ask Federal officials several questions about management issues involving shipwrecks and maritime heritage.

Qualitative Analysis of Phases 1, 2, and 3

Data from Stage I (Phases 1, 2, and 3) were analyzed using basic qualitative methods of analysis in order to identify possible themes, attributes, and levels of attributes that could be incorporated into the final survey instrument. The data first underwent a process of open coding, which involves going through the verbatim answers and quotes from participants and making notes – or memos – from their comments. These memos are used as points of comparison for conceptual relationships, similarities, and dissimilarities among respondents. This first exploratory step is designed to identify as many and as a wide a range of themes and sub-themes as possible. These themes and sub-themes are not yet organized and often are coded through *in vivo* coding – using respondents' own words as codes (Strauss and Corbin 1994; Sarker et al 2001; Ryan and Bernard 2003; Lempert 2007).

Next, identified themes from separate data sources were organized under a process of axial coding. Axial coding consolidates the themes, memos, and *in vivo* coding into categorical relationships that could be further compared and analyzed for central themes or subjects. This is accomplished by constant data comparison and new memo taking allowing for different views of the data. Open and axial coding provided satisfactory information for identification and development of themes, attributes, and levels of attributes necessary for the final survey instrument in Stage II (Sarker et al. 2001).

Further analysis of data from Stage I followed through selective coding that focused the different categories into primary categories relevant to this study, namely heritage, preservation, management, and education. Data provided insights into these phenomena and how they are viewed by the different stakeholders in question. This process followed the tenants of Grounded Theory Methodology, which is a process of data immersion and constant comparison that requires the researcher to be self-reflexive and wary of potential self-biases. It is based on the premise that different people have different perspectives and that multiple perspectives should be sought, compared and presented in discursive form to understand the conceptual, or symbolic, content between them (Strauss and Corbin 1994; Sarke et al. 2001). It parallels what Throsby (2001) called symbolic (or content) analysis for estimating cultural values. Results are presented in Chapter 6.

Stage II: Survey Design

Based on the qualitative analysis of data from Stage I and the review of literature (Chapters 2 and 3), a considerable amount of themes were identified that could have served as possible attributes or levels of attributes (Step 2 of CE process in Table 5.1). For example, at

one point there were a possible seven attributes with varying levels that would have yielded 46,080 choice options. Such a number was neither manageable nor feasible. Therefore a number of themes were moved into other parts of the final survey instrument, providing foundations for questions designed to measure participants' perceptions, attitudes, and interests about maritime archaeological resources. These measurements were important in understanding the types of cultural value people put on maritime archaeological resources. Two distinct but complementary parts of the final survey instrument were developed: the mixed- methodological social survey; and the CE.

The questionnaire was organized in six sections with 48 questions (Table 5.3) along with a cover and back page. By breaking the survey into different thematic categories, two purposes were served. First, the multiple dimensions of cultural value (perceptions, attitudes, feelings, and interests) were organized thematically in a manner to allow the survey a natural flow. Second, this flow helped guide participants toward the choice experiment. This was important because the questionnaire was designed with the understanding that many respondents had limited background or exposure to the Outer Banks or the Graveyard of the Atlantic. The organization of the survey needed to balance introducing necessary information while not providing too much information and creating information bias or overload.

Table 5.3: Survey sections and questions

Section	Title	Questions
1	Recreation and Travel Interests	1 - 9
2	NC Maritime History and Heritage	10 - 11
3	Shipwrecks in the Graveyard of the Atlantic	12-25
4	Graveyard of the Atlantic Maritime Park (Choice Experiment)	26-31
5	Preservation and Management	32-40
6	Demographic Information	41-48

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Sections 1 through 3 allowed participants to start from their own personal experiences and move forward through more specific issues before reaching the CE (Section 4) where they would be required to "vote" on a hypothetical scenario involving a series of choices and choice sets (Figure 5.2). This strategy allowed concepts and themes important to CE to be introduced, reducing the exposition required to create the necessary hypothetical scenario. Section 5 asked questions about preservation and management that follow-up the choices regarding presented in Section 4, serving thus as a "check" for the credibility of respondents' decisions. Section 6 provided questions for demographic analysis. The following provides a summary of the different sections with a detailed description for the construction of the choice experiment (including choice of experimental design, construction of choice sets, and measurement of survey which are steps 3,4, and 5, respectively, in Table 5.1). Appendix E offers further details and discussion for individual questions and variables of the other sections in the survey.
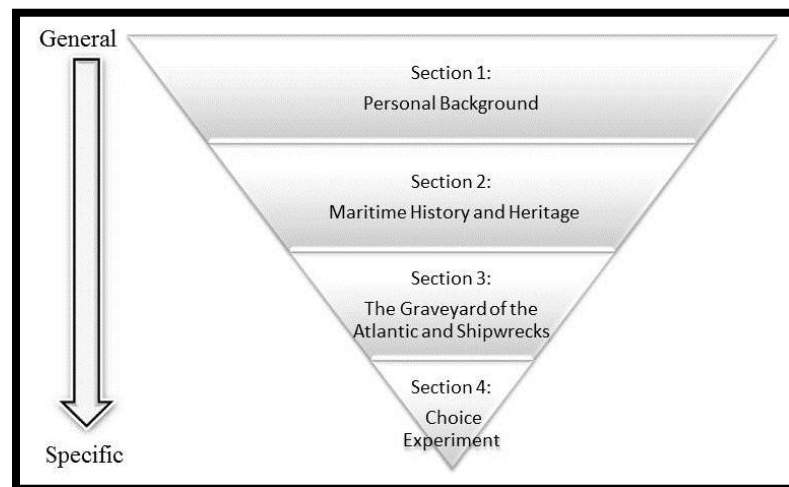
Figure 5.2: Flow of survey sections survey from general to specific questions towards the CE (figure by author).

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Cover Page

The survey begins with a cover page that thanks participants for taking time to complete the survey. It then informs them of the approximate time required to take the survey (30 minutes), its layout and structure, and the procedures to return the survey when they have finished.

Section 1: Recreation and Travel Interests

Section 1 was designed to understand respondents' recreational and travel behavior, motivations, and interests in visiting North Carolina's beaches. The purpose was to establish a contextual background to respondents' individual choices and to investigate if these choices influenced their preferences towards preserving shipwrecks in the Graveyard of the Atlantic. It was also a good starting point for respondents because it allowed them to start with easy questions based on their own experiences without any knowledge about maritime heritage and archaeological resources. There were nine separate questions asking about their amount of visits, duration and location of stays, and their reasons for visiting North Carolina beaches. One question asked specifically if they owned a boat in order to measure what percentage of the sample were current boat operators and measure if this had any relationship to their choices in preserving shipwrecks.

Section 2: NC Maritime History and Heritage; and Section 3: Shipwrecks in the Graveyard of the Atlantic

Sections 2 and 3 examine respondents' attitudes, awareness, perceptions, and knowledge of North Carolina's maritime history and heritage, the Graveyard of the Atlantic, and shipwrecks

in the Graveyard of the Atlantic. These questions addressed the study's primary research

questions:

- How does the public perceive maritime archaeological heritage?
- What is the public's awareness of and connection to maritime heritage and shipwrecks?

Perceptions and awareness stem from the knowledge level people have about the subject (Ramos

and Duganne 2000). Therefore several questions asked respondents about what they knew about

these different subject areas.

Sections 2 and 3 also asked questions designed to understand individual's interest and

participation in different areas, such as history, scuba diving, and educational programs about

shipwrecks. Evaluating these dimensions provides further background to the types of people

who value preservation of maritime archaeological by addressing these corollary types of

questions:

- Is there a significant relationship between respondents who are interested in NC maritime history and the value they place on preserving shipwrecks?
- Do those who have a strong interest in a particular time period, have a greater willingness to pay for preservation than others?
- Is there a significant relationship between respondents who scuba dive, or are interested in scuba diving, and the value they place on preserving shipwrecks?
- What types of activities and are respondents interested in doing and learning regarding shipwrecks, and types of shipwrecks?

By measuring these dimensions, managers and policy makers will have better understanding of

the preferences the public holds towards maritime archaeological resources. This will help focus

efforts both in terms of preservation and outreach, hopefully making better and efficient choices.

While questions in Sections 2 and 3 could have been presented without introductory

material, it was determined that participants needed to have some type of information in order to

provide informed answers. Therefore information blocks preceded the questions for each

thematic area (Figure 5.3). These information blocks were designed and pretested to be short

and to present a minimum amount of explanation that would familiarize respondents to the

subject matter without biasing their answers. They also allowed necessary information to be

introduced and defined before the CE (Section 4). This reduced the amount of expository needed

for the CE. For example, since different types of "Educational Programs," were defined in

Section 3, respondents acquired familiarity with these concepts before choosing among them in

the CE.

Section 4: Graveyard of the Atlantic Maritime Park (Choice Experiment)

Section 4 represents the choice experiment portion of the survey instrument designed to

estimate the public's WTP for preservation of shipwrecks along with certain trade-offs. Since

this section involved a series of steps to create the CE, it will be discussed here in greater detail

than previous sections, focusing especially on the methodology for constructing the various

versions of choices, sets of choices, and versions of the survey.

As discussed before, a CE is a type of stated preference technique, and these techniques

have certain the following design structures that need to be considered carefully (Mitchell and

Carson 1989; Arrow et al 1993; Navrud and Ready 2002; Haab and McConnell 2003):

- *Hypothetical Scenario:* This is a hypothetical situation the good to be provided, which in most cases is a change in the status quo (for example, more shipwrecks protected through preservation). It is vital that respondents have enough information about the good without overloading them with detail.
- *Payment Vehicle:* Respondents must know how they will forfeit their money. For example, a government program may be logically funded through tax increase.
- *Exclusion Mechanism:* In order for a CE to involve trade-offs, a mechanism is needed that links respondents' payments to a change in the good – for example, preservation is

North Carolina's Maritime History

North Carolina has one of the longest and richest maritime histories in the United States. Native Americans used the waterways for daily transportation, trade, and settlement hundreds of years before Europeans arrived. In 1585, the English first tried to establish a colony on Roanoke Island. Since then hundreds of thousands of ships have sailed and steamed along North Carolina's coasts, estuaries and rivers. North Carolina's maritime history is full of dramatic events ranging from piracy to Naval battles in the Civil War and World War I and II. Generations of North Carolinians have also helped shape this history by creating communities and industries that have connected people to the water for hundreds of years.

North Carolina's Maritime Heritage

North Carolina's long maritime past is remembered on land and sea by its maritime heritage. Maritime heritage is the way we today interpret and identify our past through physical and non-physical aspects.

The Graveyard of the Atlantic

Shipwrecks are examples of the physical remains of North Carolina's maritime history and heritage. They can be found all over the state, resting below the waves of NC's rivers, estuaries, and coasts. One area in particular that has become associated with NC shipwrecks is the "**Graveyard of the Atlantic**."

The Graveyard of the Atlantic is an area of approximately 325 miles of NC coastline and more than 15,000 acres of Atlantic Ocean. Here, two powerful currents (the Gulf Stream and the Labrador Current) meet to create "ocean highways' for ships moving up and down the Atlantic Seaboard. For hundreds of years, thousands of vessels have taken advantage of these currents to travel up and down the state for various purposes, but they also faced threats to their success and existence.

Shipwrecks

Potentially, over 2,000 vessels have been lost in the Graveyard of the Atlantic. The remains of some of these ships still exist as shipwrecks, spanning hundreds years of history, architecture, technology, industry and maritime culture. While the locations of many of these shipwrecks are unknown, the known shipwrecks can be associated with historic events, historic figures, and daily activities that helped shape North Carolina and the United States to varying degrees.

Educational Programs about Shipwrecks

Since most shipwrecks cannot be visited without SCUBA diving, many people will not get the opportunity to visit them directly. However, there are different ways to bring the stories and the histories of shipwrecks to the people:

- Museums display artifacts and parts of shipwrecks.
- Walking trails may incorporate signs, posters, and pamphlets to provide information about shipwrecks.
- "Virtual" Trails use computer, video, and mobile phone technology to take people on virtual dives to shipwrecks
- Workshops and lectures allow people opportunities to learn about the shipwrecks as well as receive training in archaeological documentation of shipwrecks

Figure 5.3: Information blocks presented in order they appeared in final survey instrument (top to bottom): North Carolina's Maritime History; North Carolinas Maritime Heritage; The Graveyard of the Atlantic; Shipwrecks; and Educational Programs about Shipwrecks (Full sized images are found in Appendix E; figure by author).

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greater if respondents pay the money. If this mechanism is not included, then it the payment vehicle is considered a charitable donation, and because of the free-rider problem, charitable donations do not reveal preferences. A referendum involving a tax increase satisfies this requirement because if the hypothetical program is adopted, respondents will pay higher taxes .

- *Elicitation Method*: There are different ways to ask respondents their willingness to pay (WTP) for the good. Dichotomous choice or discrete choice – a format where respondents are asked simply "yes" or "no" if they would pay – is recommended because it is believed to be easiest for respondents to answer reliably.

With these considerations in mind, the CE's structure and design were founded on and shaped by the attributes and attribute levels ultimately chosen for inclusion. After transferring many themes and possible attributes to other parts of the survey, it was decided to focus on two primary attributes: preservation and outreach. WTP for preservation of shipwrecks was a core issue for this study. There were three levels of preservation presented, including the status quo (discussed below). Outreach was another prominent theme in the various phases of Stage I. Based on the expert survey and interviews (Phase 1 and 2), four attributes of outreach stood out consistently: public programs and 3 types of heritage trails (walking, scuba, and virtual). For the attribute, "public programs," there were three levels (moderate investment, large investment, or no investment, which was the status quo). Each of the heritage trails had two levels (a binary choice of "yes" in favor of the trail; or "no" not in favor). The final attribute was the payment vehicle with three levels, not including a zero-dollar tax increase. In total, there were 6 attributes with levels of 3, 3, 2, 2, 2, and 3, respectively, yielding 216 choice options (3^3 x 2^3 = 216). The structural framework for the CE was as follows:

1. Description of the status quo
2. Description of the hypothetical scenario
3. Description of the payment vehicle and exclusion mechanism
4. Presentation of elicitation method (choice sets)

The CE began with a presentation of the current situation (status quo) of preservation for shipwrecks in North Carolina (Figure 5.4). It delineated a red zone extending 3 miles out from

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The map below shows the current state of shipwreck protection and public programs in North Carolina:

I. **Red Zone**: the area marked in **red** represents the following aspects of shipwreck protection:
- Protection for 30 known submerged shipwrecks
- Protection for any shipwrecks that may yet be discovered over an area of 1,015 square miles of ocean bottomlands
- For protected shipwrecks, it is illegal to remove any artifacts on or around a shipwreck (including the ship itself) without proper permission – and doing so may result in possible fines or jail time.

II. **USS _Monitor_** (marked by the dot in the red square on the map)
- The USS _Monitor_ is a Civil War shipwreck, resting 18 miles off Cape Hatteras. It is the only shipwreck outside of the red zone that receives explicit protection from illegal salvaging.

III. **Three maritime museums** (marked with stars on the map)
IV. **No organized heritage trails or public programs**

Figure 5.4: Description of status quo in final survey instrument (figure by Stephen Sanchagrin and author).

the shoreline. This area is defined as North Carolina's state waters according to the ASA of 1987 (Public Law 100-298; CRNPS 2006), and contains all the shipwrecks that the state is responsible for as listed in NOAA's Office of Survey's Automated Wreck and Obstruction Information System (AWOIS) (NOAA's Office of Coast Survey 2012). Geographical

Information Systems (GIS) were used to estimate the square miles of bottom land. The status

quo section also listed the current North Carolina law regarding protection of shipwrecks and

other underwater archaeological sites (North Carolina Department of Cultural Resources 2009).

It also illustrated the location of the three state maritime museums, and informed participants that

that currently there is not an *organized* heritage trail system or public programs for North

Carolina about shipwrecks and other maritime archaeological resources.

Next was the description of the hypothetical scenario. This section began with the

following transitional script:

> **NOW SUPPOSE** [sic], North Carolina wants to create a **"Graveyard of
> the Atlantic Maritime Park"** with three primary goals."
>
> 1. To offer more shipwrecks protection from illegal artifact removal, by
>   increasing the geographical preservation zones where state and federal
>   laws would apply but with the following limitations and regulations:
>   - Current fishing practices – whether recreational or commercial –
>   ***would not*** *be affected.*
>   - Current recreational SCUBA diving activities ***would not*** *be
>   inhibited* and recreational divers would have access to dive on
>   shipwrecks.
>   - Removal of any kind of artifact from anywhere on or around the
>   shipwreck would be expressly prohibited.
>
> 2. To increase the number of programs offered to the public.
>
> 3. To create a series of different kinds of maritime heritage trails

This information accomplished several tasks. First, it separated the status quo from the

hypothetical scenario. Second, it expressed the aims of hypothetical "Graveyard of the Atlantic

Maritime Park" (GAMP hereafter) in terms of what it would and would not do. Explicitly

stating GAMP's limitations was essential as there was great concern over fishing access that was

expressed through local interviews. Additionally scuba divers voiced their anxiety about

limiting access to shipwrecks through different mechanisms, such as a permitting system. It was

indicated that preservation efforts would face strong opposition to imposing fishing or diving

access. Yet it was likewise necessary to be explicit that shipwrecks under this scheme would be

given full protection from treasure hunting and removal of artifacts. Finally, the goals for

GAMP introduced the attributes that were being studied – preservation, public programs, and

maritime heritage trails.

After the introduction of the hypothetical scenario, the attributes and attribute levels were

presented with corresponding information (Figure 5.5). The challenge was to present all the

information necessary to make an informed decision without overwhelming or confusing the

respondent with too much information. It was a difficult balance to achieve. Pretesting of early

PRESERVATION ZONES (maps for Yellow and Orange Zones can be found on next page)	
Red Zone:	Status Quo; 30 submerged shipwrecks protected
Yellow Zone:	38 more shipwrecks (68 total; 127% increase); 2,192 sq. miles of bottomland
Orange Zone:	39 more shipwrecks (107total; 257% increase); 13,498 sq. miles of bottomland

PUBLIC PROGRAMS	
No Investment	Status Quo; no increase in museum exhibits, and no investment for educational workshops, training in maritime archaeology, or other public programs.
Moderate Investment	Increase museum exhibits and provide educational workshops and training in maritime archaeology
Large Investment	Everything thing in "Level A" *and* development of a public television series about shipwrecks; creation of boating tours to shipwrecks through partnerships with private boating charters on the Outer Banks.

MARITIME HERITAGE TRAILS	
None:	Status Quo; currently there are no types of maritime heritage trails
Walking	Signs, brochures, and pamphlets placed near designated facilities, sidewalks, and roads of the Outer Banks that detailed histories and stories of shipwrecks
Virtual	Using computer, video, and mobile phone technology to take people on virtual dives to shipwrecks
Diving	Developed for SCUBA divers who want to learn more about the shipwrecks while diving

Figure 5.5: Attributes and attribute levels as presented on final survey instrument (figure by author)

survey drafts showed information overload with participants suffering survey fatigue and

"skimming" the details instead of reading them. Various versions of the description of the

attributes and levels were created and retested until the final version was formed. One of the

ways to help respondents understand the coverage and size of the preservation zones was to

include maps (Figures 5.6 and 5.7). These maps served as a visual reference for preservation

zones, allowing respondents to see models of the increase in ships protected and square acreage

of bottomland covered for the two hypothetical preservation zones (Yellow and Orange Zone).

similar to the "Red Zone" representing the status quo, the boundaries for these new zones were

created using the AWOIS database and GIS. Pretesting helped refine the presentation and

characteristics of the maps and zones. A detailed discussion the reasoning behind each attribute

and attribute levels (including maps) can be found in Appendix E.
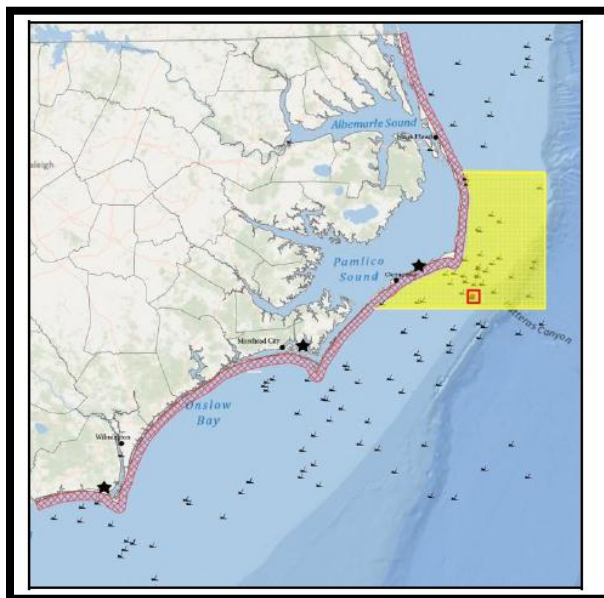
Figure 5.6: Map of Yellow Preservation Zone (figure by Stephen Sanchagrin and author)
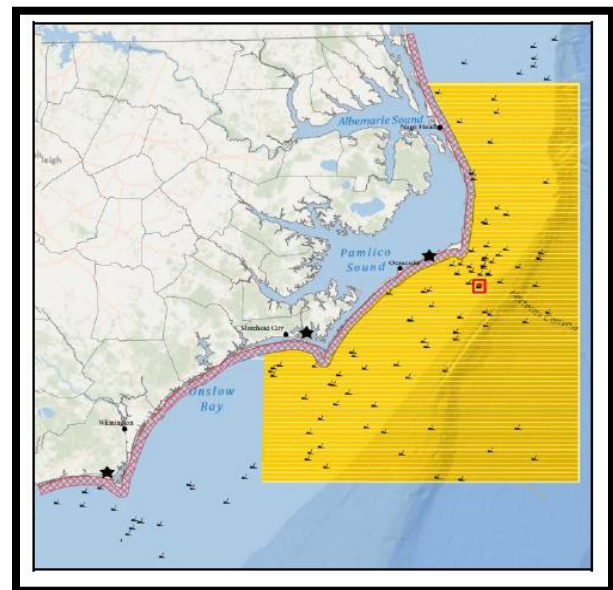
Figure 5.7: Map of Orange Preservation Zone (figure by Stephen Sanchagrin and author)

After the hypothetical scenario, the payment vehicle and exclusion mechanisms were presented. First, respondents were told that to pay for GAMP a "one-time tax increase that would never be instituted again." Respondents also were told how this tax increase would be used to further the goals of GAMP into the future. Then, the exclusion mechanism was introduced by first reminding respondents that "Every NC tax-payer would be responsible for paying their share," or in other words that there would be no free riders. Respondents were told that due to uncertainty over costs of the final program, there were different taxes being considered. This information was a primer for respondents when they came to the choice sets and saw different possible values in tax-increases.

Next, they were given instructions for choosing what type of park and funding level they preferred through three "voting opportunities" (choice sets) of different "programs" (profiles) as part of a referendum vote. It was stressed that they needed to choose at least one program from each voting opportunity as it was necessary to determine what they "cared about most" – or valued most. They were also informed that for every voting opportunity, they did not have to select any program, but could choose a "status quo" option – or no change –with no tax increase incurred (Arrow et al. 1993; Navrud and Ready 2002; Haab and McConnell 2003).

Finally, participants were presented with the following reminder that their choices could have real consequences for future policy decisions: "***Keep in mind that NC policy makers and administrators will see these results, and that any one-time increase in taxes would limit your ability to buy other goods and services*** [sic]." This sentence instituted the "consequential stated preference elicitation design" which has been developed and tested to mitigate hypothetical bias based on the premise that if respondents view the survey – and its results – as *potentially* influencing real world decisions, they should treat the hypothetical scenario as real.

Consequently, their choices through the referendum can be construed as incentive compatible –
that is, when respondents understand that their best strategy is to answer presented questions as
honestly as possible (Cumings and Taylor 1998; Carson et al 2000; Landry and List 2007).

Respondents then were given the elicitation method – which were a series of choice sets
(termed "voting opportunities" in the survey) of different profiles ("programs" in the survey).
Construction of the profiles and choice steps involved steps three and four, respectively, of the
CE methodology (see Table 5.1). This process began by combining the different levels of
attributes into a number of profiles – or alternative scenarios of attribute levels. As briefly
mentioned above, six attributes were selected, three of which had three levels and two had two
levels (Table 5.4). There are two ways of creating different combinations of attribute levels in
choice experiments: 1) complete factorial design; or 2) fractional factorial design.

A complete factorial design is a factorial design in which each level of each attribute is
combined with every level of all other attributes. There are several statistical advantages of
using a complete factorial design, including but not limited to guaranteeing attribute effects are

Table 5.4: Attribute and Attribute Levels

	Attributes	**Levels**
1	*Preservation* (3 levels including status quo)	1) Red Zone (=status quo); 2) Yellow Zone; and 3) Orange Zone
2	*Public Programs* (3 levels including status quo)	1) No Investment (=status quo); 2) Moderate Investment; and 3) Large Investment
3	*Walking Trails* (2 levels including status quo)	1) Yes; 2) No (=status quo)
4	*Virtual Trails* (2 levels including status quo)	1) Yes; 2) No (=status quo)
5	*SCUBA Trails* (2 levels including status quo)	1) Yes; 2) No (=status quo)
6	*One-Time Tax* (3 levels not including status quo (= $0)	1) $12; 2) $55; 3) $145

truly independent (orthogonal) and therefore allowing "main effects" and "interaction effects" to be calculated with the greatest amount of information. An effect is a difference of means for an attribute level relative to some comparison group or situation. For example, a "main effect" is a comparison between the means of each level of a particular attribute to the overall mean and will test whether an attribute level (independent variable) affects response rates (dependent variable).

An "interaction effect" helps one understand how behavior is connected with variation in the combination of different attributes offered. An interaction between two attributes occurs if consumer preferences for levels of one attribute depend on levels for the second Although complete factorial designs have the statistical advantage to understand consumers' decision and choice processes because they provide the greatest possible amount of information, they often have an impractically large number of combinations to be evaluated (Louvier et al. 2000; Snowball 2008). For example, in this study there were three attributes with 3 levels and 3 attributes with 2 levels. This would have given 216 possible profiles (3^3 * 2^3 = 216), and would have been too large to implement efficiently. Therefore, the fractional factorial design was chosen.

Fractional factorial designs involve reducing the number of scenario combinations out of the complete factorial design so that effects of interest can be estimated as efficiently as possible. This reduces the number of profiles presented to the respondent, but does have some loss of statistical information as it will not detect all interactions, only the main effects. Therefore, there is a risk that the effects of an omitted profile, or profiles, may yield omitted-variable bias. This can lead to the risk that effects of an omitted subset, or subsets, may be confounded with an included subset, a type of omitted-variable bias. This bias is ameliorated somewhat by evidence from linear models showing that main effects typically account for 70 to 90% of explained

variance and two-way interactions account for 5 to 15. Therefore since main effects account for most of the variance, a CE using a fractional factorial design should allow estimation of as many two-way interactions (if not all) whenever possible to minimize bias from omitted subsets on estimates of effects of interest (Louvier et al. 2000; Snowball 2008).

The effects that this study were interested in estimating related to probabilistic voting patterns, and thus an effect was the influence of a change in attribute on the probability of selecting that profile over the others (holding all else constant). SAS statistical software utilizing MktEx macro was employed to create efficient factorial design sizes from the total 216 complete factorials, yielding scenarios ranging from 10 to 72 alternative profiles. Based on these alternatives, a CE could be designed with as few as five different choice sets because each choice set can be estimated from m – 1 parameters where "m" is the number of profiles (3) in that choice set (10 / (3-1) = 5). Five choice sets from 10 profiles was not the recommended design, however, because it had the most violations of basic principles of efficient choice designs: 1) orthogonality – independence of each attribute from each of the other attributes; 2) level balance – levels of each attribute appear with equal frequency; 3) minimal overlap –when alternatives within a choice set have non-overlapping attribute levels; and 4) utility balance – when the utilities of alternatives within choice sets are the same (Zwerina et al 1996). To satisfy these four basic principles, the design with 72 profiles as 100% efficient linear designs could be made from it.

Next, a macro ran all two-way interactions for the attributes, preservation zone, public programs, walking trails, virtual trails, and diving trails in order to estimate these interactions so that the value of each attribute can vary with the level other attributes. From this design, dominant options were eliminated. A dominant option – or dominant profile – is an alternative

that clearly offers more at a lower price (Snowball 2008). For example, if consumers were presented with two choices represented in Figure 5.8, they would likely choose "Option B." Option B offers more for less, and is a dominant choice over Option A.

	Option A	Option B
Preservation Zone	Red Zone	Yellow Zone
Public Programs	No Investment	No Investment
Walking Trails	No	Yes
Virtual Trails	No	Yes
SCUBA Diving Trails	Yes	Yes
One-time Tax	$55	$10

Figure 5.8: Example of Dominant Option in a Choice Set (figure by author).

Finally, a Choice Efficiency macro command created 24 choice sets with three profiles for each choice set (plus a "status quo" alternative) from the full factorial (216-3 = 213) using the dominant option macro as a restriction and utilizing the recommended design size of 72 profiles. These 24 choice sets were blocked into eight groups (or blocks) of three choice sets. Therefore, eight different versions of the final survey instrument were initially necessary. Each version contained three choice sets, and each choice set had 3 profiles plus a status quo option.

Once the profiles, choice sets, and eight versions of the survey were designed through SAS, they were transferred to the final survey instrument with technical jargon, such as profiles and choice sets, replaced with the terms "Programs" and "Voting Opportunities," respectively. This was done for the sake of clarity and readability for respondents. Respondents were given instructions about how to fill out (or "vote") for a profile ("program) in each choice set ("voting opportunity"). This constituted the elicitation mechanism in which respondents were asked to make a discrete choice among the alternatives for each choice (plus the status quo) of the

particular survey version they received (Step 5 in CE design; see Table 5.1). Figure 5.9 provides

an example of what the respondents received. After each choice set, a question followed asking

respondents how confident they were about their choice in order to measure their certainty

(Figure 5.9). These choice certainty questions were another check to mitigate hypothetical bias

and control for respondents' confidence in their answers. After the three choice sets and

corresponding choice certainty questions, the survey moved onto Section 5 ("Preservation and

Management").

Figure 5.9: Sample of choice sets and choice certainty questions presented to survey participants (figure by author).

Section 5: Preservation and Management

Section 5 asked respondents questions designed to measure their perceptions, attitudes, and knowledge of not only preserving maritime archaeological resources but also about the agencies and organizations that served as possible stewards of these resources. These questions followed the CE as logical way to gauge participants' opinions over the management of the resources which they had chosen to fund preservation efforts of (or possibly chosen not to fund). During the interview phase of this project, it became clear that many of the interviewees liked the idea of preserving shipwrecks, but had a strong distrust of any government agency that might manage them. It was important to test whether this sentiment was similar for the general population too. Understanding this will help identify areas where trust needs to be built and possible resistance to preserving shipwrecks will be prevalent.

Additionally, this section asked participants to make decisions regarding a shipwreck's significance – a term in archaeology that carries particular meaning and comes loaded with its own parameters of value. Many of the variables in these questions were taken from archaeological literature concerning whether a site can be considered archaeological significant or not (see Chapter 2 for full discussion). Other question regarding the public's perception of the importance shipwrecks and the contributions (or benefits) they provided society were derived from the expert survey. Finally, there were different questions about access to shipwrecks. Access in particular was a theme that many scuba divers were concerned about in the public scoping meetings. Questions that related to this issue were to measure the publics' attitudes towards whether should be allowed to all shipwrecks, or if there are certain conditions considered important enough to limit access.

Section 6: Demographics; Comments; and Back Page

The final section of survey, Section 6 ("Demographics), asked for basic demographic information, such as gender, marital status, race/ethnicity, age, level of education, income, and zip code. After the demographic section, a comment page was included for participants to express any other thoughts. Finally, there was a back page with instruction about where to send the survey via a pre-addressed, pre-stamped envelope.

Stage III: Implementation

After completion of pretests, the final survey instrument was designed, and submitted to ECU IRB for approval (which was subsequently received). Then a random sample of 2000 North Carolina residents was purchased through Survey Sampling International, company which provides addresses for research purposes only. The original sample was supposed to be 1000, but due to reported survey fatigue during pretests, the number was doubled in an effort to increase response rate. The sample was split into two groups:

1. Group A (n = 1000) would have the option to take the survey via paper or online.
2. Group B (n = 1000) would only be able to take the survey online.

Respondents in Group A were coded with ID numbers beginning at 1000. Respondents in Group B were coded with ID numbers beginning at 3000.

In addition, the consistent reporting of survey fatigue influenced the number of versions that had to be created. As previously mentioned, designing the proper amount choice sets necessitated creating eight blocks of choice sets with three sets per block. Pretesting indicated that respondents paid close attention to the first choice set in a block, but their attention waned for the second and third choice sets. This indicated a possible ordering bias, in which responses

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vary based on the order of choices. In order to address this bias, the order of choice sets was rotated twice.

This rotation required increasing the amount of survey versions to 24, which was divided into the total for each sample group, yielding 41 participants per survey block. This meant that surveys were sent to 984 people in each sample group (1000/41 = 984). Table 5.5 illustrates the various versions and the coding procedures used for all the different survey versions.

Table 5.5: Survey versions and coding procedures

Version	Code	ID		Block	Choice Sets	Order of Choice Sets
		Group A	Group B			
1	1A	1001-1041	3001-3041	1	1 x 2 x 3	1 x 2 x 3
2	1B	1042-1082	3042-3082	1	1 x 2 x 3	2 x 3 x 1
3	1C	1083-1123	3083-3123	1	1 x 2 x 3	3 x 1 x 2
4	2A	1124-1164	3124-3164	2	4 x 5 x 6	4 x 5 x 6
5	2B	1165-1205	3165-3205	2	4 x 5 x 6	5 x 6 x 4
6	2C	1206-1246	3206-3246	2	4 x 5 x 6	6 x 4 x 5
7	3A	1247-1287	3247-3287	3	7 x 8 x 9	7 x 8 x 9
8	3B	1288-1328	3288-3328	3	7 x 8 x 9	8 x 9 x 7
9	3C	1329-1369	3329-3369	3	7 x 8 x 9	9 x 7 x 8
⋮	⋮	⋮	⋮	⋮	⋮	⋮
22	8A	1862-1902	3862-3902	8	22 x 23 x 24	22 x 23 x 24
23	8B	1903-1943	3903-3943	8	22 x 23 x 24	23 x 24 x 22
24	8C	1944-1984	3944-3984	8	22 x 23 x 24	24 x 22 x 23

Once all 24 versions were created, ECU's Center for Survey Research converted them using "TeleForm," which is a processing application developed by Hewlett Packard that transform hard-copy paper into machine-readable forms that can be scanned and data processed digitally similar to scantrons used in standardized testing (Hewlett Packard 2012). This was done to reduce data entry mistakes and ensure data reliability. Once converted, all 24 different versions were reviewed for typos, grammatical errors, and changes required by the new TeleForm format. They were also tested with dummy data to check for reliability. Finally, all versions were further converted into an internet compatible format using Qualtrics software and given "tinyurl.com" addresses coded specifically to the participants' identification numbers. These internet versions were also reviewed for errors and tested with dummy data.

After all surveys in their different formats were cleared, distribution commenced following "The Dillman Method." The Dillman Method refers to an approach for implementing the mailing of surveys recommended by Don A. Dillman as part of his Total Design Method (Dillman 1978). There has been considerable amount of literature discussing this method and it effectiveness in increasing response rates (Leeuw and Hox 1988; Dillman 1991; Dillman et al. 2000). The following are the basic steps:

1. Send a personalized advance-notice letter
2. Send the complete survey package with cover letter, instructions, survey questionnaire, and return envelope with postage approximately one week later
3. Send a follow-up postcard approximately one week later
4. Send a new cover letter, questionnaire, and return envelope approximately two weeks later
5. Send a final contact to request completion of the survey.

For this study, respondents received the advanced-notice letter (Appendix B), informing them of the following:

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- Author's background and reasons for asking the individual to participate in the project
- Individual's responses were completely confidential, and the means taken to ensure this confidentiality
- Participation was voluntary
- Individual had to be 18 years or older to take survey
- How to access the survey online, including survey link and individual passcode
- Or that a paper version would be sent to them (if and only if they were in Group A; Group B participants were told only how to access the survey on line with no mention of the paper survey included in their introductory letter).
- A cash and prize incentive
- Contact information if they had questions

The first two paragraphs of the letter provided the participant not only with the author's background and reasons for asking the individual to participate in the study, but it also included the statement, "the information yielded from this study *may be seen by North Carolinian law and policy makers as they decide the best way to manage coastal issues and use limited resources."* This was part of the consequential design discussed in Chapter 3 as one way to help reduce hypothetical bias in stated preference studies. Incentives were also included to try to increase response rates. These incentives included the chance to win gift cards valued at $100, $50, or two cards at $25, with additional non-monetary prizes possible such as DVDs, posters, and shipwreck dive cards.

A week after this initial letter, those in Group A who had not yet responded were mailed their survey packages, which included another cover letter, the survey questionnaire, and return envelope with postage included. The next week, a follow-up reminder postcard (Appendix B) was sent to all non-respondents in Group A and Group B. These represented steps one through three of the Dillman method. Unfortunately, steps four and five were not able to be completed due to budget limitations.

Stage IV: Analysis

Once paper surveys were returned, they were code processed using TeleForm by the Center for Survey Research to minimize data entry errors. Online responses were recorded using Qualtrics software and used the same coding as the paper surveys. Appendix F presents an example of the final survey instrument.

Sections one through five and four through six were analyzed using SPSS software. Descriptive statistics for these sections included frequencies, percentages, and means where appropriate. Sections where respondents could write in comments were analyzed using similar procedures as in Stage I. Results are presented in Chapter 7.

The CE section of the survey (Section 4) was processed using STATA statistical software. Before analysis commenced, the raw data had to be batched and grouped by respondent ID, survey version, and separate answers to each choice set presented to particular respondents. Once this data was batched, it was then concatenated back into an Excel file that was imported into STATA. The conditional logit model (CLM) was used to analyze choices in the CE, which are presented in Chapter 7. The following is a discussion of the model that was used to analyze the data, and why it was used for this project.

Conditional Logit Model (CLM)

The CLM is derived from the logit model which is a widely used discrete choice model Its popularity stems from the fact that it takes a closed form, allowing for choice probabilities to be calculated analytically – rather than requiring simulation. This creates ease of estimation relative to other types of models. To derive the logit model, a specific distribution for the unobserved utility (ε_{nj}) is added to the RUM's notation ($U_{nj} = V_{nj +} \varepsilon_{nj}$) (RUM is discussed in

Chapter 3). This distribution assumes that ε_{nj} is independently, identically distributed type I

extreme value, which is also known as Gumbel distribution (Train 2009). The density – or

probability density function (PDF) – for each unobserved component (ε_{nj}) is,

$$f(\varepsilon) = e^{-\varepsilon} / (1+e^{-\varepsilon})^2 \qquad \text{(Eq. 5.1)}$$

with a cumulative distribution function (CDF):

$$F(\varepsilon) = 1 / (1+e^{-\varepsilon}). \qquad \text{(Eq. 5.2)}$$

Using this distribution, the logit choice probability results in the follow closed form expression

(Train 2009):

$$P_{ni} = e^{X_{ni}\beta} / \sum_j e^{X_{nj}\beta} \qquad \text{(Eq. 5.3)}$$

Since logit probabilities use this closed form expression, traditional maximum-likelihood

(ML) procedures apply. The objective of ML estimation is to select values for estimated

parameters (β) that maximize the probability that the value generated from the CDF also

generated the data that was observed. If the data are independent and identically distributed,

then the likelihood of observing the dataset is expressed through the following reworking and

multiplying of the PDF as a joint-density function:

$$L(\beta \mid x) = l(\beta \mid x_1) \times l(\beta \mid x_2) \times l(\beta \mid x_3) \times \ldots \times l(\beta \mid x_n) \qquad \text{(Eq. 5.4)}$$

In order to make this likelihood function more manageable, it can be rewritten using the

following natural log transformation, which a converts the joint product to a summation

summation and simplifies the numerical estimation procedure:

$$\ln L(\beta \mid x) = \ln l(\beta \mid x_1) + \ln l(\beta \mid x_2) + \ln l(\beta \mid x_3) + \ldots + \ln l(\beta \mid x_n) \qquad \text{(Eq. 5.5)}$$

Another benefit of the logit model is that it can be adapted to conduct estimates on a

subset of alternatives without inducing inconsistency. Such a subset exists in a CE when

fractional factorial designs are used, as this study has done. This is known as the conditional

logit model (CLM). The conditional probability that an individual chooses an alternative (i) *conditional* on a preselected subset (K) is denoted $P_n(i \mid K)$ and is expressed as,

$$P_n(i \mid K) = e^{X_{ni}\beta} / \sum_{j\in K} e^{X_{nj}\beta}. \qquad \text{(Eq. 5.6)}$$

This is simply the logit formula for a person who must choose among the alternatives in subset K. The conditional log-likelihood function (CLL) is the same as the log-likelihood function given in Equation 3.5, except that K_n is the subset of alternatives – which replaces the complete set – for every sampled person *n*. Although CLL maximization of CLL provides a consistent estimator of β, it is not efficient because it excludes information from the alternatives not included in the subsets (Train 2009).

The marginal effects indicate the influence on the probability of an alternative (*i*) being chosen by an individual by a small increase in a particular factor or attribute. This is achieved by taking the derivative of the logit function with respect to the covariate (x_k) for continuous variables (for example, in this study the "tax" attribute is a continuous variable) is expressed as,

$$dPr/dx_k = \beta_k e^{\beta'x} / (1 + e^{\beta'x})^2. \qquad \text{(Eq. 5.7)}$$

Since conditional logit models are not continuous, the goal is to estimate the unknown parameters. This is calculated by measuring differences among alternate alternative characteristics (Haab and McConnell 2002:193):

$$e^{X_{ni}\beta} / \sum_{j\in K} e^{X_{nj}\beta} = 1 / e^{(X_{nj} - X_{ni})\beta}$$
$$= 1 / (1 + e^{\beta'x_j}) - 1 / (1 + e^{\beta'x_i}) \qquad \text{(Eq. 5.8)}$$

Logit's ease of estimation and ability to measure subsets of alternatives under conditional logit models comes with some restrictions. The primary restriction is a property known as Independence from Irrelevant Alternatives (IIA), which is a direct consequence to the logit's independently, identically distributed extreme value type I (Gumbel) error distribution within the model. IIA property exists when the ratio of choice probabilities between any two alternatives is

independent (not influenced) by the introduction of other alternatives. For example, consider

two hypothetical sites, A and B. For simplicity, assume the probability of choosing each site to

be 0.5, making the ratio of probabilities equal to one (or 1:1 odds). If a third site, C, is

introduced as a third alternative and *identical* (or perfect substitute) for site B, it would be

reasonable to expect that site A still had 0.5 probability of being chosen, while the probability for

sites B and C would be split between them ($Pr(B) = .25$; $Pr(C) = .25$), now making the

probability of choosing site A to B equal to 2 (or 2:1 odds). Due to the IIA property, however, a

logit model maintains the ratio at 1, underestimating the probability of site A being chosen (0.33)

while simultaneously overestimating the probability of either site B or C being chosen (0.33 for

B and C). Therefore, the IIA can make logit models unrealistic in certain situations, requiring

other models for estimation. Still, when IIA reflects reality considerable advantages exist due to

ability to estimate subset of alternatives via the CL model and maximum-likelihood procedures

discussed above that save researchers time and costs in analysis (Haab and McConnell 2003;

Train 2009).

Conclusion

　　The methodology used in this project was adapted from several disciplines in social

sciences and economics and applied to resources associated with the field of maritime

archaeology. The guiding framework of Cultural Capital was useful in establishing what

techniques could be employed to measure cultural and economic values, but the challenge was

developing a series of steps that could be integrated with and into each other. This process

created the final survey instrument. This instrument's strength was its inclusivity of both

cultural and economic metrics. Yet this inclusiveness due to its interdisciplinary aims created an

instrument that was longer than standard. This was understood and attempts to shorten it were

made while trying to retain its purpose. Results from this process are presented in the next two

chapters.

CHAPTER 6: QUALTITATIVE ANALYSIS OF STAGE I

Introduction

This chapter discusses results from the first stage of this project that was designed to identify attributes and themes for the final survey instrument from three stakeholder groups: 1) a expert panel of professionals in preservation, management, and archaeology; 2) residents of the Outer Banks; and 3) scuba divers and others who presented comments through a series of public meetings sponsored by NOAA's MNMS. As the primary goal was a means to the creation of the final survey instrument, the methodology used to collect and analyze the data was restricted by this objective. Therefore, it is acknowledged that there is room for further and deeper understanding of all three stakeholders' opinions and perspectives. Further, it is also recognized that as data from the different groups used different collection methods, some perspectives of members in each of the groups was likely not recorded. These limitations were acceptable based on the primary purpose of the first stage, and in order to meet this purpose, basic qualitative analysis was necessary to acquire basic and general information about attitudes, perspectives and opinions these stakeholder groups held towards preserving shipwrecks and other maritime heritage resources in the Graveyard of the Atlantic. Finally, this study has defined heritage as a discursive process between societal members who often hold different perspectives and priorities towards heritage resources. The process is dynamic, always evolving and often creates contention (Pile and Keith 1997; Osborne 1998; Brundage 2000; Graham et al 2000; Seaton 2001). Therefore, the working framework for examining results from the first stage was through the prism of heritage as a continually negotiated and contested resource that is inherently dissonant.

The chapter is organized in the following manner. First, there is a brief overview of the themes that emerged from analysis of all three stakeholder groups. Second, there are brief summaries of each stakeholder group's perspectives towards the themes they discussed most, meaning that not every stakeholder addressed every identified theme. Third, there is a discussion comparing how different stakeholder groups perceived the different themes and subjects that were identified. This is followed by the conclusion.

Overview of Identified Themes

Figure 6.1 shows the different themes that were identified among the different stakeholder groups. As discussed in methodology, open coding was initially used to identify as many themes as possible. Axial and selective coding then consolidated and focused these themes into secondary and primary categories (Figure 6.1). Themes were selected from all three data sets. This means that not every stakeholder group addressed all the themes. This helped separate categories based on prevalence and similar subject between different groups. There was overlap between themes at times. For example, issues of preservation and management were closely associated; costs and threats were often expressed as factors of both preservation and management; two groups expressed themes of identity and economics as possible benefits while another group viewed these same themes primarily in terms of cost. Themes were categorized not only by association and prevalence, but also by the possibility of contention and discord between viewpoints. It should be noted that these categories are not always linear in their relationships as there was considerable overlap and discussion among them. For example, the category "costs" covered issues of management and preservation, economic and identity concerns, and was associated with the threat of losing access to shipwrecks – depending on

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perspective of the stakeholder. This overlap and connection between themes is understandable as themes represent multi-faceted, complex concepts with a spectrum of perspectives and attitudes expressed not only by different stakeholder groups, but also by members within each group.
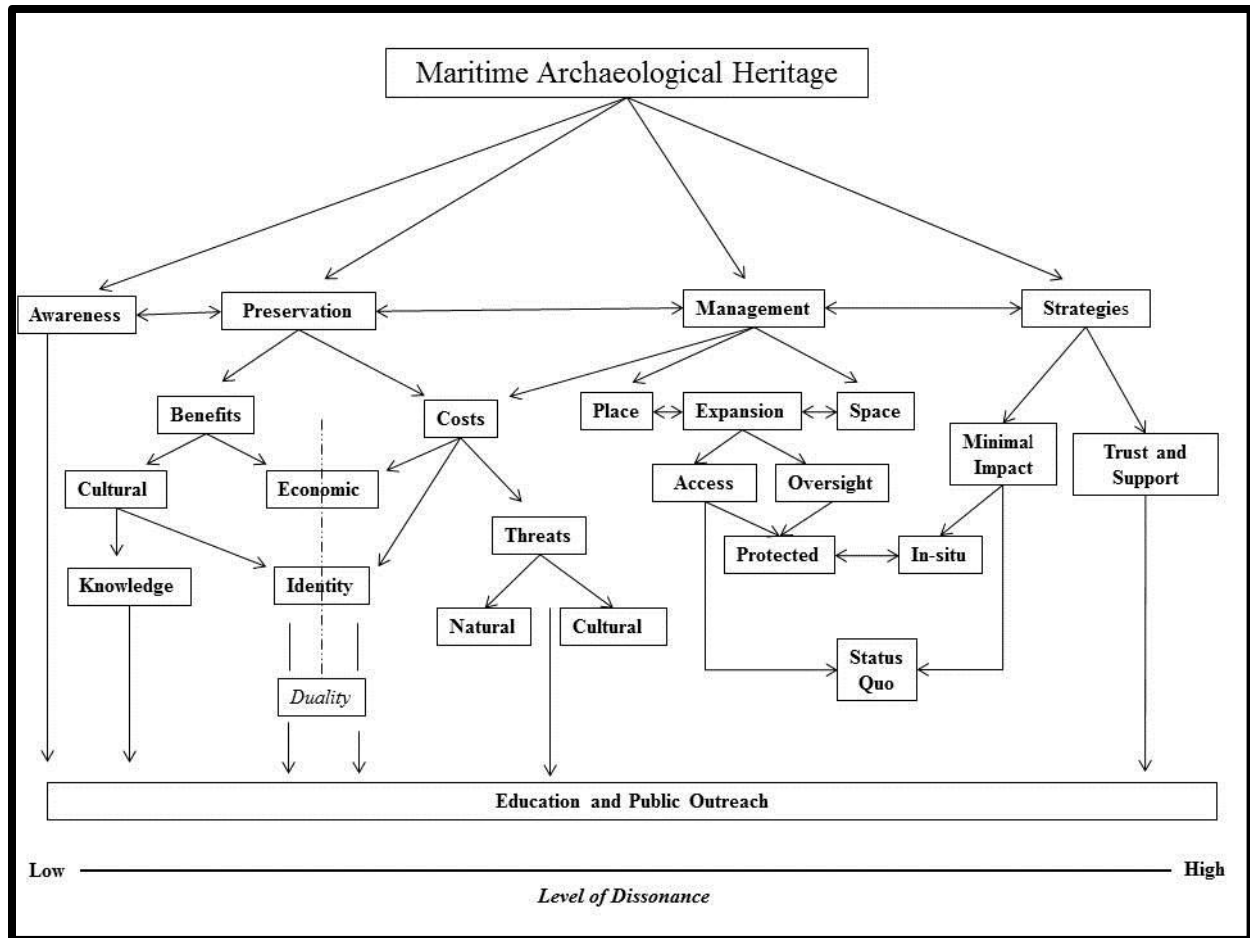
Figure 6.1: Themes identified through analysis of responses and comments from Stage I (figure by author).

Below the themes, there is a line representing the level of dissonance expressed between the three stakeholder groups, ranging from low to high (Figure 6.1). Placement of themes along this line was determined by overall tone of comments, but there are interesting circumstances where there is near agreement in the abstract for themes that had the highest levels of dissonance

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in the details. For instance under "Strategies," every stakeholder group agreed that there should

be "minimal impact" from human activity in the abstract. The contention arises from how

different groups perceived "human activity." For the scientific panel, human activity implied

looting and artifact removal through scuba diving activities, but for the other groups, human

activity meant federal presence and regulation. The difference in these details created intense

expressions of discord – particularly through the public comments – and was often expressed as

an "us versus them" mentality.

Additionally, the dominant theme of "Education and Public Outreach" was omnipresent

throughout all data sets. Every stakeholder group agreed that education was essential to meet

their goals and agendas, but again the details of different goals and agendas created a spectrum

of dissonance over what education and outreach meant or how it should be used. This is why the

category, "Education and Public Outreach," was placed as its own spectrum at the bottom of

Figure 6.1 with most of the other themes connected to it in some fashion. This phenomenon will

be discussed further in the chapter.

Summary of Results

The following presents summaries of analysis from each stakeholder group. It begins by

examining results from the survey sent to members of the expert panel. Next, it looks at

comments from residents of the Outer Banks who agreed to be interviewed. Finally, the

comments from NOAA MNMS's public meetings are discussed.

Expert Panel

Out of the 27 individuals invited to participate in the expert panel survey, there were 19

respondents, but some respondents did not complete the entire questionnaire. More than half of

the respondents (58%) represented members from state and federal management agencies with remaining respondents evenly split between academic and research institutions (21% each). Since questions for the panel were presented in an organized structure, this allowed for easy recognition of themes, perceptions, and attitudes relative to the other groups. Overall, there was strong consensus of viewpoints by the panel towards awareness, preservation, management, and education of maritime archaeological heritage.

As Table 6.1 illustrates, participants tended to define maritime heritage either through specific examples of material culture or through processes that connect contemporary society to the past. They perceived the role shipwrecks play in defining maritime heritage as either central components, or parts of a larger system.

Table 6.1: Examples of Definitions of Maritime Heritage and the Role of Shipwrecks in Maritime Heritage

Definitions of Maritime Heritage	
Tangible	Processes
the ships, ports, lighthouses and other resources that are time capsules of our maritime past	the way that the past history of life in and around the water affect the way that an individuals and communities see and understand the contemporary world
the manifestations of maritime activity, both past and present…	
Cultural resources, including ships, wharves, irrigation systems, harbors, boats, aircraft and maritime settlements, buried or above land, partially or completely submerged in assorted water bodies such as the oceans, rivers, lakes, dams and creeks	Maritime heritage is the way that people see their past as it relates to all things maritime. It could be a set of traditions, the way that a group of people expresses themselves artistically through song, dance, or visual arts.
The material remains of past human life or communities associated with shipping, sailing, fishing…This terms includes, but is not limited to, artifacts, documents, and structures…	Cultural adaptation and its manifestations (material culture, language, settlement patterns, social interaction, etc.) To me it represents a continuum of interactions between man and the coastal environment from earliest contact to today.

Role of Shipwrecks in Maritime Heritage	
Central	Partial
Ships are the hub of the wheel that is maritime heritage	a component of maritime heritage…
Right smack in the middle	valuable, though not the only type of maritime heritage
Key elements as the major industrial artifacts of some civilizations…	prominent part…but not only the part

Respondents could also list as many benefits of preserving maritime heritage as they wanted with most identifying the cultural values (Table 6.2). The primary economic value that was mentioned was the creation of cultural heritage tourism through preservation. The transfer of knowledge through education was considered the primary benefit of preservation (Table 6.2), and sometimes expressed this transference as a continuum between the past to the present which fosters better appreciation and decision making for future generations. Since members of the panel were able to discuss as many benefits as they wanted, many provided a combination of the different benefits. The following quotes provide representative samples of these answers:

> Maritime heritage encompasses what arguably is one of the largest and most consistent threads in human history, culture, industry, economics, etc. [sic]. Preserving maritime heritage provides tangible links to that past and mnemonics that encourage both learning and reflection. Maritime heritage can also be a strong driver for tourism.

> Preserving the past in any form…provide a richness that helps ground people to humanity and the world. Perhaps it helps us today avoid mistakes in the past, or at least make better decisions, but more basically it gives life meaning and depth. The maritime part is important because society has and continues to be tied indelibly to the oceans, estuaries, and rivers for food, commerce, recreation, and health.

Table 6.2: Expert panel's Perceived Benefits of Preserving Maritime Heritage

Benefits	N	%	Type of Value
Knowledge / Education	12	40	Cultural
Identity	5	17	Cultural
Tourism	5	17	Economic
Research (shipwrecks as database)	4	13	Cultural
Informed Decision Making	3	10	Cultural
Enrichment of Life	1	3	Cultural
Total	30	100	Cultural

The panel considered the primary costs of preserving maritime archaeology to be associated with expenses of management and research, such as required funding for conservation, researchers, human resources infrastructure, research, archives, and storage. A few members discussed the non-monetary costs, including loss of biological species due to over-fishing or loss of cultural knowledge. Participants reported that due to these costs not every maritime archaeological resource can be preserved, and that choices have to be made. When asked how they would make these choices based on criteria of significance, they either responded by stating or describing the requirements for the NRHP, or discussed other types of management assessment, such as monetary costs, social values, and tourism and recreation potential.

Beyond funding for management expenses, respondents reported the biggest challenges in preserving shipwrecks was as follows: 1) increasing the public's awareness about the importance of the resource; 2) fostering good-will towards preservation goals and best practices; and 3) threats posed by both cultural and natural site formation processes. Strategies to meet these first two challenges primarily involved public outreach and education (Table 6.3 provides selected samples of panel's responses). Regarding threats posed from cultural and natural site formation processes, the panel had the opportunity to identify what they thought were the top five threats. As Table 6.4 shows, there were 60 responses from those who answered the question (n=13), 65% of which were cultural factors, such as looting, treasure hunting, dredging, trawling, and modern development. Almost all the comments (n =11) for the best management strategies for perceived threats to the preservation of shipwrecks recommended *in-situ* preservation. Table 6.5 provides a selected sample of these responses.

Table 6.3: Sample Quotes Regarding Public Outreach and Education

Public understanding of its heritage via access through virtual media, education and outreach is critical for building public will for protection and management. The more you know and understand the maritime heritage and how it connects to you, the more you care about preserving it for present and future generations.

Strategies that engage the public, link them to the compelling human stories shipwrecks hold, and strategies that when appropriate encourage public participation. Outreach, outreach, outreach, and not just for fellow scientists....

Documentation with the assistance and input from the interested public, generation of exciting materials in unique formats for outreach and education, and most of all, transparency with the public.

Education and outreach! Again, if people don't know about something, they probably don't care about it. Therefore, the more involved the public can become in shipwrecks and maritime heritage through photographs, video, personal stories, recovered artifacts, and museums, the more likely they are to support preservation and the easier it becomes to 'manage' these resources.

Table 6.4: Top 5 Threats by Respondent

Respondent		Threats to Preserving Shipwrecks						N	%
		1	2	3	4	5	c = cultural threats ex: looting treasure hunting		
1		c	c	c	c	c			
2		c	c	c	n	n			
3		c	c	n	n	na			
4		n	c	c	n	c	n = natural threats ex: hurricanes salt water ocean currents		
5		n	n	n	n	n			
6		c	c	c	n	c			
7		n	n	na	na	na			
8		n	c	c	c	n			
9		c	c	n	c	n			
10		c	c	c	c	c			
11		n	c	c	c	c			
12		c	c	n	n	c			
13		c	c	c	c	na		**N**	**%**
Totals	c	8	11	8	6	6	=	39	65
	n	5	2	4	6	4	=	21	35
		13	13	12	12	10	=	60	100

Table 6.5: Sample Quotes from Expert panel Regarding *In-Situ* Preservation

In situ preservation policy is first approach upon discovery, then use scientific research to see if and when it's appropriate to bring the time capsule up or whether best left as underwater museum.

Leaving shipwrecks undisturbed where they lay and focusing on the telling of the story of the wreck is my opinion of the best practice for preservation of shipwrecks.

Comprehensive documentation and then in situ preservation.

In situ preservation and stabilization of sites deemed interesting to the public and researchers. Recovery of shipwrecks, or portions of shipwrecks and collections that can be properly recovered, managed and displayed or curated as part of a research collection.

There is no single acknowledged source. There is acquired professional knowledge as taught by universities, as well as non-profit professional societies such as the Nautical Archaeological Society. Federal agencies and most states require permits that conform to state law or (federal) for the permitting requirements of the Archaeological Resources Protection Act (ARPA). UNESCO's Convention on the Protection of the Underwater Cultural Heritage proposes standards but the US is not a signatory.

Resident Interviews

There were 13 residents who agreed to meet for interviews. As noted in Chapter 5, the interviewees represented a wide range of professions, including fishing, tourism, education, cultural heritage sites, town managers, artists, architects, real estate, private business, and board councils. Eight men and five women agreed to be interviewed, with ages ranging from 30 to mid-60s.

Due to the nature of the semi-structured interview format, there was considerable range and variety of answers to different questions. Interviewees were very aware of maritime heritage and shipwrecks along the Outer Banks and GOA. While they did not offer explicit definitions of maritime heritage similar to the expert panel, all of them spoke in length and were knowledgeable about the resources. Some who had grown up or lived on the Outer Banks for a long time provided personal anecdotes, relating how shipwrecks and maritime heritage had influenced their lives. Others who had moved to the Outer Banks more recently discussed how shipwrecks defined the Outer Banks and contributed to the region's history (Table 6.6).

Table 6.6: Sample Quotes from Interviewed Residents about Maritime Heritage

Personal Anecdotes
I grew up here on the Outer Banks. I grew up on the water. I come from a family of Coast Guards…running around the docks…I remember as a kid…you'd see a lot of the old boats just pulled up on the marsh and abandoned…That is what I grew up around…there used to be an old wreck…that we used to paddle around in our boats…here's a 12 or 13 year old kid…and I could see the outline of the boat. I don't remember how big it was but to me it was big then…So this is my memory of growing up around boats and ships…Nothing glamorous about it but it has been part of our life forever. All of my grandparents were born on the Island [Hatteras]…all fishermen…so the idea of shipwrecks has been part of my awareness since I have been aware…I have literally been fishing over shipwrecks for…almost 60 years...as the years have passed, and as the information regarding wrecks become more well known, the wrecks that I fish over have taken on more meaning to me, independent of the fish. The part about shipwrecks…and life-saving was part of my family and part of my heritage. So I view those wrecks in a different category.
Historical Contributions
If it had not been for shipwrecks, we would not have had the lighthouses. We would not have that touch with history that goes back in time. So it is very much a part of us. What defines the Outer Banks any more than our Maritime history?...People love the Outer Banks because it is so wild. That's why they love it and that's all part of the history too, the maritime history, the shipwrecks. They are a major part of our history…Lot of things would not have happened if it had not been for shipwrecks…We wouldn't have had the lifesaving stations which is a great part of our history had it not been to shipwrecks.

Whether they had lived at the Outer Banks for long time or were relatively new, many residents discussed maritime heritage in the context of tourists' and visitors' awareness and interest. For instance, they described how tourists would approach them occasionally and ask them how they could find shipwrecks on the beach, or how customers would look at old maritime photographs in a place of business and want to know the stories behind them. Most commented that visitors were aware of the GOA through the map showing wrecks along the coastline, but this was often the limit of awareness, as the following two quotes express,

> The poster [map of shipwrecks] is very popular…But if you asked them [tourists] the following question, "Well what does that mean or what's on the poster as far as the types of shipwrecks?"…People would have probably a blank look after that, and they would then go… "Pirates," probably.

Back to the shipwrecks, you can probably go down to the beach and ask any visitor or tourist you wanted to ask, just randomly, they would tell you they're aware of the Graveyard of the Atlantic. Now they might not know a lot of detail but they would at least heard about it or probably seen some pictures or maps or something.

A theme that was consistently prevalent during the interviews was the importance of shipwrecks in creating a cultural identity for the Outer Banks. There were descriptions of personal and intimate connections to history through the remains of shipwrecks. For example, one participant stated that his grandparents' bedroom doors and dining room table came from various shipwrecks. Another described how parts of shipwrecks brought people into a business with questions about what the pieces were and from what ship they came. A third person related a life-long love of discovery as he walked the beaches finding possible artifacts that were washed up by waves and storms.

These stories reinforced the assertion that "the past history and the present day life of the entire coast are closely integrated with shipwrecks" (Stick 1952:3). They also emphasized that "people pursue the past actively and make it part of everyday life" primarily through family-based activities (geneology, family gatherings, holidays, looking at photographs, continuing traditions) and hobbyist activities (Rosenzweig and Thelen 1998:16-21). As one person said,

You have the family connection, the lifesaving…and there's heroism, and there's hearing the stories, imagining what it was like to…for men to put themselves in harm's way to save others.

These connections help form and construct identity through personal history. As heritage is a fundamental construct of identity, interviewees saw the preservation of heritage as a social benefit important to maintain their personal identities and to distinguish the Outer Banks from other beaches or regions.

Several commented that this distinction could be used to promote cultural heritage tourism, but acknowledged that cultural tourism was not being promoted well enough, as one person stated,

> We've got a lot of major firsts…and history is obviously very, very important here to us, the ones that live here and care anything about this area…We don't do a very good job telling that story in many ways because…I don't know. I don't really know…We have a lot of stories to tell…Some people come here because of history. That's not a large number.

One individual reported that as visitors moved into the region and became new residents, there was a decline in the "appreciation or respect for what was here…most [new residents]…do not have an appreciation for…historical assets…." Another person expressed disappointment in this loss of interest, recalling how beached shipwrecks once attracted attention and interest from all around, but today, "We've gotten away from one of the things that defines us…and we tend to ignore them." A third hope that by increasing efforts to educate people, there would be a better "understanding how this [learning about history] impacts…life today…Not necessarily a direct impact, but you can begin to link them all to where we all are today."

Interviewees consistently discussed public outreach and informal education as the best strategies to increase awareness beyond the general reputation of GOA, and promote maritime heritage as defining the identity of the Outer Banks with deeper meaning to the broader public. This promotion would create new and strengthen partnerships between different community venues that could provide information or display artifacts. Additionally, public outreach and education would teach the general public proper management and stewardship practices, as one individual stated, "The other thing is to educate people what to do and what not to do."

While interviewees were positive towards public outreach, there were different opinions about the best forms this outreach should take. Some recommended creating heritage trails and signage at strategic points along bike and walking paths. Others disagreed and said that such forms would not sustain interest very long, "You couldn't get away with just…videos and photographs. You'd have to have…pieces of the [wreck]…people want to see." Many commented that while shipwrecks captured public attention quickly, that attention quickly seemed to fade.

For example, one person discussing interest in a replica of a historic ship said, "The first thing they [visitors] want to see is the ship…Nine out of ten times that's what they want to see most, but they spend the least amount of time there." Part of the reason for this was that people did not relate to the ship itself. There needed to be personal connections, as one interviewee opined, "I think people like the objects...[they] like weird things. They like shoes…cause that's the personal one…cause they can make that connection.." The participant continued that people asked questions about the ship they could relate to in their own lives – questions such as, "How many people could sleep on it [the ship] ?...Where do they sleep? Where do people eat?" It is the search for these personal connections to history and experiences that people seem to seek in order to examine and interpret the past for themselves, rooting their own lives in the context of identity (Rosenweig and Thelen 1998).

Others discussed these connections through more active forms of public outreach, suggesting participatory events such as training workshops or avocational volunteer opportunities. They did comment, however, that as outreach events required more activity and commitment (such as a training workshop), there would be a decrease in the size of the potential audience. For instance, signage and museum displays would reach the most people, but this

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large audience may have little to casual interest. Contrarily, participation events would attract fewer people, but they would tend be more enthusiastic towards the subject matter.

Overall, interviewees favored preserving shipwrecks *in-situ* and managing access to limited degrees, but they also were against more regulations or government authority managing the shipwrecks. There were strong sentiments of distrust towards government agencies – primarily the federal government – which were often based on experiences that had nothing to do with shipwreck heritage. For instance, nearly all of the participants discussed the case surrounding the Piping Plover – a migratory bird that nests during the summer months on the beaches of the Outer Banks. A series of events led to environmental agencies pressuring the federal government and the National Park service, which led to litigation ultimately ending with restricted access to stretches of Cape Hatteras National Seashore for motor vehicles and pedestrians (James 2010). These events created strong feelings of distrust towards outside agencies who did not understand the emic points of view towards their resources. There were also expressions of persecution and feelings tied to loss of identity and possible jobs. Table 6.7 provides some selected quotes highlighting these themes.

The duality that is inherent in heritage was represented through these dichotomous viewpoints towards preservation and management. On one hand, there is a desire and a will to preserve maritime heritage and recognizing its potential benefits of knowledge, identity, and tourism. On the other hand, the mechanisms for creating such preservation, primarily the presence of government agencies who have the resources and legal capability, are viewed with strong skepticism and distrust based on past experiences that restricted personal heritage, stated eloquently by one participant,

> Change comes hard and it doesn't matter whether it's this community or any
> community and what the subject is. Change is hard…So the more time spent with

Table 6.7: Selected Quotes Expressing Thoughts towards Preservation, Management, and Outside Involvement

Preservation
Is it important to preserve? You're gall darn right it is! I think they [shipwrecks] should be left as they are unless there is a compelling reason to lift it out and preserve it for the public, the artifacts, I would be just as happy if they were left. I think recreational diving, Hands off. Look at it. My argument there is if it is wonderful for you to find…if it is wonderful for you then why take it and destroy the wonder for future generations.

Management
What they're finding here is you get into conflict with the permission of a certain area or the commission of a certain place or what draws people to it and then it can get out of hand and then you're now hurting [people]…Then you're cutting off the food to my family and that's what I do and does that not get back to people sitting in their offices in Raleigh and saying you really shouldn't be living on the Hatteras Island. You really shouldn't have been there in the first place. If you've ever fished or done this, you have damaged the environment, so now you shouldn't be. If the federal government stepped in and telling [sic] you again what you need to do. We already feel like we're over regulated…especially what happened with the each access…They've shut off pedestrian access, not just driving. Well the general feeling…in any community especially in this climate is we don't need any more government…that is going to be the general sense to the extent that there is lots and lots of Federal government presence here. I find living out here, well, when I was a boy we were out here and nobody bothered us for no reasons about nothing….We were left with less than adequate and nobody cared. To have gone from to being…the focal point for varied governmental concerns about …fishery issues. [They] are squeezing us from all directions and it is difficult for me to reconcile these kind of pressures with, what I recognize, as the valid interest of government to do good things and positive things…And I am struggling to keep the two in perspective because…as a boy, I was wild and free, and now I dare not breath in or out without permission. If we put these places off-site to access, yes, it becomes an important issue for us. I mean if we had the Corolla shipwreck, or whatever it is, sitting out there, and all of a sudden they say, "Well you can't go on this beach cause we are going to just block it off here an here, or we have to block it all off"…that would be a big, real big topic of discussion. The same this is true on Hatteras Island today because of the closing of the beaches down there for the birds…Closing whole stretches of beaches, miles and miles at a time, when there could be a method of protecting those birds, and a cost a lot less money, and…a lot less heartache and pain for everybody in town.

Outside Involvement
We can do this from within. We don't need some national group to say…this certification that you or you need to do this or make it this. We could come up with our own plan. We can do it from within and for ourselves and for our own good… The worry is watching reasonable regulation morph into [someone's] notion of "I'll tell them."

people discussing thing and trying to…ease into what you're doing as legitimate, why it needs to be done, all these sorts of things. The more you do that ahead of time and up-front, the better you chances of success. And there are…different factions and the moment you leave one of those out is the moment they begin to say, "Well now they leave us out on purpose or what are they trying to pull on us? What's going on here?"

This comment also is reflective of the next stakeholder group to be discussed – participants in a series of public meetings sponsored by NOAA's MNMS – as it succinctly expresses the overall tone and perspectives at these meetings.

Public Meetings

During 2012, NOAA's MNMS offered the public opportunities to express their thoughts and perspectives towards MNMS's released management plan (MNMS 2013). These meetings held at different locations throughout North Carolina and Virginia produced over 150 pages of manuscript, which was comprised of verbatim comments between MNMS staff and audience members who chose to speak (NOAA MNMS 2012a, 2012b, 2012c, 2012d, 2012e). The official record contains no data regarding the number of people in attendance at a given meeting. Additionally, many pages of the manuscript are running dialogues between one member of the audience conversing with or speaking to the MNMS representatives, whose responses were also recorded and contributed to the total length. Therefore, analysis of the dataset comes with important caveats and qualifications.

First, whereas the author directly engaged the first and second stakeholder groups using structured and semi-structured formats, the data source for this stakeholder group was from a public forum where participants could speak openly and open-endedly about their concerns. They did not attend these meetings to discuss specific aspects and categories of maritime heritage as the first two groups did. Therefore, some thematic issues were never raised, or raised

in a limited manner. Conversely, many issues that were raised overlapped with each other. For example, participants in these meeting often discussed themes of access, oversight, and social and economic costs simultaneously.

Second, the individuals who went on record and provided comments were a limited number and may not represent the complexity of perspectives and attitude of other members of the third stakeholder group. This could present a possible source of bias, but the data was applicable for the first stage of the project for the following two reasons: 1) The goal of the first stage was to identify themes from different stakeholder groups, not to provide definitive analysis of them; and 2) It was evident that those who spoke at these hearings were dominantly from the stakeholder groups of interest – that is, members from the scuba diving and fishing industries who are direct users of shipwrecks as resource to different degrees.

Since most of the comments came from members of these two industries, recorded participants were very aware of shipwrecks and maritime heritage. Participants defined these resources almost exclusively in the context of how they used these resources for the livelihoods, and how their livelihoods would suffer from the perceived loss of access to the resources. This perception stemmed from one section of the MNMS's management plan that discussed the possible expansion of the MNMS:

> In recent years, there has been growing public interest in our nation's collective maritime heritage. The body of heritage resources off North Carolina may represent an ideal location to celebrate, study, and preserve an area of nationally significant historic sites. Many of these sites…merit further characterization and preservation. As such, constituents such as veterans groups, historians, archaeologists, divers, the preservation community, and MNMS Advisory Council have approached NOAA to formally assess their national significance and consider expansion of the Monitor National Marine Sanctuary as a means to protect and preserve these historic sites (MNMS 2013:102-107).

While the purpose of the public hearings was to discuss the management plan as whole, most people focused their comments on this section of the plan. There were comments that can be considered positive, but the dominant tone of the meetings ranged from skepticism to anger. Most participants criticized the reasons for possible expansion and expressed their contention in terms of the social and economic costs they perceived would occur with the possibility of increased federal intrusion and control over their industries.

Contrary to the expert panel and interviewed residents, both of whom perceived the preservation of maritime archaeological heritage as a social benefit that supported and validated identity, participants in the meetings indicated that such preservation would yield a social cost, or loss of identity. This sentiment was expressed consistently through their comments that their opinions and perspectives were being marginalized, ignored, and maltreated. They also invoked how their rights associated with the national identity of America, such as freedom, opportunity and private enterprise (Kingdon 1999), were being threatened by increased preservation attempts. Table 6.8 provides some selected examples.

Closely associated and often overlapping these social costs were statements about the economic costs of preservation. These were generally broken into two categories: 1) the economic costs to individuals and to the Outer Banks if people lost jobs due to limiting access to the resources; and 2) the management costs needed to fund preservation. The effects of restricting access were emphasized throughout all the meetings by members from the scuba diving and fishing communities. Staff from MNMS responded that access would be not be impeded, and preservation would be based on the model at Thunder Bay NMS where there was "open access for all and focus on the maritime heritage resources within any proposed boundary" (MNMS 2013:104).

Table 6.8: Selected Comments from Members at Public Hearings on Loss of Identity through Preservation of Maritime Heritage

Marginalized
Once it goes into the management plan, it doesn't matter if you're from California or Hatteras, you've got an equal say in the whole thing, and frankly we're going to be outvoted…it doesn't matter how it's going to effect the local area…I think it's not a national referendum, because you know what's going to happen to us…
And we live here. They don't
We're poor people. We work hard…But, it's concerning to all of us. It really is…we've been regulated out of fishing.
How many people does it affect? How many people like us – these guys in here does it affect?
I believe a fisherman found it [monitor] and gave somebody bearings, and then the went and found it and took claim to it. And that's what happens to 99 percent of these wrecks. You all didn't find them. The fisherman will find them. We look hard for them. That's our livelihood. That what we live for is to find a new wreck or a hang…

Ignored
When we go through this process…and we're getting honest answers…that you got enough negative comments to drop it…because at all the meetings I've been to, if you took a raise of hands it would be "No."
And you're saying the same thing, and we say, "No, we don't want it [expansion]." Bam it's right back in here. Who want's it?...Who would benefit? The government. The monster we're feeding. None of us would benefit from no wreck expansion…Nobody wants it, but what we do want is our freedoms and rights left alone. And you keep stomping on them.
Who is it [people in favor of expansion]? Because nobody speaks that they're for it.
Listened to it, not just heard

Maltreated
We are already under assault from land. Limit our offshore fishing and what's next. Why not shut everything down and wait for people to leave so you can turn the whole coast into a ghost town
The diving industry has been on the forefront of finding and protecting wrecks. The industry has a feeling for the boats and they portray that. They have communicated that to the public. NOAA has not refuted the bad press that has come out which is critical of the dive industry. The news industry has been unfair to the dive community…the Dive community is willing to work with NOAA to protect wrecks.
Where do we go? What can we do without being scrutinized, looked at, pushed. We're getting tired of it. I'm tired of…It goes on and on. It's crazy.

Repeated assurances of providing open access to scuba diving and fishing did little to assuage the concerns and skepticism of audience members, who brought up past difficulties in acquiring permits to dive the USS *Monitor* wreck site. Others simply did not believe the claims by MNMS staff, doubting that access would not be compromised eventually no matter what was promised now. One individual even turned the logic of the Thunder Bay NMS model around noting, "If there had been opposition to it initially, shouldn't the government have said, 'Okay, you know what? If you don't want this, then maybe we shouldn't do it.'" Table 6.9 provides selected quotes representative of these different concerns and doubts.

Table 6.9: Selected Comments about Themes of Jobs, Access and Distrust

Jobs
I am…with one of the dive operations. We're here tonight mainly because we're concerned that this would be expanded into the areas which we're using to basically to make our livelihood
It's costing us jobs in eastern North Carolina
I've heard from dive operators. They feel like they're going to lose their business…
We have a number of wrecks that are important to the dive operators out of here…I only see the the potential for this to expand in to areas that causes more and more degradation of the economic future of North Carolina or eastern North Carolina from a boating, fishing, diving…it's appalling.

Access
Recreational and commercial fishing interests will be compromised if this goes through, as each wreck would have "exclusion zones" wher no anchoring or fishing will be allowed…The economic impact on the OBX diving businesses would be catastrophic, as most will cease to exist if wreck diving is compromised.
I think the elephant in the room is limiting access to the wreck sites…We're worried about limited access or controlled access. That's what I see, is that everybody is worried that there's going to be an expansion of the site, which, you can expand all you want, as long as we can go dive the wrecks

Distrust
I'm a commercial fisherman and a charter fisherman and a diver. My biggest question with possible expansion is credibility and reassurances…we've all seen what happens when it comes to credibility with the federal government…it doesn't matter what reassurances we received – any third party…can come in and blow all that out of the water
So what good is public opinion when my suspicion, and most other people, is that the people in charge…are going to do what they want?
…One thing I have seen over the years, when someone said something, it meant nothing. It happens…Someone down the road will use that, will twist it around and use that as a basis to go forward on it. So that's why we're very skeptical about government. They take liberties. Just like gathering information…gathered from here to package into your presentation to movie it forward, not to address the concerns of the people.

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As shown in Table 6.10, there were also comments expressing concerns over the budgetary costs of expanding and running preservation efforts. Interestingly, this was one thematic area where all three stakeholder groups had agreement. The difference between them was the tone with which these concerns were stated. In the public meetings, participants framed their concerns often with rhetorical questions demanding justification for increasing taxes and deficits that they would have to pay. One individual suggested a possible solution to the various concerns, stating,

> There's no need for us even to argue about it [expansion]… We want a referendum…If we want to put this to rest or move forward with expansion, we do a referendum of those concerned the most with it, which is the whole area that this impacting…There's been an expression of interest in having a county wide referendum. Or statewide…Whichever way we can do it. And this becomes…clear…relying more extensively on what the public has to say.

This suggestion was met critically by another individual who expressed doubts about the referendum,

> It doesn't matter if you're from California or Hatteras, you've got an equal say in the whole thing, and frankly we're going to be outvoted. It doesn't matter how it's going to affect the local area…I think it's crucial that it's not a national referendum, because you know what's going to happen to us.

Table 6.10: Selected Comments about Budgetary Costs of Preservation

We're in a deficit. How do you justify spending more money we don't have for a program like this that's not critical. We've got other critical things that need to be done in the country.
How do you justify spending money when its borrowed money from our children and grandchildren?
The frustration of people that work with their hands for a living are supporting a group…and a lot of taxpayers that are funding the bills are tired of it.
I doubt seriously that $678,000 is the true financial costs that the taxpayer is enduring in order to do whatever we're protecting out there.

It was clear that those who spoke at these meetings shared similar perspectives to interviewed residents regarding the increased role of government agencies in the area. They simply did not trust or want it. Again similar to the second stakeholder group, members of the public hearings framed their distrust of the government around past experiences that had little to do with cultural heritage. Some examples of these experiences included regulation over fisheries, closure of beaches, and outside university studies that indicated they were over fishing certain stocks of species. These comments raised further expressions of persecution or marginalization that were then transferred onto the issue of maritime heritage preservation.

Interestingly, the third stakeholder group in general shared similar perspectives towards the primary threats to and strategies towards shipwrecks: the primary threats came from human activity; and the recommended strategy was minimal impact. Of course, the "devil is in the details," and this is true here because these perceived similarities are really themes for the strongest discord among the two groups. Public hearing participants overwhelming believed the human threat to shipwrecks was government intervention and more regulation as it threatened their way of lives and identity. "Minimal Impact" meant maintenance of the status-quo situation where shipwrecks as resources for diving and fishing continued to be open-access resources.

It is clear that participants in these meetings were aware of the social, political, and economic consequences that result from the discursive processes involved in determining what heritage means and to whom it does or does not apply (Tunbridge 1994). No participant stated their opinions in these terms explicitly, but most offered examples how changes over the use of the resource would create social and economic costs for them and their communities. Few individuals stated that there are any benefits towards preservation. As noted at the beginning of this section, there are important restrictions to the inferences that can be made from this dataset,

but the perspectives that were presented highlight the contested and dissonant nature inherent in any heritage resource, including maritime archaeological heritage.

Discussion

As discussed and defined in Chapter 2, heritage is a continual evolving process that involves accommodation, adjustment, and contention as different stakeholders compete to determine what heritage means and to whom it does or does not apply (Tunbridge 1994; Seaton 2001). This process is discursive and constantly negotiated between and among stakeholders. These characteristics are why heritage is said to be inherently dissonant (Tunbridge and Ashworth 1996; Graham et al. 2000; Seaton 2001; Graham 2002). This dissonance is evident in the analysis and comparison of perspectives between the three stakeholder groups. There were areas of agreement between the groups, but their opinions and viewpoints generally exhibited the discord and dissonance inherent in heritage resources.

All three groups were aware of the maritime archaeological resources on the Outer Banks and in GOA, but they perceived the benefits and costs of preserving these resources differently. The expert panel and interviewees saw the benefits of preservation in terms of knowledge and identity. This fits well within the general perception that archaeology provides two major benefits: 1) knowledge benefits of the past; and 2) commemorative or associative benefits (McManamon 2002:31).

The expert panel viewed the primary benefit of preservation in terms of knowledge and conveying it to present and future generations in order to foster appreciation and good stewardship of the resource. The interviewed residents tended to focus on the commemorative and associative benefits through the construction and promotion of identity. These benefits are not mutually exclusive as knowledge benefits may actively affect meanings of heritage through

new information that can simultaneously enhance or diminish a sense of place and identity (Stipe 1984; Cleere 2000; Kristiansen 2000; Little 2002, McManamon 2002).

Heritage is fundamental to identity because identification with the past validates the present by conveying a sense of timeless values, unbroken lineages, and the restoration of lost or subverted values. It provides familiarity, guidance, enrichment, and escape. Implicit in these qualities is a sense of belonging to a place (Lowenthall 1996; Rosenzweig and Thelen 1998; Graham et al. 2000). These types of benefits were often alluded to during the interviews with local residents.

Conversely, constructs of identity through heritage can also disinherit and exclude other groups (Graham et al. 2000), which was clearly the perception held by the third stakeholder group. Members of this group believed that a change in the status quo regarding the preservation of shipwrecks would diminish how they identified with the resources through open-access use of the them. They perceived preservation as a social cost, which was connected to the possibility of reduced access to the resource. To this effect, their comments expressed strong distrust and concern that they were being ignored or marginalized.

These types of viewpoints are often associated with the concept of the Other, which are groups that do not share or are excluded from the dominant meaning of identity. This association has traditionally been applied to groups that have been historically marginalized, such as minorities, indigenous peoples, and women (Learch 1993; Leonard 1993; Neville 1993; Hoelscher 2003; Lansing 2003; Wills 2005). This however does not make the feeling of Otherness any less intense for the individuals who spoke at the public hearings. The possible change in the status quo challenges and threatens their established identity and way of life. Their intense feelings and expressions of disinheritance are illustrative of the "zero-sum" nature of

heritage – where one group's identification and legitimization of identity are simultaneously delegitimize another group (Graham et al. 2000:24).

The third stakeholder group also connected the social costs of losing their identity with the economic costs. They viewed preservation as costing them their jobs, and consequently costing the Outer Banks's economy through the reduced activities of their industries. The first and second stakeholder groups on the other hand saw preservation as a means for creating tourism. They therefore viewed preservation as a potential economic benefit. Although interviewed respondents repeatedly cautioned that cultural heritage was not the primary driver for tourism in the area (recreation and leisure was), they still expressed that cultural heritage tourism could help the region if maritime heritage was better promoted.

There was agreement among all stakeholder groups that managing maritime archaeological heritage creates economic costs. The expert panel saw this as a challenge of preservation that needed to be overcome for the best possible stewardship of the resources. They acknowledged that not all shipwrecks could be preserved due to these costs, and that choices involving parameters of significance needed to be applied. Interviewed residents also noted that the costs of management were prohibitive factors in fostering support for preservation, and were curious about how funding could occur without increasing the burden of taxes upon the public. Participants at the public meeting questioned these types of costs and sources of funding preservation without taxation, but presented their inquiries – which were rhetorical in nature – as justification for not preserving shipwrecks.

All three groups were aware of the natural and cultural factors that threatened shipwrecks. Cultural factors were discussed the most by each group. While this seems an area of agreement, it was not because of the immense discord of what group's defined as "cultural

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threats." For example, the expert panel (and to a more limited degree, the interviewees) discussed cultural threats as human activities involving diving and fishing that removed artifacts and ship's structure either intentionally or unintentionally. Members at the public meetings viewed cultural threats as increased regulation, limited access, and government intrusion on their industries. Dissonance over these themes increased as they were applied to management and strategies over preserving space (sanctuary boundaries) and place (shipwrecks) .

Space and place are constantly changing concepts when based on interpretations of heritage. They can be literal or symbolic spaces or places – and often both. Each is characterized by a complexity of perspectives, meaning a single space or place can be viewed simultaneously in different ways and providing a catalyst for discord. The catalyst here was the proposed expansion of MNMS (2013), which focused attention on a possible shift of space and places for preserving shipwrecks. Again much of the discord was predicated on issues of identity about what space and place of the ocean meant.

Historically, the image of ocean space has been associated with freedom and capitalism, allowing for unrestricted movement and harvesting of its resources. This view has changed somewhat in the last 30 years as ocean-space has also been viewed as a resource-rich but fragile ecosystem that requires rationale management for sustainable development (Steinberg 1999). Members from the third stakeholder group – who identified themselves as fishermen – associated this changing perspective of ocean-space with preservation of shipwrecks. In making their criticisms about expansion, they often cited examples of fishing regulations and university studies that limited their access and created more oversight – or from their viewpoint, created trouble – over their industry. These past experiences sowed immense distrust and credibility issues for proposed preservation of shipwrecks through government oversight.

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Members of the diving industry also expressed opinions that reflected intense distrust of government oversight, but many of their comments focused on the actual places of heritage – shipwrecks. Places are the most concrete associations with identity because people can visit them and touch the past in a real sense anchoring memory (McKercher and du Cros 2002; McManamon 2002; Pretes 2003). Obviously, the only people that can visit shipwrecks underwater are scuba divers. They saw this change in the status quo as threatening their jobs and delegitimizing their identification with these resources as it would limit their traditional open-access. They made a range of arguments expressing why increased oversight was unnecessary. Some argued that natural threats were more destructive than divers. Others mentioned that fishing practices, such as net trawling, were more damaging to shipwrecks, an argument which exposed possible dissonance within the third stakeholder group. One even stated that the tragedy of the commons had already occurred and it was pointless to protect shipwrecks:

> If you were a diver and you went down there [on shipwrecks] in the old days, there were still some artifacts to be found. Mostly now they're gone. So you're really protecting nothing.

As a group, they did not view the assurances from MNMS staff that access would not be limited as credible.

Continued access to shipwrecks was important to the expert panel, but they favored protection to ensure access to shipwrecks for future generations of divers as places of heritage, too. Almost all of them described the importance of allowing divers to continue visiting shipwrecks but were skeptical that private industry would regulate itself to stop removal of artifacts or avoid the tragedy of the commons. Therefore, some types of oversight were necessary.

This dichotomy of the perspectives between the expert panel and public hearing participants creates the most contention over maritime archaeological heritage, but their strategies towards the resources are theoretically similar. They both recommended "minimal impact," but again contention arises immensely about whom they think threatens this "minimal impact." The expert panel recommended *in-situ* preservation with no removal of artifacts unless for scientific purposes. Members of the diving community at the public meetings recommended no change in the current state of preservation, allowing them open-access to shipwrecks and their artifacts.

Some interviewees were in favor of preservation and understood that it would require increased oversight, but noted that this oversight would not be universally supported locally. Others believed preservation was necessary to protect the resources as symbols of their heritage, but were opposed to increased oversight or government presence. A few understood why preservation was important as a concept, but believed that the public had the right to enjoy and collect shipwreck artifacts as it provided a sense of personal connection to history. They viewed protection as government's version of creating proprietorship over resources they felt they appreciated more because it was part of their daily lives. All three stakeholder groups acknowledged the role educating the public plays in strategies for creating public support for their particular agendas.

Education and knowledge can be seen as part of the discursive process of defining heritage resources and to whom these meanings may or may not apply. Presented interpretations of maritime archaeological resources are not neutral. They are active agents that influence those who read them. They can also be interpreted differently by those who read them. Social, political, and economic factors play roles in both the presentation of outreach materials and how

they are perceived. This makes public education a high stakes arena for different stakeholder groups as they try to present and compete for the dominant meaning of heritage by making the general public more aware of their viewpoints. It is also why public outreach and education can run the entire spectrum of dissonance (Figure 6.1).

The expert panel generally considered one of the biggest challenges to preserving maritime heritage was fostering public support, and the best strategy to meet this challenge was through public outreach. For managers and archaeologists, the ethos that archaeological heritage should be preserved and disseminated to the public is axiomatic (Cleere 2000; Lipe 2002; Smith 2002; Watts and Mather 2002). The principle premise is that if people are better aware of an archaeological sites' significance, they will become more invested in their preservation and become stewards themselves (Philippou and Staniforth 2003; Jameson 2007; Nutley 2007; Scott-Ireton 2007).

Residents who were interviewed agreed that the benefits of preserving heritage involved education, but they tended to focus on the economic benefits of public outreach. In general, they perceived outreach efforts as a way to increase visitors' awareness and appreciation for the cultural history and legacy of the Outer Banks. Public outreach was a vehicle to both construct and support their perceptions of identity of the region. This identity was tied to notions of historical legacy and continuity represented by shipwrecks and other maritime cultural heritage resources. Promotion of these resources included public outreach with the purpose being to define and validate why the Outer Banks and the Graveyard of the Atlantic are unique and special places to visit compared to other beaches.

Speakers at the public meetings expressed public education in opposite terms. They did not discuss public outreach for their public's benefit, but they did believe that public outreach

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was used against them. They viewed that they were being unfairly characterized through an unflattering narrative of their activities in the media. Although they did not talk about public outreach strategies during the meetings, it does not mean these groups are not active in educating the public towards their own causes and concerns.

There are websites and publications that encourage the public – and scuba divers in particular – to become better aware of preservation issues and actively participate in the process by contacting Congressional representatives and sanctuary staff. Most often these are pleas to express displeasure with proposed plans for sanctuary expansion. For example, one website encouraged viewers to sign a petition against NOAA's possible expansion of MNMS. Often comments include emotional charged rhetoric comparing possible expansion with tyranny and loss of freedoms. They reflect the intensity of the debates and highlight the dissonance that surrounds maritime heritage resources. They also reinforce that public education – far from being a neutral mechanism simply to convey knowledge – is another part of the process of discourse to define what heritage means and to whom it does (or does) not apply.

Conclusion

The inherent duality of heritage as a resource with cultural and economic values was apparent in comparing the different stakeholders groups' perspectives and attitudes towards the social and economic benefits and costs of preservation. Further, the characteristics of defining heritage – discussion, negotiation, contention, and dissonance – were clearly present in the discourse over maritime archaeological heritage. Themes that are constructs of heritage, such as identity, space, and place, are central to this discourse as groups may perceive social and economic benefits through validation and legitimization of identity that could be promoted

through tourism. Simultaneously, others may perceive that they are losing their identity closely associated with their industries if the status-quo of open access to shipwrecks changes. These dissonant viewpoints reflect the multi-interpreted and multi-used nature of shipwrecks as different stakeholder groups compete for the dominant meaning and use of the resources.

At the extremes, there is likely to be little agreement between stakeholder groups. In the middle, there are individuals who see the benefits of preservation but doubt the benefits of government agencies controlling preservation. These doubts are based on past experiences that often have little to do with maritime heritage directly, but have immense influence over perceptions of oversight and management. Additionally, they are layered on top of an American ideology that is naturally skeptical of government (Kingdon 1999). Therefore understanding the general public's attitudes and perceptions as well as how they may value maritime archaeological heritage is important as points of comparison with these more invested stakeholders.

The primary purpose of this study is to start to understand how the general public perceives and values maritime archaeological heritage through an exploratory survey that combines social and economic questions about preserving maritime heritage and shipwrecks in the GOA. As noted above, there is room for deeper analysis and understanding of all three stakeholder groups as there are likely nuances and alternative viewpoints between and among the groups. The goal of the first stage, however, was to identify prevalent themes, opinions, and concerns of these stakeholder groups that could incorporated into a questionnaire to be sent to a random selection of North Carolina residents. The analysis of the data presented in this chapter achieved this goal and greatly informed the development and creation of the final survey instrument. The next chapter presents and discusses the results from this survey.

CHAPTER 7: RESULTS AND ANALYSIS OF FINAL SURVEY INSTRUMENT

Introduction

Once themes and issues were identified from the first stage of the project, they were incorporated into the final survey instrument. This survey was sent to almost 2,000 randomly selected residents of North Carolina. The following chapter presents the results in four sections. The first section examines response rates, demographics, and travel and recreation behavior. The second section discusses respondents' awareness and perceptions for maritime archaeology heritage in GOA and for public outreach. The third section describes respondents' perceptions and attitudes towards the preservation, management, and oversight of shipwrecks, specifically. Finally, the fourth section reports the results of the choice experiment. In each section, there is a presentation of results followed by a brief discussion of them.

Section 1: Response Rates, Demographics, and Travel and Recreational Behavior

This section presents data concerning response rates, demographic information, and travel and recreation behavior for the survey. It discusses the possible limitations of the survey's results. It examines respondents' travel and recreation behavior at North Carolina beaches. This includes their visitation behavior, their motivations, and their activity interests while at the beach. It also investigates the level of knowledge respondents had towards specific beaches they visited. Finally, it describes respondents' boating and scuba diving activities as they are two recreational activities that allow individuals to experience submerged shipwrecks to varying degrees. This information was gathered to understand the background of respondents, and to create a comparative context for the remainder of the survey.

As described in the methodology, two different random sample groups were mailed invitations to take the survey:

- Group A (n=984) could respond either through mail surveys or online
- Group B (n=984) could respond only online.

Table 7.1 shows the response rates based on the adjusted sample after removal of surveys returned due to a bad address (n=189) and surveys of participants who expressed their desire not to participate in the study (n=15). The adjusted sample was 1,764 with an overall response rate of 9.4%. The response rate for Group A was more than ten points higher (15.3%) than those in Group B (4.2%). Table 7.2 provides information regarding response rates by mode. In Group A, more than three-quarters (77%) responded by using and returning the paper survey. Total responses for those who chose the internet was only 3.8% compared to the mail option of 5.8%.

Table 7.1: Comparison of Response Rates of Groups A and B

Response Rate and Adjusted Sample for Groups A and B							
Group	Mode	Distributed	BA	DWP	AS	Completed	Response Rate
A	Mail / Internet	984	87	11	886	133	15.3%
B	Internet	984	102	4	878	37	4.2%
	Total	1968	189	15	1764	170	9.6%

(BA = bad address; DWP = did not wish to participate; AS = adjusted sample)

Table 7.2: Comparison of Response Rates by Mode

Group A: Response Rate by Mode					Groups A and B: Response Rate by Mode		
Group A	Responses	Rate (n = 133)	Rate (n = 886)		Mode	Responses	Rate (n =1764)
Mail	102	77%	11%		Mail	102	5.8%
Internet	31	23%	3.5%		Internet	68	3.8%
Total	133	100%	14.5%		Total	170	9.6%

Socio-Demographics

Demographic information provided in Table 7.3 shows the majority of respondents were white (86.1%) and male (67.5%). Other ethnicities included Black / African American (9.3%), Asian (1.3%), Hispanic (1.3%) and Native American / Alaskan (1.3%). Almost 70% of the sample was married (68.6%) with an average of almost two children (mean=1.86, SD=1.058).

Table 7.3: Demographic Information

Sex	N	%	Age	N	%
Male	104	67.5	18-30	8	5.3
Female	50	32.5	31-40	13	8.6
Total	154	100	41-50	27	18
			51-60	33	22
Ethnicity	**N**	**%**	61-70	30	20
Asian	2	1.3	Over 70	39	26
Black or African American	14	9.3	Total	150	99.9
Hispanic	2	1.3	Mean = 58.39 years		
Native American / Alaskan	2	1.3	Standard Deviation = 16.18		
Person of two or more races	1	0.7			
White	130	86.1	**Annual Household Income**	**N**	**%**
Total	151	100	Less than $20,000	9	6.6
			$20,001 - $40,000	20	14.6
Marital Status	**N**	**%**	$40,001 - $80,000	57	41.6
Married	103	68.6	$80,001 - $120,000	22	16.1
Single	31	20.6	120,001 or more	29	21.1
Other	16	10.6	Total	137	100
Total	150	99.8			
			Highest Level of Education	**N**	**%**
Dependents	**N**	**%**	Elementary school	0	0
Yes	80	53	High School	30	20.1
No	71	47	College	69	46.3
Total	151	100	Post-graduate	50	33.6
If yes, how many?			Total	149	100
Mean = 1.86					
Standard Deviation = 1.058			**Annual Household Income**	**N**	**%**
			Less than $20,000	9	6.6
			$20,001 - $40,000	20	14.6
			$40,001 - $80,000	57	41.6
			$80,001 - $120,000	22	16.1
			120,001 or more	29	21.1
			Total	137	100

10% reported that they were neither married nor single, stating that they were divorced (50%), widowed (38%), separated (6%), or did not respond (6%). Ages ranged from 18 to 94 with a mean age of 58.39 years (SD = 16.18). The sample of people was well educated with most either finishing college (46.3%) or post-graduate education (33.6%). Over 40% of respondents reported that their annual household income was between $40,001 and $80,000 with 37.3% of respondents making more than $80,001 per year.

Travel and Recreational Behavior

In order to understand what types of experiences people had with North Carolina beaches, respondents were asked several questions about their visitation behavior and motivations for visiting beaches. These questions included frequency of visits, length and location of stays, activities and motivations for going to the beach. Over 90% of respondents stated that had visited a beach in North Carolina making an average of between two to three trips in 2012 and three trips in 2011 (Table 7.4). When they visited the beach, the largest percentage of respondents (29%) stayed two to three days. Over half (53.8%) visited the beach at least two days with most spending 2 to 3 days (29%) to a week (24.8%), preferring to stay in either a hotel (28.8%) or a rental home (25.9%) (Table 7.4).

Respondents were also knowledgeable about the beaches they visited. Over 80% were able to provide specific names for the beaches they had visited within the last three years and on average were able to name over two beaches (Table 7.5). The five beaches most mentioned were Wrightsville Beach (12.5%), Emerald Isle (11.2%), Atlantic Beach (10.5%), Carolina Beach (9.6%), and Topsail Beach (7.7%) (Table 7.6). This was not the same order, however, as the beaches reported as the most visited, which were Atlantic Beach (15.6%), Wrightsville (14.7%), Carolina Beach (10%), Emerald Isle (9.2%), and Topsail Beach (5.5%) (Table 7.6). It is clear

Table 7.4: Visitation Behavior

Have you ever visited a beach in North Carolina			N	%
Yes			145	91.8
No			13	8.2
Total			158	100

Visits in 2012	N	%	Visits in 2011	N	%
None	38	26.0	None	29	20.9
1 time	18	12.3	1 time	19	13.7
2 times	22	15.1	2 times	33	23.7
3 times	17	11.6	3 times	14	10.1
4 times	14	9.6	4 times	10	7.2
5 times	12	8.2	5 times	5	3.6
6 times	2	1.4	6 times	4	2.9
7 times	1	.7	7 times	2	1.4
More than 7 times	16	11.0	More than 7 times	14	10.1
Uncertain	6	4.1	Uncertain	9	6.4
Total	146	100	Total	139	100

Length of Typical Stay	N	%	Location of Normal Stay	N	%
It Varies	27	18.6	Campsite	5	3.6
Daytrip without Overnight Stay	24	16.6	Hotel	40	28.8
1 day and 1 overnight stay	11	7.6	Rental Home	36	25.9
2 to 3 days	42	29.0	Second Home	12	8.6
1 week	36	24.8	Friends / Family	18	12.9
More than a week	5	3.4	I do not stay overnight	22	15.8
Total	145	100	Other	6	4.3
			Total	139	99.9

Table 7.5: Beaches Visited Within Past Three Years

Number of Beaches Named			Type of Names		
	N	%		N	%
None	11	8.1	Specific names	113	86.3
1	27	20	General names	18	13.7
2	29	21.5	Total	131	100
3	37	27.4			
4	14	10.4			
5	7	5.2			
6	7	5.2			
7	1	0.7			
8	0	0			
9	1	0.7			
10	1	0.7			
Total	135	99.9			
Mean = 2.63; Standard Deviations = 1.78					

Table 7.6: Frequency of Beaches Named and Most Visited Beaches Named

Beaches Visited in Last 3 Years	N	%	Most Visited Beaches	N	%
Wrightsville Beach	39	12.5	Atlantic Beach	17	15.6
Emerald Isle	35	11.2	Wrightsville Beach	16	14.7
Atlantic Beach	33	10.5	Carolina Beach	11	10
Carolina Beach	30	9.6	Emerald Isle	10	9.2
Topsail	24	7.7	Topsail	6	5.5
Ocean Isle	16	5.1	Cape Hatteras	5	4.6
Cape Hatteras	15	4.8	Holden Beach	5	4.6
Outer Banks	15	4.8	Sunset Beach	5	4.6
Holden Beach	13	4.2	Oak Island	4	3.7
Sunset Beach	12	3.8	Ocean Isle	4	3.7
Nags Head	11	3.5	Wilmington Area	4	3.7
Ocracoke	10	3.2	Outer Banks	3	2.8
Kure Beach	9	2.9	Avon	2	1.8
Oak Island	8	2.5	Corolla	2	1.8
Wilmington	8	2.5	Indian Beach	2	1.8
Surf City	6	1.9	Surf City	2	1.8
5 or less	29	9.3	Beaches with one response each	11	10.1
Total	313	100	Total	109	100

that the beaches most named fall outside of the delineation of the Outer Banks and the Graveyard of the Atlantic (GOA). The beaches along the Outer Banks and the GOA were usually grouped by association as "the Outer Banks." This could mean that they are perceived as one, continuous beach. Although this could be possible, the "Outer Banks" was named only 15 times (4.8%) and only three times (2.8%) as a "most visited" beach.

In order to understand motivations for why they liked visiting beaches, participants were asked to provide open-ended comments. There were 135 comments with considerable overlap among reasons (Table 7.7 provides illustrative samples of themes and quotes). Respondents often mentioned the atmosphere of the beaches in terms of beauty, scenery, and quality. They enjoyed the lack of crowds, noise, and commercialization they found at other beaches. Many used the beach as an opportunity to visit family or friends, while others enjoyed the recreational opportunities, such as swimming and fishing. Overall, the predominant theme was they went to the beach to relax and get away from other pressures.

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Table 7.7: Motivations for Visiting NC Beaches

Atmosphere	Quality	- I love the natural surroundings - The scenery and calmness of the waves - To enjoy some of most beautiful beaches on the East Coast. - These are the most unique and beautiful beaches and estuaries in the world - Beautiful, clean, and well managed beaches - Peaceful, quiet, secluded, the NC beaches are wonderful.
	Crowds	- The beaches are clean and uncrowded - We enjoy the beach itself- water, not crowded, nice pace of life - Not crowded, nice wide beach - The beaches we choose to go to aren't overly developed and crowded. It's more beautiful and relaxing.
Family and Friends		- A good family beach - We enjoy the family atmosphere - I've been going to the Outer Banks since I was about four years old. I'm 31 now and now my family goes - Visit friends - Can hang out with my friends and enjoy the beach itself. - It is a meeting place for friends from New York
Proximity		- Nearby - Only 15 - 20 minutes away - It is convenient and it is closer to my home. - Closer to home. - Close to home
Relaxation		- For a vacation - peace and quiet - peace and quiet time away from the city - Love the relaxing, beautiful atmosphere. - To relax
Recreation	Beach and Water	- Good waves - Good surf and warm water. Relax, surf, scuba dive, water ski, and to spend time with family - To swim and sunbathe - To walk on the beach, collect shells, have kids play in sand/water I enjoy Beachcombing and fishing
	Fish	- I like to fish and be near the ocean - Fishing is better in North Carolina - Fishing and rest - I like to fish inshore and offshore.
	Various	- Site seeing, to visit airplane, Wright Brothers - Well suppose the main reason for visiting a North Carolina beach is the ease of access but I am partial to the attractions like Fort Macon and the North Carolina Aquarium - I enjoy the beach, shows, and shopping - Wild horses/remote

This open-ended question was followed with a list of specific activities from which they could select as many as they liked. As shown in Table 7.8 and Figure 7.1, the three most selected activities are those often associated with going to the beach: walking (75%), sunbathing (54.9%), and swimming (53%). Out of the top ten activities by percentage, four were cultural: visiting lighthouses (41.5%), visiting cultural and historical sites (39%), museums (32.3%), and attending special events (23.8%). This was interesting because people rarely mentioned cultural activities as motivations for visiting the beach in the previous question. More active types of activities (such as motor boating, beach driving, camping, sailing, and surfing) were not selected frequently with none having more than 17 percent.

Table 7.8: Frequency of Activities at the Beach

Activity	YES		NO		Activity	YES		NO	
	N	%	N	%		N	%	N	%
Walking	123	75.0	41	25.0	Attending Natural / Environ Programs	29	17.7	135	82.3
Sunbathing	74	54.9	90	45.1	Motor Boating	27	16.5	137	83.5
Swimming	87	53.0	77	47.0	Beach Driving	21	12.8	143	87.2
Shell Collecting	79	48.2	85	51.8	Jogging	20	12.2	144	87.8
Visiting Lighthouses	68	41.5	96	58.5	Kayaking/ Canoeing	18	11.0	146	89.0
Visiting Cult/Hist Sites	64	39.0	100	61.0	Other	17	10.4	147	89.6
Recreational Fishing	64	39.0	100	61.0	Camping	16	9.8	148	90.2
Visiting National Parks	57	34.8	107	65.2	Sailing	11	6.7	153	93.3
Museums	53	32.3	111	67.7	Surfing	9	5.5	155	94.5
Attending Special Events	39	23.8	125	76.2	SCUBA diving	7	4.3	157	95.7
Picnicking	37	22.6	127	77.4	Tournament Fishing	4	2.4	160	97.6
Bicycling	35	21.3	129	78.7	Commercial Fishing	1	.6	163	99.4
Bird Watching	33	20.2	130	79.8	Windsurfing	0	0	164	100
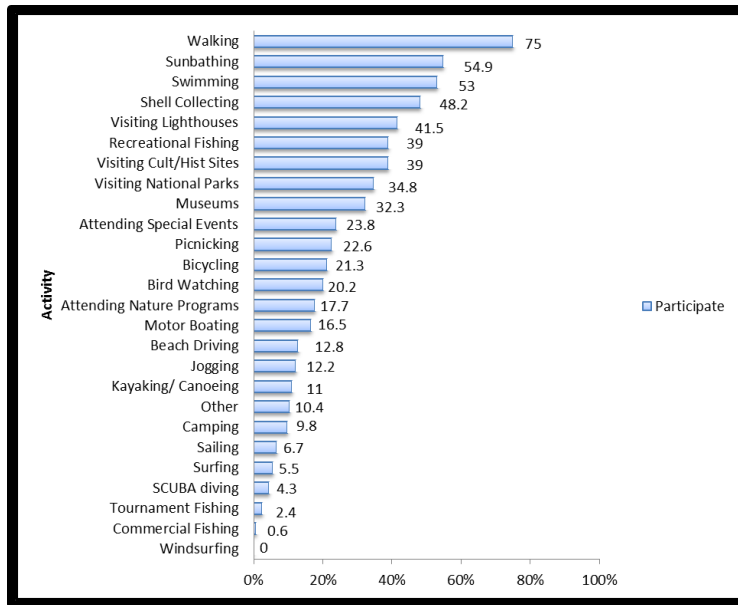
Figure 7.1: Frequency of Activities at the Beach (figure by author).

Participants were also asked about their boating and scuba diving activities since these two activities have the potential to create a stronger connection to maritime archaeological resources, like shipwrecks – whether that experience was indirect such as fishing on a shipwreck site, pulling artifacts up through nets, or directly seeing them through recreational diving. Over 80% of the sample stated that they neither owned a boat (81.9%) or scuba dived (80.6%) (Table 7.9). Most boat owners reported their vessels as being small motorboats (26 feet or less) as classified by the United States Coast Guard (USCG hereafter; USCG 2014). These vessels were primarily used on inland waterways – such as lakes, rivers, or sounds.

Table 7.9: Boat Owners and Scuba Divers

Do you own a boat?	N	%
Yes	29	18.1
No	131	81.9
Total	160	100
Do you, or have you, ever SCUBA dived?	**N**	**%**
Yes	30	19.4
No	125	80.6
Total	155	100

Almost 20 percent of respondents (19.4%) stated they were scuba divers, but only seven participants said they dived on a shipwreck in North Carolina (Table 7.10). Non-divers were split over whether they would ever like to dive on a shipwreck (Table 7.10). The top two motivations for people diving on a shipwreck were "seeing the shipwreck" (65% very interesting) and "experiencing history" (52.2% very interesting) as shown in Table 7.11 and Figure 7.2. While respondents were very interested in seeing marine wildlife (36.7%), they were not as interested in encounters with sharks, which were rated lowest among all options. There was strong interest in seeing "treasure" (38.7%), but there was also a high rate of variability relative to other options. "Getting a collectible from a shipwreck" had the highest variability and was the second lowest category of respondents' interests in visiting a shipwreck.

Table 7.10: Scuba Diving in NC (Divers) and Interest in Scuba Diving (Non-divers)

Have you ever dived on a shipwreck in NC? (divers only)	N	%
Yes	7	23.3
No	23	76.7
Total	30	100
If you could, would you like to dive on a shipwreck? (non-divers only)	**N**	**%**
Yes	62	50
No	62	50
Total	124	100

Table 7.11: Motivations for Scuba Diving on a Shipwreck

What you would find interesting about diving on a shipwreck?	Agreement Level (%)					Mean	SD
	SA (1)	A (2)	N (3)	D (4)	SD (5)		
1 Seeing the Shipwreck (SW)	65.0	24.8	5.1	4.4	.7	1.51	.841
2 Experience History (H)	52.2	29.7	13.0	4.3	.7	1.72	.904
3 Seeing Wildlife (W)	36.7	43.9	12.2	5.8	1.4	1.91	.921
4 Adventure (Adv)	36.2	38.4	14.5	8.7	2.2	2.02	1.029
5 Finding Treasure (T)	38.7	25.5	23.4	10.2	2.2	2.12	1.105
6 Recreation (Rec)	20.9	44.6	23.7	8.6	2.2	2.27	.960
7 Being with Friends and Other Divers (Friends)	21.2	37.2	27.7	12.4	1.5	2.36	.998
8 Getting Diving Experience (Experience)	23.0	35.3	23.0	15.1	3.6	2.41	1.109
9 Getting a collectible from a shipwreck (Collect)	22.8	25.7	27.9	16.9	6.6	2.59	1.202
10 Sharks (S)	10.8	33.8	27.3	15.8	12.2	2.85	1.185
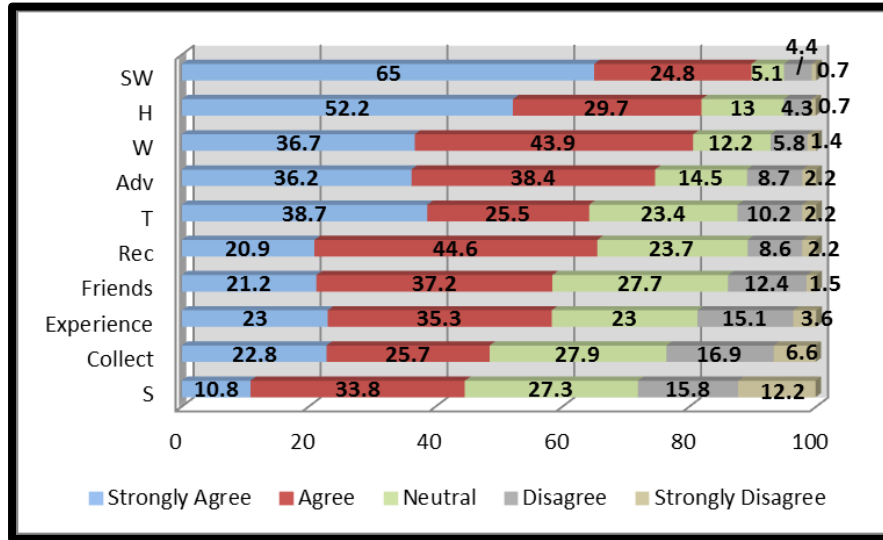
Figure 7.2: Motivations for Scuba Diving on a Shipwreck (figure by author).

Discussion

Due to the low response rate, there was concern regarding non-response bias. To examine the potential for non-response bias, selected variables were compared against two data sources: 1) the United States Census Bureau (USCB 2014); and 2) data from Outer Banks Visitors Bureau (OBXVB) of visitors to the Outer Banks (Strategic Marketing and Research, Inc. (SMR) 2006). Table 7.12 provides comparison of gender, education, and ethnicity. Age and income were also compared but due to different metrics used by the data sources, they were not included in the table. This survey and OBXVB reported a mean age of 58 and 50, respectively, for participants (SMR 2006:8). The State of North Carolina reported 56.4% of the population was between the ages of 18 and 65. For the survey, the highest percentage (41.6%) of respondents had an income between $40,001 and $80,000. The median income for North Carolina and OVBX visitors was$46,450 and $80,966, respectively (SMR 2006; USCB 2014).

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This data indicates that there is likely some non-response bias in the survey in comparison to residents of North Carolina.

Table 7.12: Comparison of Selected Demographics

	Survey	USCB	OBXVB
Gender	%	%	%
Male	67.5	48.7	Unavailable
Female	32.5	51.3	Unavailable
College degree or Higher	79.9	26.8	64
Ethinicity			
White	86.1	64.7	95
African American	9.3	22	1
Hispanic	1.3	8.7	1
Native America	1.5	1.5	1
Asian	1.3	2.5	1
Two or more races/Other	0.7	2	1

It is clear that women and minorities, especially African Americans, were underrepresented in the responses. Age of respondents falls within the demographic of 18-65, but skews high. The median income of North Carolina residents ($46,450) fits within the highest percentage of income for respondents ($40,000-$80,000) (USCB 2014). The demographics, however, match better with the average visitor to the Outer Banks, who was white, 50 years of age, affluent, and college educated (SMR 2006:8).

In order to examine possible regional bias of responses, zip codes were geocoded using ArcGIS. Figure 7.3 shows the geographical distribution and quantity of responses. Although the low numbers reflect the response rate, responses were spread throughout the state, indicating fair representation of different regions. There are no responses from the counties most geographically associated with the Outer Banks and the Graveyard of the Atlantic (Dare and

Hyde Counties). This was a consequence of the random sampling methodology, which included only seven participants from these two counties combined.

Survey participants' travel behavior was similar to other tourists in terms of length and location of stay, motivations and activities during the trip. As mentioned above, it was surprising the high percentages for different types of cultural events as motivation to visit the beach. Yet, these percentages were consistent with the OBXVB study (Figures 7.4 and 7.5). The activities that tourists reported in the OBXVB study also supported that this study's findings that visitors to the beaches preferred activities that emphasized relaxation as opposed to "high-energy" activities, such as beach driving, sailing, surfing, or boating.
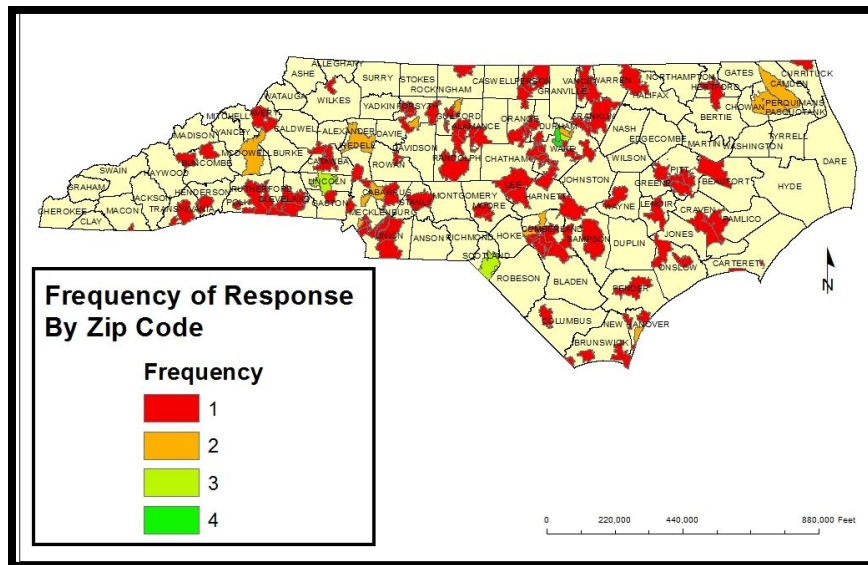
Figure 7.3: Geographical Distribution and Frequency of Responses (figure by Jennifer Jones)

Visited for...	Overall
Beautiful beaches	40.7%
Interesting historic sites & landmarks	14.2%
Scenic areas or scenic drives	11.5%
A clean and safe environment	9.8%
Good accommodations	10.2%
Wildlife viewing and bird-watching	1.9%
Family attractions	3.5%
Good restaurants	2.3%
Good shopping opportunities	0.4%
Fishing opportunities	4.7%
Arts or cultural activities	0.1%
Sporting activities	0.7%
Good golf courses	0.2%
Visual arts or performing arts	0.1%

Activities	Overall
Enjoy scenic beauty	89.3%
Visit the ocean or beaches	94.8%
Take scenic drives along the coast	75.5%
East at restaurants unique to the area	84.1%
Visit historic sites	79.6%
Visit lighthouses & other coastal relics	74.7%
Go shopping	75.7%
Visit the national parks	57.1%
Enjoy wildlife viewing/Bird watching	46.4%
Take ferry	48.8%
Go hiking or biking	34.3%
Visit shipwrecks/lifesaving stations	21.7%
Visit art/cultural museums or galleries	26.2%
Go fishing	29.1%
Attend festivals or craft fairs	7.8%
Go camping	9.7%
Golf	8.8%
Attend theatre performances	5.6%
Canoeing or kayaking	9.7%
Play tennis	2.7%
Attend / participate in sporting events	5.6%
Attend musical performances	4.6%

Figure 7.4: Motivations for Visiting Beach (SMR 2006:5).

Figure 7.5: Activities at the Beach (SMR 2006:22).

It is likely that while boat owners were a clear minority of this survey's respondents (18.1%), they represent a larger percentage compared to the general population. According to the United States Coast Guard Office of Boating (USCGOB hereafter), only four percent of North Carolinians registered boats in 2012 (USCGOB 2013). Still, those that reported that they did own a boat (18.1%) represented over four times the state registration for boats in 2012 according to the USCGOB (2013), which was 4% of North Carolina's population in 2012 (USCB 2014).

Although less than one-fifth of the sample (19.4%) stated they were scuba divers, this is likely a much higher percentage compared to scuba divers in the general population. Unfortunately, there are no hard figures for scuba divers in North Carolina. The motivations for diving on shipwrecks were primarily to experience the shipwreck itself and history. They also wanted to find treasure, but were not as interested in taking an artifact from the shipwreck. It was

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interesting to see that respondents separate the two because treasure hunting and artifact salvaging often are associated.

Section 2: Awareness, Perceptions, and Interests towards Maritime Heritage and Education

One of the primary goals of this study was to understand the public's awareness and perceptions towards North Carolina's maritime heritage and its maritime archaeological resources – specifically shipwrecks. Since awareness and perceptions are derived from the knowledge level people have about a subject matter (Ramos and Duganne 2000), it was important to understand what background knowledge people had about the Graveyard of the Atlantic and shipwrecks. Additionally, maritime archaeologists and managers must present reasons why preserving shipwrecks matter to a population who may never visit the resources directly. This creates a challenge both to engage and to inform, which often relies on disseminating material in a way that the public can connect with and relate to (Staniforth 1994; Scott-Ireton 2007). Therefore, it was essential that this study asked questions to understand people's perceptions and interests towards a variety of aspects, such as history, shipwrecks, and educational opportunities. Such information is useful when managers look to create public outreach material that will immediately resonate with the public, as well as identifying areas of low information where increased educational efforts would be needed. This section looks at the data involving these goals and aspects in three parts: 1) Awareness and perception of maritime heritage, GOA, and shipwrecks; 2) Attitudes and interests towards public outreach; and 3) Discussion.

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Awareness and Perceptions: Maritime Heritage, Graveyard of the Atlantic, and Shipwrecks:

As Table 7.13 and Figure 7.6 show, respondents perceived lighthouses as the

predominant symbol of North Carolina's maritime heritage with almost 95% either strongly

agreeing (57%) or agreeing (37.1%). This was not unexpected because – as previously discussed

– lighthouses are the most visible and recognizable pieces of maritime heritage remaining on the

Outer Banks. They tower over the landscape with distinct marking that create a sense of identity

and place with which communities associate and market themselves (Blake 2007). The "Atlantic

Ocean" and "Shipwrecks" were also strongly associated with maritime heritage. Each had a

mean of 1.65 on the five-point likert scale (with "strongly agree" being 1; and "strongly disagree"

being 5). "Shipwrecks" had more varied responses ranging from a higher percentage of strongly

agree (53.3%) to disagree (4%) than the "Atlantic Ocean" (41.6% strongly agree, 1.8% disagree).

Overall, most categories received positive ratings with averages rating on the positive side of the

likert scale. There were a couple of surprises, however.

Table 7.13: Perceptions of Maritime Heritage on the Outer Banks

	Maritime Heritage Resource	Agreement Level (%)					Mean	SD
		SA (1)	A (2)	N (3)	D (4)	SD (5)		
1	Lighthouses (LH)	57.0	37.1	5.3	.7	0	1.50	.631
2	Atlantic Ocean (AO)	41.6	43.4	5.4	1.8	0	1.65	.683
3	Shipwrecks (SW)	53.3	32.7	10.0	4.0	0	1.65	.820
4	Coastal Towns and Villages (CTV)	37.3	47.7	13.1	2.0	0	1.80	.738
5	Ships (S)	39.7	44.5	9.6	6.2	0	1.82	.844
6	Beaches (B)	32.0	47.3	14.7	5.3	0.7	1.95	.862
7	Fishing (Fsh)	25.5	32.2	31.5	9.4	1.3	2.29	.995
8	Tourism (T)	19.4	36.1	29.2	13.9	1.4	2.42	1.000
9	Pamlico / Albemarle Sound (P/A)	17.1	34.2	38.4	8.9	1.4	2.43	.924
10	Life Saving Stations (LSS)	17.0	32.0	36.7	14.3	0	2.48	.939
11	Shipbuilding (SB)	11.9	36.4	38.5	11.9	1.4	2.55	.902
12	Food (Fd)	19.2	26.7	32.9	15.8	5.5	2.62	1.128
13	Festivals (Fst)	11.7	26.2	41.4	17.9	2.8	2.74	.979
14	Beach Driving (BD)	4.9	17.4	43.1	25.7	9.0	3.17	.982
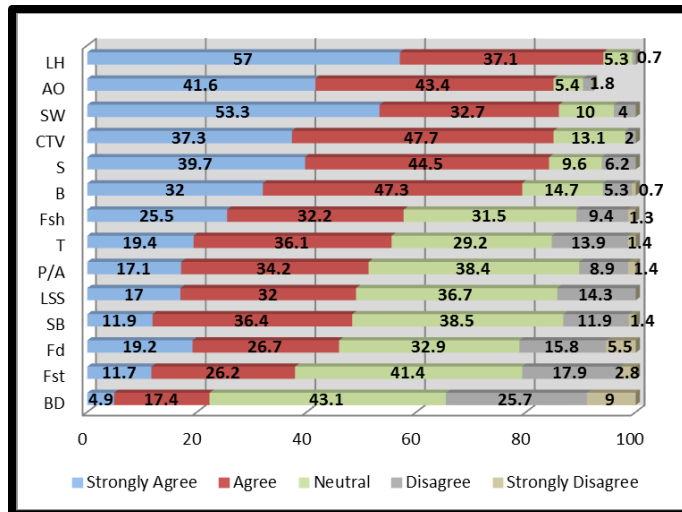
Figure 7.6: Perceptions of Maritime Heritage on the Outer Banks (figure by author).

The first was the relatively low position of "Fishing," which was part of a trend in the other questions that will be discussed below. The second was the ambivalence towards "Beach Driving." This was a little unexpected because other studies have shown support for beach driving (Vogelsong and Graefe 2008). Additionally, most residents during the interview phase of the project viewed the loss of beach access as a loss of personal heritage and identity. This may simply mean, however, that respondents perceived activities on the beach as separate from maritime heritage. This is supported by the fact that "Food" and "Festivals" were also in the bottom three of all the categories. Finally, 14 people (8.4%) responded with options not included in the survey. Of these 14 responses, five were categorized as "natural heritage" such as "stargazing on the Outer Banks," "storms," "wildlife," "preservation of nature," and "the Intracoastal waterway." Nine were categorized as cultural heritage, including "Graveyard of the Atlantic Museum," "pirates," "Blackbeard," "Native Americans" and "Wright brothers."

Well over 80% of respondents were aware of GOA (Table 7.14), but there was concern that the information block provided to them may have caused information bias (see Appendix E for discussion). This concern was mitigated, however, by results regarding perceptions of GOA.

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As shown in Table 7.15 and Figure 7.7, "Shipwrecks" were dominantly perceived as characterizing GOA with over 76.9% reporting that they "strongly agree" – nearly a 25% increase from how shipwrecks were rated with maritime heritage. Second, 57.3% of respondents strongly agreed that "Ships" characterized the GOA – a 17.6 point increase over its rating for maritime heritage. Conversely, lighthouses dropped 14 points with 43% of respondents "strongly agreeing" in GOA compared to 57% in maritime heritage. Further, lighthouses were below "Outer Banks" and "Map Showing Shipwrecks." This evidence suggests that respondents were aware of GOA's reputation for creating shipwrecks, and consequently were aware of GOA before reading the information block.

Table 7.14: Awareness of the Graveyard of the Atlantic

Have you heard of the Graveyard of the Atlantic?	N	%
Yes	130	85.5
No	22	14.5
Total	152	100

Table 7. 15: Perceptions and Associations about the Graveyard of the Atlantic

	Resources	Agreement Level (%)					Mean	SD
		SA (1)	A (2)	N (3)	D (4)	SD (5)		
1	Shipwrecks (SW)	76.9	20.5	2.6	0	0	1.26	.493
2	Ships (S)	57.3	34.3	6.3	2.1	0	1.53	.710
3	Outer Banks (OBX)	46.9	38.8	12.2	1.4	.7	1.70	.789
4	Map Showing Shipwrecks (Map)	42.3	38.0	15.5	4.2	0	1.82	.847
5	Lighthouses (LH)	43.0	38.9	12.1	4.7	1.3	1.83	.913
6	Storms (Strm)	33.3	49.3	12.7	3.3	1.3	1.90	.841
7	Hurricanes (H)	24.5	48.3	19.0	6.1	2.0	2.13	.924
8	Beaches (B)	21.1	34.5	28.2	13.4	2.8	2.42	1.054
9	Life Saving Stations (LSS)	17.6	26.8	35.2	15.5	4.9	2.63	1.095
10	Fishing (Fsh)	7.6	22.8	40.7	23.4	5.5	2.97	.996
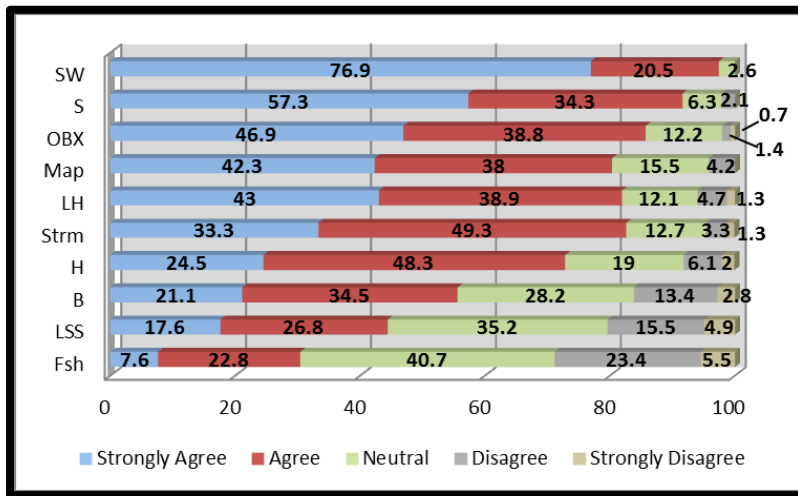
Figure 7.7: Perceptions and Associations about the Graveyard of the Atlantic (figure by author).

Overall, respondents were positive to all possible options with means for them trending towards agree or strongly agree. "Fishing," however, was rated lowest of all possibilities, illustrating that the sample did not perceive fishing as associated with GOA as much as all the others. There were 12 responses for "Other," half of which stated "pirates" as being associated with GOA. Four other responses mentioned shipwrecks in different ways, such as "loss of lives," "concentration of shipwrecks in certain areas," "scuba diving on shipwrecks," and "Hurricane Sandy causes HMS Bounty [sic] to sink…The Graveyard is still claiming victims." One response stated "museums," and the final one said, "Outer Banks / Cape Hatteras."

Respondents also appeared to have some background knowledge of shipwrecks as almost half (44.6%) could name at least one shipwreck in North Carolina, and exactly half (50%) could name at least one in the United States (Table 7.16). More than seven out of ten had seen a shipwreck exhibit in a museum, and over half had a read a book about a shipwreck (Table 7.16). The most frequent shipwrecks named in the comment section were *Queen Anne's Revenge* for North Carolina shipwrecks, and *Edmund Fitzgerald* for the United States (Table 7.17;

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respondents could name as many shipwrecks as they wanted, which explains why there are more

shipwrecks named then individuals). It was not surprising that *Queen Anne's Revenge* was the

most mentioned North Carolina shipwreck as it is the most publicized vessel in the state and is

associated with Blackbeard, one of the most famous pirates in history (see Chapter 4 for

discussion). *Edmund Fitzgerald* was surprising in that it was mentioned more than *Titanic,*

which is often considered one of the most famous shipwrecks in the world (an internet search for

Titanic revealed over five million websites and over 4,000 articles – and the 1997 movie which

sunk all box office records). The recollection of *Edmund Fitzgerald* was likely influenced by

Gordon Lightfoot's song, "The Wreck of the Edmund Fitzgerald," which was a top single of

1976 (DeYoung 2010).

Table 7.16: Questions Regarding Background Knowledge of Shipwrecks

Can you name a shipwreck in NC off the top of your head?	N	%
Yes	73	47.1
No	82	52.9
Total	155	100

Can you name a shipwreck in the United States off the top of your head?	N	%
Yes	77	50
No	77	50
Total	154	100

Have you ever seen a shipwreck in a museum?	N	%
Yes	115	74.2
No	40	25.8
Total	155	100

Have you ever read a book about a shipwreck?	N	%
Yes	83	52.9
No	74	47.1
Total	157	100

Table 7.17: Frequency of Named Shipwrecks and Examples

North Carolina	N	%	United Sates	N	%
One Shipwreck Named	60	83.3	One Shipwreck Named	57	80.3
Two or More Shipwrecks Named	12	16.7	Two or More Shipwrecks Named	14	19.7
Total	72	100	Total	71	100
Frequency of Named Shipwrecks	**N**	**%**	**Frequency of Named Shipwrecks**	**N**	**%**
Queen Anne's Revenge	51	59.3	S.S. *Edmund Fitzgerald*	19	24.7
USS *Monitor*	8	9.3	S.S. *Titanic*	10	13
U-352	5	5.8	S.S. *Andrea Doria*	8	10.4
Bounty	3	3.5	USS *Monitor*	8	10.4
Atlas	2	2.3	CSS *Hunley*	7	9
Caribsea	2	2.3	QAR	6	7.8
Shipwrecks named once	15	17.4	USS *Arizona*	4	5.2
Total	86	99.9	USS *Merrimac* (CSS *Virginia*)	2	2.6
			Exon *Valdez*	2	2.6
			Shipwrecks named once	11	14.3
			Total	77	100

Public Outreach: Perceptions and Interests

To expect that all shipwrecks would have the same name recognition as that of *QAR, Edmund Fitzgerald,* or *Titanic* would be unrealistic, but the importance of public outreach and education to increase awareness of maritime archaeological heritage is one area where different stakeholders usually agree. Archaeologists and managers have long recognized this fact and have employed different methods to disseminate information and to engage the public, such as museums, heritage trails, lectures, and training workshops (Fagan 1984; Allen 2002; Smith 2002; Scott-Ireton 2007). Therefore, it was important for this study to understand what perceptions, attitudes, and interests people held towards a variety of aspects concerning shipwrecks and informal education opportunities.

As Table 7.18 and Figure 7.8 show, over 95% of respondents strongly perceived that shipwrecks contribute to the understanding of history either "a lot" (55.2%) or "some" (40.9%). Participants also had positive perceptions about shipwrecks contributing to North Carolina's

sense of identity, its tourism, and artificial reefs. While respondents were not negative towards shipwrecks contributing to fishing, people again rated this category low with the most variability in responses relative to the other four options (Table 7.18, Figure 7.8).

Table 7.18: Contributions of Shipwrecks to Society

| How do you think shipwrecks contribute to the following: | Agreement Level (%) | | | | | Mean | SD |
	A lot (1)	Some (2)	Don't Know (3)	A Little (4)	Nothing (5)		
1 Understanding Our History (H)	55.2	40.9	2.6	.6	.6	1.51	.649
2 Creating a sense of identity for North Carolina (I)	52	39.2	3.4	4.1	1.3	1.64	.842
3 Creating tourism for North Carolina (T)	44.9	41.5	6.8	6.8	0	1.76	.857
5 Creating artificial reefs for marine animals (AR)	43.0	36.9	12.8	6.0	1.3	1.86	.952
4 Creating Areas to Fish (F)	22.3	37.8	25.7	12.2	2.0	2.34	1.021
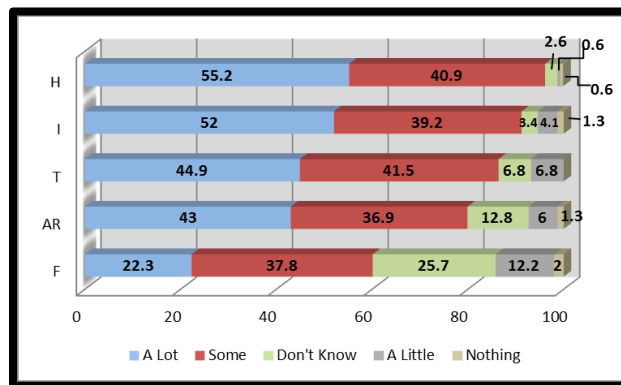
Figure 7.8: Contributions of Shipwrecks to Society (figure by author).

These responses were consistent with responses from a question that asked individuals they thought of when they heard the term "shipwrecks." More than 90% either strongly agreed or agreed that shipwrecks were associated with history (Table 7.19 and Figure 7.9). After "history," "treasure," "lives lost," "survivors," "mystery," and "adventure" were rated high as either "strongly agree," or "agree." These results are consistent with themes archaeologists have presented because of high public interest (Fagan 1984; Allen 2002; Smith 2002; Scott-Ireton

2007). They also represent themes that were most commonly raised, according to the panel of

experts in the first phase of the project. Treasure, in particular, was reported as commonly raised

topic by the public and its association with shipwrecks was reinforced in this survey's results.

Table 7.19: Perceived Associations with Shipwrecks

| When I think of shipwrecks, I usually think of: | Agreement Level (%) | | | | | Mean | SD |
	SA (1)	A (2)	N (3)	D (4)	SD (5)		
1 History (H)	65.6	26.6	7.8	0	0	1.42	.634
2 Treasure (Tr)	43.7	41.1	12.6	2.6	0	1.74	.779
3 Lives Lost (LL)	34.9	40.4	9.6	2.4	0	1.77	.755
4 Survivors (S)	32.4	41.9	23.0	2.7	0	1.96	.815
5 Mystery (M)	34.0	39.5	19.0	6.8	.7	2.01	.933
6 Adventure (A)	34.2	30.2	26.2	8.7	.7	2.11	1.004
7 Tourism (Tour)	17.1	37.7	32.9	9.6	2.7	2.45	.975
8 SCUBA Diving (SD)	15.6	38.8	27.9	11.6	6.1	2.54	1.081
9 Coral Reefs (CR)	11.7	37.2	32.4	17.2	1.4	2.59	.954
10 Fishing (F)	6.2	24.1	37.2	26.2	6.2	3.02	1.003
11 Sharks (S)	8.3	20.8	36.8	25.7	8.3	3.05	1.067
12 Other Types of Fish (OTF)	6.3	20.4	38.0	26.1	9.2	3.11	1.039
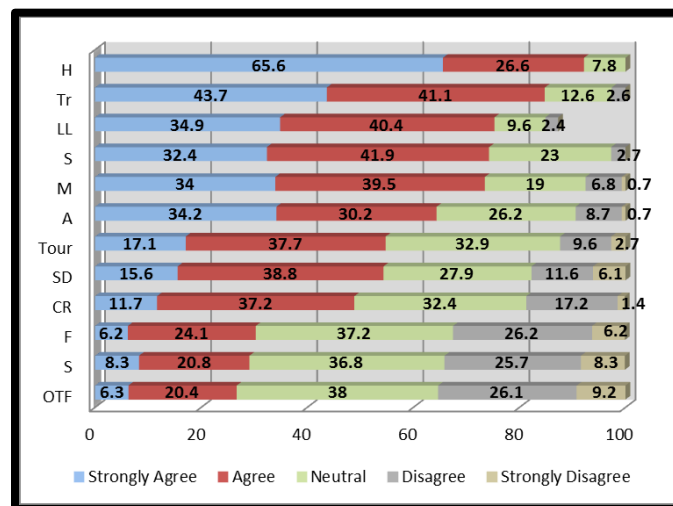
Figure 7.9: Perceived Associations with Shipwrecks (figure by author).

Tourism was positively associated with shipwrecks, but not perceived as strongly as shipwrecks contribution to tourism (see Table 7.18 and Figure 7.8). This suggests that while respondents did not immediately think of tourism when picturing a shipwreck, they conversely perceived that shipwrecks can offer the tourist industry a marketing strategy that separates the Outer Banks from other destinations. Again, the lowest rated aspects on average were environmental and ecological: coral reefs, fishing, sharks, and other types of fish. This is consistent with respondents' perceptions regarding what shipwrecks contributed to society (see Table 7.18 and Figure 7.8). It is clear that respondents perceive stronger associations of cultural and historical aspects to shipwrecks than environmental ones

In addition to perceptions about shipwrecks and their contributions, the sample was asked to rate certain historical periods on a five-point likert scale. Respondents were most interested in the Civil War and World War II (Table 7.20 and Figure 7.10). On average, the next two historical periods, "Early American," and "Colonial Period," were close in terms of respondents' interest (mean = 2.10 and 2.19, respectively). Each of these periods has events closely associated with North Carolina, such as the Lost Colony of Roanoke Island, piracy, and the Revolutionary War (Stick 1952, 1958). All of them have immediate name recognition, and consequently yields interest from the public. After the "Colonial Period," respondents' average interest decreased as historical periods became closer to the present, indicating that they were less interested in modern events than older ones.

These interests were consistent with respondents' interests towards learning about different types of shipwrecks. As shown in Table 7.21 and Figure 7.11, "pirate ships" and "military ships" were the two types of shipwrecks that more than half of the respondents reported that they were "very interested" in learning more. After "submarines," which was third,

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Table 7.20: Respondents' Interest in Different Historical Periods

	Historical Periods	Agreement Level (%)					Mean	SD
		SA (1)	A (2)	N (3)	D (4)	SD (5)		
1	Civil War (CW)	35.8	43.7	17.2	2.0	1.3	1.89	.850
2	World War II (WWII)	33.3	36.6	25.5	3.3	1.3	2.03	.917
3	Early American (EA)	23.8	49.0	22.5	2.6	2.0	2.10	.862
4	Colonial Period (CP)	23.2	43.0	27.2	4.6	2.0	2.19	.914
5	Late 19th / Early 20th Century (19/20th)	18.4	42.9	33.3	3.4	2.0	2.28	.874
6	World War I (WWI)	18.9	39.9	36.5	2.7	2.0	2.29	.875
7	Roaring 20s / Great Depression (20s/GD)	15.3	34.0	43.3	5.3	2.0	2.45	.886
8	Cold War and After (CldW/A)	14.6	33.8	42.4	6.6	2.6	2.49	.916
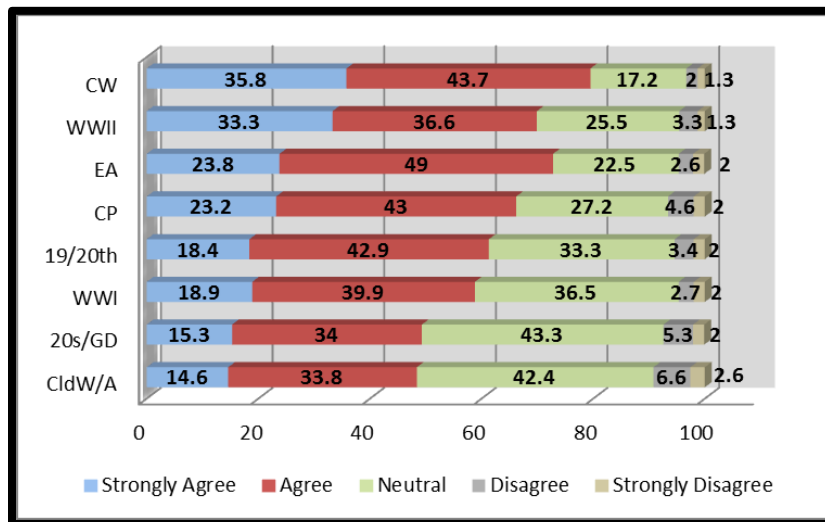
Figure 7.10: Respondents' Interest in Different Historical Periods (figure by author).

Table 7.21: Respondents' Interests in Types of Shipwrecks

	Types of Shipwrecks	Agreement Level (%)					Mean	SD
		VI (1)	I (2)	N (3)	U (4)	VU (5)		
1	Pirate ships (PS)	56.6	32.2	7.9	3.3	0	1.58	.777
2	Military Ships (MS)	55.9	30.3	11.2	2.6	0	1.61	.790
3	Submarines (Sub)	45.0	32.9	18.1	4.0	0	1.81	.873
4	Wooden Ships (WS)	40.5	35.1	19.6	4.7	0	1.89	.885
5	Iron and Steel Ships (ISS)	25.9	44.2	25.2	4.8	0	2.09	.835
6	Sailing Ships (S)	25.0	42.6	26.4	6.1	0	2.14	.862
7	Steam Ships (SS)	23.8	43.5	25.2	7.5	0	2.16	.876
8	Cargo ships (CS)	17.3	50.0	24.7	8.0	0	2.23	.831
9	Fishing Ships (FS)	6.8	40.1	37.4	15.0	.7	2.63	.846
10	Gas and Diesel Boats (GDS)	6.3	32.6	47.2	13.2	.7	2.69	.805
11	Recreational boats (RB)	6.1	25.2	48.3	17.7	2.7	2.86	.876

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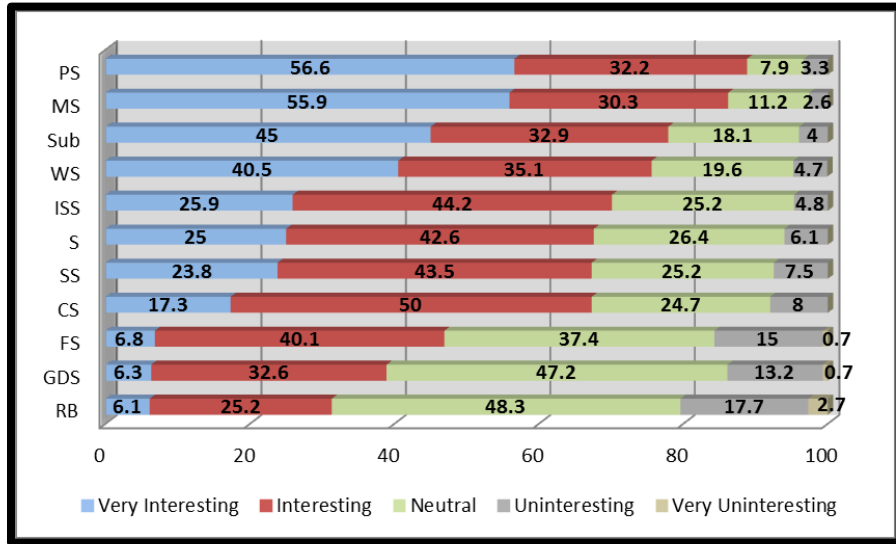
Figure 7.11: Respondents' Interest in Types of Shipwrecks (figure by author).

respondents' interest decreased as vessels trended towards more modern or more vernacular watercraft. Again, this was consistent with the pattern for interest in historical periods. Regarding the information and stories about shipwrecks, respondents expressed strong interest in all the possibilities. As Table 7.22 and Figure 7.12 illustrate, "how the ship sank" and "why the ship sank" were the two aspects that people were most interested in learning. An area where maritime archaeology plays an important role was "what happened to the shipwreck after it sank," which was third with almost 90% of respondents either stating that were "interested" about the subject. Information about the ship's crew (mean = 1.91, SD = .763), cargo (mean = 1.92, SD = .801), and passengers (mean =1.93, SD = .763) followed close to each other. The aspect that people were least interested in was "where the ship was built," but even this had an average (mean = 2.26, SD = .857) that was positive.

Table 7.22: Respondents' Interests to Learning about Aspects of the Shipwreck

	Educational Aspects of the Shipwreck	Agreement Level (%)					Mean	SD
		VI (1)	I (2)	N (3)	U (4)	VU (5)		
1	Why the ship sank (Why)	58.3	32.5	7.3	2.0	0	1.53	.719
2	How the ship sank (How)	57.5	32.7	6.5	3.3	0	1.56	.760
3	What happened to it after it sank (After)	44.3	43.6	9.4	2.7	0	1.70	.749
4	What it did before it sank (Before)	34.2	53.0	8.7	4.0	0	1.83	.751
5	Its Crew (Cr)	31.3	49.3	16.7	2.7	0	1.91	.763
6	Its Cargo (Ca)	32.9	45.6	18.1	3.4	0	1.92	.801
7	Its Passengers (P)	30.2	49.0	18.1	2.7	0	1.93	.768
8	Where it was built (Where)	18.8	43.6	30.9	6.0	.7	2.26	.857
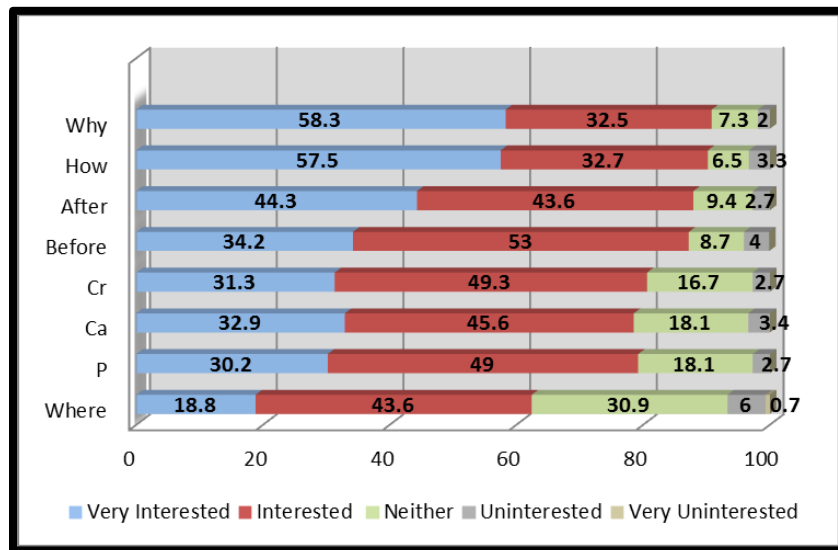
Figure 7.12: Respondents' Interests to Learning about Aspects of the Shipwreck (figure by author)

Regarding how respondents wanted to learn about these subjects, displaying exhibits in museums had the highest support with the majority of participants reporting that they were "very interested (Table 7.23 and Figure 7.13). After this, respondents preferred walking trails out of the two types of heritage trails provided as options. Training in maritime archaeology (mean = 2.61; SD = 1.114) and workshops and lectures about maritime archaeology (mean 2.63; SD =

.937) were weighed almost equally. Although a higher percentage of people were "very interested" (17.7%) in training than workshops, training had the most variation, and also had the highest percentage of people state they were "very uninterested" (5.5.%).

Table 7.23: Respondents' Interests in Different Public Outreach Options

	Public Outreach Options	**Agreement Level (%)**					**Mean**	**SD**
		VI (1)	**I (2)**	**N (3)**	**U (4)**	**VU (5)**		
1	Seeing the artifacts in a museum (Artif)	52.9	34.6	6.5	5.9	0	1.65	.845
2	On a walking trail (WT)	26.7	44.0	23.3	6.0	0	2.09	.859
3	On a "virtual" trail (VT)	19.2	45.2	26.0	9.6	0	2.26	.879
5	Training in maritime archaeology (Training)	17.7	30.6	30.6	15.6	5.5	2.61	1.114
4	Workshops (Wkshp)	10.4	36.1	34.7	17.4	1.4	2.63	.937

Figure 7.13: Respondents' Interests in Different Public Outreach Options (figure by author)

Discussion

Respondents were aware of the GOA, perceiving shipwrecks, ships, and lighthouses as maritime heritage resources with half or nearly half being able to name a shipwreck in the United States and in North Carolina, respectively. They also were well educated regarding shipwrecks

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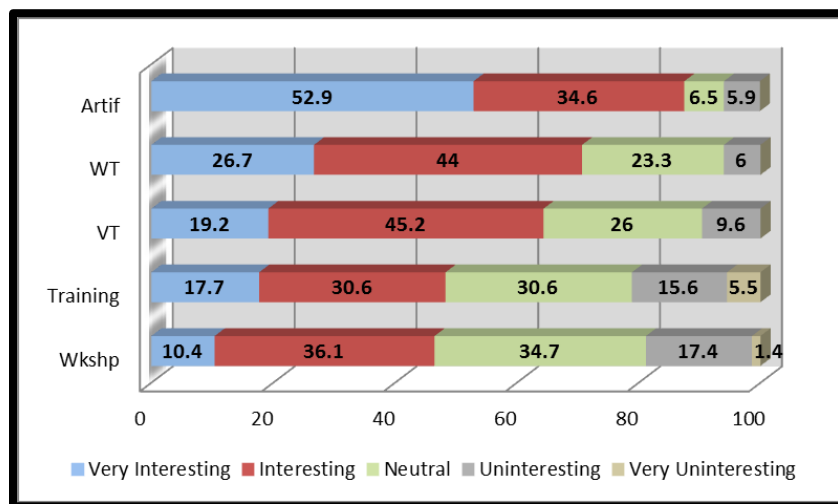as almost three-quarters of them had seen a shipwreck in a museum, and over half had read at least one book about shipwrecks. It was not surprising that *Queen Anne's Revenge, Edmund Fitzgerald*, and *Titanic* were the three most commonly remembered shipwrecks as they are three of the most famous. The high percentage of people remembering *Edmund Fitgerald* was both a testament to staying power of Lightfoot's tribute (DeYoung 2010) as well as a possible indicator that the average age of respondents skewed older.

They perceived that the primary contribution of preserving maritime heritage was "understanding history" and "creating a sense of identity for North Carolina." This is consistent with the responses from the expert panel and interviewed residents. It also is consistent with national polls that state that 99% public believes the primary role of archaeology is educational (McManamon 2002). Respondents also perceived shipwrecks as contributing to economic benefits through the creation of cultural heritage tourism. This is again consistent with the economic benefits the expert panel and interviewed residents associated with preserving maritime archaeological heritage.

Respondents primarily perceived shipwrecks as associated with history with treasure, lives lost, and survivors also associated highly. These perceptions are not unexpected. First, "treasure" is a common subject that people are curious about, according to the comments from the expert panel. Second during the resident interviews, participants frequently commented that they would be most interested in learning about the human aspects of shipwrecks. Respondents to the survey were consistent with the information expressed from these two different stakeholder groups.

The historical time periods and types of shipwrecks that respondents preferred also were consistent. They were primarily interested in the Civil War and World War II, followed closely

by the Early American and Colonial Periods. Interest then dropped as the historical periods

became more recent. Again, this is not surprising as the Civil War was a defining period of

American history, and it had immediate and long-term consequences for the United States – and

especially for North Carolina and the southeast region of the United States – that were indelibly

etched into the nation's collective memory. World War II was also seminal period in American

history. While its effects were not as immediate or direct to the trajectory of North Carolina's

history, intense naval battles between German U-boats and allied vessels occurred off the state's

shorelines, making the war particularly connected to North Carolina's maritime heritage (Stick

1952, 1958). Thus, both of these wars have become entrenched in the nation's identity and

memory, and therefore creating strong and immediate interest.

Respondents also exhibited this preference for the types of shipwrecks they were

interested in learning. Pirate ships, military vessels, and submarines (a special type of military

vessel) were all highly rated. These vessel types are consistent with other responses. For

example, those who could name a shipwreck in North Carolina, most often said, *QAR*, which

was Blackbeard's flagship. Interest in military vessels and submarines matches respondents'

preferences for historical time periods. Respondents became less interested in learning about

shipwrecks the more they represented more recent technology or time periods, which again is

consistent with their preferences for historical periods.

Managers and decision makers who want to create immediate public interest should focus

on outreach products involving pirate, Civil War, and World War II shipwrecks. Shipwrecks

involving these themes represent some of the most dramatic and significant moments in North

Carolina's maritime history. For other periods of history and shipwreck types, there is interest

from respondents, but there is not the name recognition or association. Educational efforts for

these types of maritime archaeological resources should convey the human dimensions and stories in order to connect with the public.

Over half of the respondents would prefer these types of stories and information to be presented through museum exhibits. This is possibly because the public perceives museums as some of the most trustworthy sources of disseminating information because they contain authentic objects from the past. It is also consistent with the premise the public wants to be able to experience, see, and possibly touch tangible artifacts from the past, thereby creating their own, personal connections to history (Rosenzweig and Thelen 1998:21-22). While such exhibits may not be possible for all shipwrecks, participants were also supportive of creating walking or virtual trails as other means for public outreach.

All public outreach products face the choice of whether to emphasize the strengths of current public perceptions (information about Civil War, World War II, or pirate ships, for example), or educate the public in areas of low information. The best example of a low-information area, based on survey results, is the role shipwrecks play in providing and supporting ecological systems. Relative to other possibilities, respondents consistently did not perceive shipwrecks as important to these systems. Managers have the opportunity to educate the public about healthy and sustainable ecosystems using shipwrecks as tangible places that can anchor these issues that are often abstract through the vast ocean space.

Section 3: Perceptions and Attitudes towards Preservation, Management, and Oversight

It was evident through the data analysis of this project's first stage that there was a range of perspectives between the stakeholder groups regarding preservation, management and oversight of maritime archaeological heritage resources. Therefore, it was important to examine

what perspectives the general population held towards these issues. Understanding public

opinion of these topics will help identify where there are areas of agreement between

archaeologists and the public. Conversely, it will also help identify areas of dissonance and

potential levels of dissonance between different perspectives towards preserving maritime

archaeological heritage.

Preservation

Subjects were asked two basic questions about preservation that examined their views

towards the relationship between shipwrecks and ecological impacts. The first was a binary

question about whether preserving shipwrecks was as important as preserving marine wildlife. A

majority of respondents (55.4%) said that preserving shipwrecks was not as important as

preserving marine wildlife (Table 7.24). The second question asked if preserving shipwrecks

would help or hinder fishing. Almost 90 percent of respondents replied that it would help (Table

7.24).

Table 7.24: Respondents' Attitudes towards Shipwrecks and Marine Wildlife and Fishing

Is preserving a shipwreck as important as protecting marine wildlife?	N	%
Yes	66	44.6
No	82	55.4
Total	148	100

Does preserving a shipwreck help or hinder fishing?	N	%
Help	111	89
Hinder	28	11
Total	139	100

Another question asked respondents what they perceived the term "preservation" meant

in terms of shipwrecks. As the term "preservation" is a subject with a multivocality of

perspectives (as displayed by the three different stakeholder groups in the first stage), it was

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important to understand the perspectives of the public towards the term. Out of all the questions on the survey, this one produced the most variance in the responses as shown in Table 7.25 and Figure 7.14. It was also the question where means tended to fall around "neutral," indicating that there was both uncertainty and ambiguity surrounding the term. The top two responses involved bringing some (mean = 2.43; SD = 1.040) or all (mean = 2.43; SD = 1.171) of the artifacts from the shipwreck and putting them into a museum. The next response, "bringing up none of the artifacts, but documenting…" (mean = 2.88; SD = 1.127), is what maritime archaeologists consider an important principle for best practices. The only other variable that had a mean under three (neutral) was "mark the shipwreck with buoys" (mean = 2.91; SD = 1.137). The remainder of the options had means that were three or higher, which meant that respondents either were completely neutral or tended to disagree or strongly disagree. The option that solicited the strongest disagreement was "bringing up and selling all the artifacts." More than eight out of ten respondents disagreed or strongly disagreed with this practice.

Finally, the survey asked participants to express what they thought caused shipwrecks "to fall apart." Options included several examples of natural and cultural site formation processes that are known to occur and affect shipwrecks. Overwhelming, respondents perceived natural site formation factors as the predominant threats to preserving shipwrecks as shown in Table 7.26 and Figure 7.15. The dominant cultural forces that caused ships to decay were the "ship's material" (mean = 1.53; SD = .702), and "the wrecking event" (mean = 1.74; SD = .790). Other cultural factors fell to the bottom of the reasons for ships to fall apart, according to respondents.

Table 7.25: Respondents' Perceptions of the Phrase "Preserve a Shipwreck"

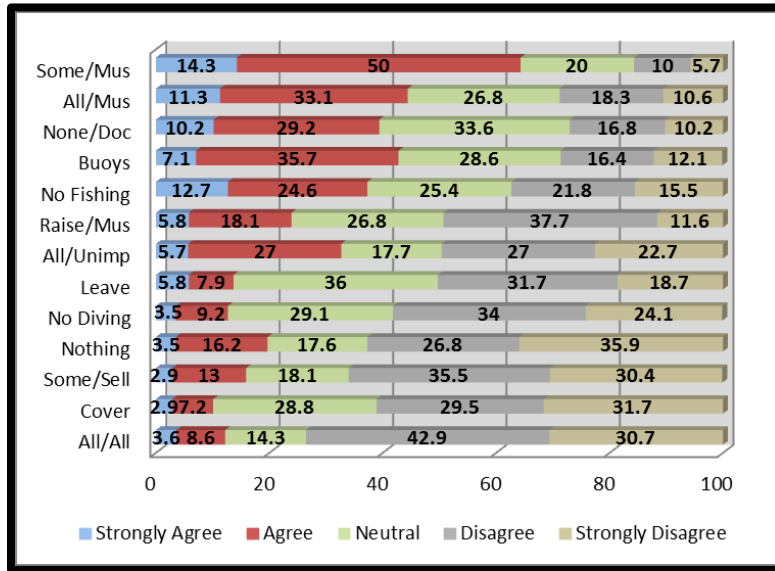| When I hear the phrase, "preserve a shipwreck" I think:	Agreement Level (%)					Mean	SD
	SA (1)	A (2)	N (3)	D (4)	SD (5)		
1 Bring up some of the artifacts and put them in museum (Some/Mus)	14.3	50.0	20.0	10.0	5.7	2.43	1.040
2 Bring all up; and put all in museum (All/Mus)	11.3	33.1	26.8	18.3	10.6	2.84	1.171
3 Bring up none of the artifacts, but document… (None/Doc)	10.2	29.2	33.6	16.8	10.2	2.88	1.127
4 Mark the shipwreck with buoys (Buoys)	7.1	35.7	28.6	16.4	12.1	2.91	1.137
5 Do not allow anyone to fish on it (No Fishing)	12.7	24.6	25.4	21.8	15.5	3.03	1.266
6 Raise Shipwreck entirely and put it in museum (Raise/Mus)	5.8	18.1	26.8	37.7	11.6	3.31	1.079
7 Bring all up; sell unimportant (All/Unimp)	5.7	27.0	17.7	27.0	22.7	3.34	1.253
8 Leave it completely alone (Leave)	5.8	7.9	36.0	31.7	18.7	3.50	1.066
9 Do not allow anyone to dive on it (No Diving)	3.5	9.2	29.1	34.0	24.1	3.66	1.054
10 Nothing, I don't know what that phrase means (Nothing)	3.5	16.2	17.6	26.8	35.9	3.75	1.204
11 Bring up some artifacts and sell them (Some/Sell)	2.9	13.0	18.1	35.5	30.4	3.78	1.107
12 Cover shipwreck w protective material (Cover)	2.9	7.2	28.8	29.5	31.7	3.80	1.058
13 Bring up all artifacts and sell all (All/All)	3.6	8.6	14.3	42.9	30.7	3.89	1.053

Figure 7.14: Respondents' Perceptions of the Phrase "Preserve a Shipwreck" (figure by author)

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Table 7.26: Respondents' Perceptions towards Threats to Shipwrecks' Preservation

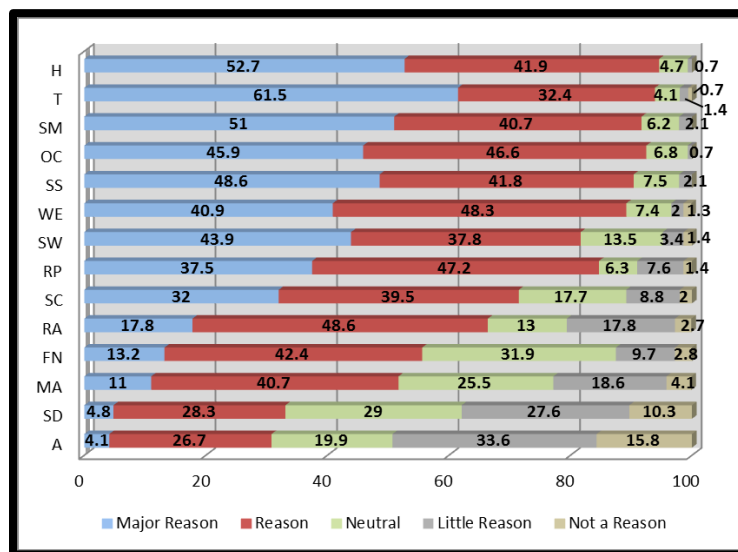|	Threats to Shipwrecks' Preservation	Agreement Level (%)					Mean	SD
		SA (1)	A (2)	N (3)	D (4)	SD (5)		
1	Hurricanes (H)	52.7	41.9	4.7	0.7	0.00	1.53	.622
2	Time (T)	61.5	32.4	4.1	1.4	0.7	1.57	.643
3	Ship's Material (SM)	51	40.7	6.2	2.1	0	1.59	.702
4	Ocean Currents (OC)	45.9	46.6	6.8	0.7	0	1.62	.643
5	Seasonal Storms (SS)	48.6	41.8	7.5	2.1	0	1.63	.715
6	Wrecking Event (WE)	40.9	48.3	7.4	2	1.3	1.74	.790
7	Salt Water (SW)	43.9	37.8	13.5	3.4	1.4	1.80	.893
8	Removing Part of the Wreck (RP)	37.5	47.2	6.3	7.6	1.4	1.88	.927
9	Salvage (SC)	32	39.5	17.7	8.8	2	2.10	1.016
10	Removing Artifacts (RA)	17.8	48.6	13	17.8	2.7	2.39	1.059
11	Fishing Trawler Nets (FN)	13.2	42.4	31.9	9.7	2.8	2.47	.938
12	Marine Animal Activity (MA)	11	40.7	25.5	18.6	4.1	2.64	1.039
13	Scuba Divers (SD)	4.8	28.3	29	27.6	10.3	3.10	1.078
14	Archaeologists (A)	4.1	26.7	19.9	33.6	15.8	3.30	1.147

Figure 7.15: Respondents' Perceptions towards Threats to Shipwrecks' Preservation (figure by author).

Management

Management of preserving maritime archaeological heritage involves making choices. As discussed in the previous chapter, even members of the expert panel did not think every shipwreck should or could be preserved. These choices involve determining significance

through some standard of valuation and criteria. One of the questions on the survey asked

participants whether shipwrecks should be preserved, using both criteria archaeologists often use

and additional themes that arose from the first stage of this project. Understanding public

perceptions towards these criteria and themes offers a point of comparison for professionals in

the field of preservation.

Table 7.27 shows what criteria respondents believed to be important in choosing what

types of shipwrecks should be preserved. While all criteria received a majority of support, by far

shipwrecks associated with famous events or battles (93.9%) and shipwrecks older than 100

(87%) or 200 (89%) years old were considered to be significant by the greatest percentage of

people. When asked if they would ever consider prohibiting scuba divers from diving on

shipwrecks, a majority (56.8%) said they would not (Table 7.28). Those that would consider

prohibiting divers, over three-quarters reported that the fragility and the safety of the site would

be there top reason for prohibiting divers (Table 7.29 and Figure 7.16). Averages for specialized

dive training (mean 1.63; SD = 0.762), grave site (mean = 2.07; SD = 1.1159), and treasure

(mean = 2.14; SD = .991) also trended positively with respondents ambivalent about other

categories.

Table 7.27: Criteria of Significance

Criteria	YES		NO	
	N	%	N	%
Associated with a famous event or battle	139	93.9	9	9
More than 200 years old	130	89.0	16	16
More than 100 years old	127	87.0	19	19
Has treasure on it	109	74.7	37	37
Associated with a famous person …	107	74.3	37	37
Represents an identity of city, village…	109	74.1	38	38
Represents an unique technology	102	69.9	44	44
More than 50 years old	98	67.6	47	47
Represents a maritime industry	86	58.5	61	61

Table 7.28: Prohibiting Scuba Divers on Shipwrecks

Would you ever consider prohibiting Scuba divers from diving on a shipwreck?	N	%
Yes	67	43.2
No	88	56.8
Total	155	100

Table 7.29: Conditions Necessary to Prohibit Scuba Divers on Shipwrecks

|	Conditions	Agreement Level (%)					Mean	SD
		SA (1)	A (2)	N (3)	D (4)	SD (5)		
1	The shipwreck is fragile (F)	78.8	16.7	3.0	1.5	0	1.27	.596
2	The shipwreck is unsafe to dive on (U)	75.4	20.0	3.1	1.5	0	1.31	.610
3	The shipwreck requires special dive training (DT)	52.3	33.8	12.3	1.5	0	1.63	.762
4	The shipwreck is a grave site (G)	43.3	20.9	25.4	6.0	4.5	2.07	1.159
9	The shipwreck has treasure on it (Tr)	34.8	22.7	37.9	3.0	1.5	2.14	.991
8	The shipwreck represents unique technology (Tech)	6.2	26.2	46.2	18.5	3.1	2.86	.899
6	The shipwreck represents a community… (C)	7.5	16.4	52.2	20.9	3.0	2.96	.895
7	The shipwreck represents a maritime industry (MI)	6.0	14.9	53.7	23.9	1.5	3.00	.835
5	The shipwreck belongs to a foreign nation (FN)	11.9	13.4	41.8	22.4	10.4	3.06	1.127
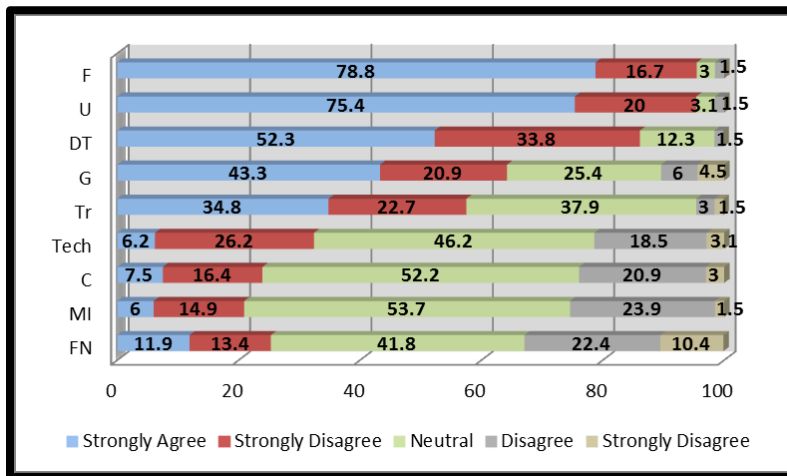
Figure 7.16: Conditions Necessary to Prohibit Scuba Divers on Shipwrecks (figure by author)

Oversight

During the first stage of the project, it became clear that many members of both the second and third stakeholder groups had strong opinions about possible increased oversight of preserving maritime heritage. Interviewed residents favored the idea of preservation, but expressed distrust of any government agency that would manage them. Commentators during the public hearings were more vociferous against increased preservation and the increased oversight that it would entail. Therefore, it was important to test whether the general public held these sentiments and to what degrees in order to understand the perceptions held towards different agencies. Individuals were asked to rate which what quality of job they thought different types of agencies would do if they were in charge of preserving shipwrecks. They could select from a five point continuum ranging from best (1) to worst (5). They were then asked why they made their choice for each of the agencies. Table 7.30 and Figure 7.17 provide their responses.

Oversight through the State of North Carolina was viewed most favorably with more than 60 percent of respondents rating it either as the "best" (25.9%) or "good" (37.8%). There were 93 comments with 53% of them positive, 36% negative, and 12% neither positive nor negative.

Table 7.30: Respondents' Trust of Oversight by Agency

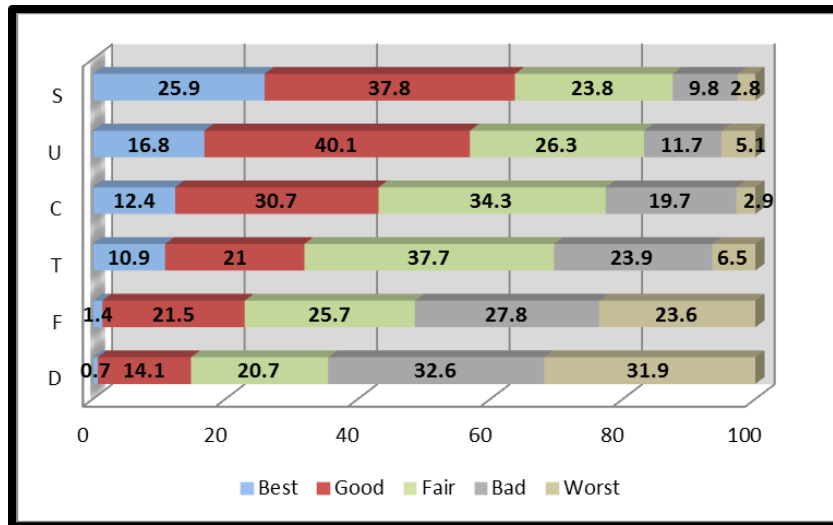|	Agencies	B (1)	G (2)	F (3)	B (4)	W (5)	Mean	SD
				%				
1	State (S)	25.9	37.8	23.8	9.8	2.8	2.26	1.039
2	Universities (U)	16.8	40.1	26.3	11.7	5.1	2.48	1.065
3	Counties (C)	12.4	30.7	34.3	19.7	2.9	2.70	1.017
4	Towns (T)	10.9	21.0	37.7	23.9	6.5	2.94	1.072
5	Federal (F)	1.4	21.5	25.7	27.8	23.6	3.51	1.116
6	Private Dive Stores (D)	.7	14.1	20.7	32.6	31.9	3.81	1.062

Figure 7.17: Respondents' Trust of Oversight by Agency (figure by author).

The ratio between positive to negative comments was 1.36 to 1. Positive comments emphasized the State's interest in protecting its own heritage and creating tourism. Negative comments focused on the economic costs for preservation as well as general distrust.

Universities were perceived as the next best option for oversight with over half of respondents rating them the "best" (16.8%) or "good" (40.1%). Out of 81 comments, 69% were positive, 27% negative, and 4% neutral. The ratio between positive to negative comments was 2.5 to 1. Positive comments involved the mission of universities to educate, perform research, and raise funds through grants. Negative comments took issue with the funding implications since universities are publicly funded, possible political biases ("they're too liberal," read one comment), and their ability or interest in management and oversight issues.

Counties and towns followed universities as the next agents trusted to oversee preservation, but more than a third of respondents only thought each would do a "fair" job. Comments for counties were 49% positive, 34% negative, and 7% neutral (n = 91) with a 1.45 to 1 ratio between positive and negative responses. Comments for towns were 24% positive, 73% negative, and 3% neutral, with a 1 to 3 ration between positive and negative responses. While

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counties had more favorable comments, the theme for both counties and towns was that they both had strong local interest and investment in establishing identity and caring for the resources. Economic costs were reported the most for negative comments, particularly for towns that were viewed as highly interested but did not have the financial resources for proper management.

The two lowest rated agencies were the Federal Government and private dive stores. Less than a quarter of respondents had any type of favorable outlook towards the Federal Comment, which had 99 comments. Of these comments, 23% were positive, 64% negative, and 13% neither positive nor negative. Positive comments primarily focused on access to funds and possible expertise. Negative comments were centered on issues of credibility, competence, inefficiency and interest in local issues. There were expressions ranging from mild skepticism to dramatic political rhetoric towards the government and its ability to oversee any resource efficiently.

The private sector did not fare better as the lowest trusted agent for overseeing preservation according to the respondents. Less than 15% of them had any favorable rating. Out of the 78 comments for private dive stores, 17% were positive, 72% negative, and 11% were neither positive nor negative. Positive comments noted how dive stores had a strong interest and motivation for preservation due to economic reasons. Conversely, negative comments identified these same interests and motivations as reasons why dive stores would not be good stewards of the resources for the public.

Discussion

Results from this section illustrated that respondents were generally consistent with their perceptions and opinions. Although they exhibited ambiguity about the term "preservation"

regarding shipwrecks, they rated options that were consistent with their public outreach preferences (seeing artifacts in a museum) as the highest. Encouragingly for maritime archaeologists, respondents rated one of the principles of "best practice" relatively high. This principle is minimally impacting the shipwreck through *in-situ* documentation. According to this practice, a shipwreck is thoroughly documented in a variety of ways but there is little to no excavation performed, except for diagnostic purposes that are guided by explicit research designs. Of course, the practice of *in-situ conservation* was not rated highly at all, falling to the second lowest of all possible options. Therefore, educational efforts should highlight what *in-situ* conservation means and how it can be done in order to preserve a shipwreck. Further and again encouraging for maritime archaeologists was the low position of selling some or all of the artifacts on a shipwreck, which were the two out of lowest three rated options. These results indicate that respondents are preservation minded, and would not support private market selling of artifacts. This is qualified, however, because respondents were also ambivalent towards selling redundant artifacts.

The results regarding how shipwrecks were perceived relative marine wildlife and whether they would help or hinder fishing were interesting compared to how respondents perceived the maritime heritage, the GOA, and contribution of shipwrecks to society. As discussed above, ecological resources and fishing activities were not strongly associated with these categories, particularly with shipwrecks relative to cultural factors. Here, however, respondents clearly indicated that they perceived marine wildlife as more important to preserve than shipwrecks. They also were aware that shipwrecks can act as fishing magnets because they are places for all types of fish species from bait fish to apex predators.

Respondents overwhelming viewed natural factors as presenting more threats to preservation of shipwrecks than cultural factors. Out of the first five threats, four were natural threats. The top cultural factors were due to the ship's material and the wrecking process. This clearly indicates that they perceive natural factors as more of a threat to preservation. Interestingly this could also represent their detachment from the resource as compared to the other three stakeholder groups.

Regarding management decisions and choices of resource preservation, participants' preferences were consistent with their historic and educational interests. They perceived shipwrecks associated with historic events or battles, and the age of shipwrecks, to be the most significant criteria for preservation. Most did not favor limiting access to shipwrecks for scuba diving, which was externally consistent with the opinions held by all three stakeholder groups from the first stage of the project. If access needed to be limited, respondents viewed the fragility and safety conditions of the shipwreck to be the determining factors.

The participants' viewpoints of management oversight were again externally consistent with the second and third stakeholder groups from the first stage of the project. They did not view the presence of Federal oversight favorably. Their comments towards the Federal government echoed the second and third groups as well, revealing strong appeals to American identity of limited government (Kingdon 1999). Their opinions were also consistent with other North Carolina residents. According to one public opinion poll, 2.7% of NC residents trusted the Federal Government "to do what is right" "all the time," and 11.30% said "most of the time" (Elon University 2013:6).

Interestingly, respondents had the lowest trust in private industry to preserve shipwrecks. They noted that the profit-driven industry had little incentive to preserve shipwrecks if it cost

customers. These opinions of the Federal government and private dive stores indicate that

respondents were detached from the contentious rhetoric expressed during the public meetings,

and viewed the federal government and private businesses with close to equal skepticism.

By far, respondents trusted the State of North Carolina to oversee preservation and

management of the state's maritime archaeological heritage. They thought the state had both the

interest and the financial resources to take care of these resources the best. Their comments also

revealed strong expressions of localism. As discussed in Chapter 2, localism can produce intense

feelings as it is related to heritage because heritage at the local scale is often intimate and

strongly associated with constructs of identity (Johnson 1995b; Graham et al. 2000).

Respondents clearly perceived that the State of North Carolina would share their values and

constructs of identity more than the federal government.

Respondents also expressed these sentiments of localism in their comments towards

counties and towns. They acknowledged that these agencies would have a high interest in

preserving maritime heritage as they were resources in "their backyard." Yet, respondents were

pragmatic in their opinions that neither of these agencies (especially local towns) had the

adequate financial resources to protect shipwrecks. This explains their lower levels of trust

relative to the State of North Carolina and universities.

Universities were rated second to North Carolina, which was surprising as it is not the

primary mission of universities to act as an oversight agency. This simultaneously reveals a

misperception in the roles of universities as well as the trust and authority perceived towards

higher education system. Other surveys have supported this public trust towards universities

(Rosenzweig and Thelen 1998:21). The findings in this survey likely represent this

trustworthiness as well. Many comments expressed that the research goals and access to grant

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funding were reasons for universities' trustworthiness. These views indicate that respondents

associate shipwreck preservation with providing knowledge and research opportunities. A

minority of comments noted, however, that universities were not management agencies and

would not have the infrastructure needed to focus solely on preservation of shipwrecks.

Section 4: Results from the Choice Experiment

One of the primary purposes of this project was to estimate people's WTP for

preservation of maritime archaeological heritage through creation of a maritime park. At the

center of the survey was a choice experiment, which presented respondents with several

programs (or choice sets) described by the following attributes: preservation zones, public

programs, heritage trails, and a one-time tax to be paid by all NC households. The provision

mechanism was a state voter referendum that would create the Graveyard of the Atlantic

Maritime Park (via state and Federal partnership). Respondents also had the option to choose the

status quo – meaning "no change" in the current situation for any of these attributes (and thus, no

one-time tax increase). The following presents the results from the choice experiment, which

analyzed the trade-offs for the different levels of attributes presented to the public in the survey

instrument, and can be used to estimate marginal effects (the influence of an attribute change on

voting behavior) and economic welfare (household willingness to pay for individual attributes

and overall provision of a maritime park).

Using the conditional logit model (CLM) discussed in Chapters 3 and 5, the coefficients

(β), standard errors, z-scores, and p-values (probability of a Type I error) were calculated via

Maximum Likelihood methods. Welfare estimates are transformations of the model parameter,

and confidence intervals were estimated via the Krinsky-Robb (1986) boot-strapping procedure.

Table 7.31 provides the results. There were significant differences from the null hypothesis (the

attribute level has no effect on consumer's choice) at .05 significance level (probability of a Type

I error, also known as a "false positive," which is rejecting the null of no effect when it is in fact

true) for the following attribute levels:

- Moderate Investment in Public Programs : p>[Z] = .002
- Walking Trails p>[Z] < 0.00001
- Virtual Trails: p>[Z] = .011
- Tax: p>[Z] < 0.00001
- Status Quo: p>[Z] = .003

There was a significant difference for the Orange Preservation Zone (see figure 5.7) at .10

significance level (.066), but not at the .05 significance level. For the other attribute levels, no

significant difference at any level was evident. This means that the null hypothesis of no effect

could not be rejected.

Table 7.31: Conditional (fixed-effects) logistic regression

Choice	Coefficent (β)	Std. Error	Z	P>|z|	Conf. Interval	
Yellow Zone	0.2079419	0.1701824	1.22	0.222	-0.1256095	0.5414932
Orange Zone	0.2973561	0.1615983	1.84	0.066**	-0.0193709	0.614083
Moderate Investment	0.4936648	0.1606221	3.07	0.002*	0.1788513	0.8084782
Large Investment	-0.0664849	0.1736584	-0.38	0.702	-0.4068491	0.2738792
Walking Trail	0.4983526	0.1320177	3.77	0.000*	0.2396027	0.7571025
Virtual Trail	0.3361356	0.1321028	2.54	0.011*	0.0772188	0.5950524
Dive Trail	-0.0352391	0.1341787	-0.26	0.793	-0.2982245	0.2277464
Tax	-0.0078712	.0012739	-6.18	0.000*	-0.010368	-0.0053744
Status Quo	0.6894281	0.2318199	2.97	0.003*	0.2350693	1.143787

Number of obs = 1819 (batched and concatenated)
LR chi2(8) =93.63; Prob > chi2 = 0.0000; Log likelihood = -873.09569; Pseudo R2 =0.0509
* p < .05; ** p < .1

The welfare effects were then calculated using the coefficients to estimate the marginal

willingness to pay (MWTP) for each attribute level. MWTP is the amount of money that

respondents are prepared to pay for an extra unit of the commodity, and is derived by the ratio of

coefficients represented by the level of attribute over the price coefficient (Rolfe et al. 2000; Apostolakis and Jaffry 2005):

$$MWTP = - (\beta_{attribute} / \beta_{tax})$$ (Eq. 7.1)

Table 7.32 shows the MWTP for all parameters, including the 95% confidence interval, which is derived using the Krinsky-Robb (1985) procedure (Haab and McConnell 2002:110-112). Those estimates that are statistically significant are highlighted and reported. The negative sign on some of the attribute levels indicates a reduction of utility for the respondent, though the point estimates are not statistically different from zero. Respondents implied that they would be WTP a one-time tax of $37.78 for the extension of preservation to Orange Zone, $62.72 for a Moderate Investment in the development of museum exhibits, workshops and training, $63.31 for the development of walking trails, and $42.70 for the design and implementation of virtual trails.

Table 7.32: Marginal Willingness to Pay (MWTP)

Attributes	Attribute Levels	MWTP ($)	Lower Bound ($)	Upper Bound ($)
Preservation Zones	Yellow Zone	26.42	-9.46	60.55
	Orange Zone	37.78	3.19	72.04
Programs	Moderate Investment	62.72	29.03	96.13
	Large Investment	-8.47	-44.58	28.11
Trails	Walking Trail	63.31	35.66	90.97
	Virtual Trail	42.70	15.09	70.87
	Dive Trail	-4.47697	-33.07	23.58
MWTP = - ($\beta_{attribute} / \beta_{tax}$); Lower and Upper Bounds correspond with 95% Confidence Interval				

As discussed in Chapter 5, all of the attribute levels (except tax) represent discrete effects, requiring dummy variables (0 = no; 1 = yes) for modeling purposes. Marginal effects were calculated by estimating the chance the voting probability evaluated at the means of the x-vector using the Logistic CDF. First, the linear prediction of $x\beta'$ was evaluated using the sample

means for the parameters multiplied by the coefficient ($x\beta = \mu_{yellow}\beta_{yellow} + \mu_{orange}\beta_{orange} +$

$\ldots\mu_{tax}\beta_{tax}$) resulting in, $x\beta = 0.12595$. This linear estimate was used to calculate the marginal

effects (MFX) by evaluating the difference in the conditional probability of an affirmative vote

(derived from the Logistic CDF) with the characteristic k turned "off" (i.e. $\beta_k = 0$) and turned

"on" (i.e. $\beta_k = 1$). Table 7.33 provides the results with significant levels highlighted.

Table 7.33: Marginal Effects (MFX)

Attribute Level	μ	MFX
Yellow Zone	0.240843	0.051522
Orange Zone	0.263422	0.073496
Moderate Investment	0.263924	0.121033
Large Investment	0.255896	-0.01657
Walking Trail	0.372805	0.122861
Virtual Trail	0.381836	0.083268
Dive Trail	0.361766	-0.00878
Tax	53.00101	-0.00196

Based on this data and holding all other things equal, respondents had 7% higher

probability of choosing a program with the "Orange Zone" over the status quo (Red Zone). They

had a 12% higher probability of choosing a program if it contained a "Moderate Investment" in

public programs over the status quo (none). There were 12% and 8% higher probabilities if the

programs contained a "Walking Trail", or "Virtual Trail", respectively. Marginal effect for tax

was estimated by taking the derivative of the logit function with respect to the tax covariate (see

Equation 5.7). The result was that for every dollar increase in cost, respondents were less likely

to choose the program over the status quo (nothing) by 0.20%. This reflects a normal good as

costs rise, demand decreases.

Finally, based on significance levels and marginal effects for the different attribute levels,

the total willingness to pay (TWTP) for a program of preferred attribute levels (orange

preservation zone; a moderate investment in public programs; and the creation of walking and virtual trails) was estimated by applying the "difference in log-sum-utilities" method (Haab and McConnell 2002). In our application, this simplifies to a difference in the maximum utility of the most preferred program and the utility of the status quo (represented by the status quo parameter), with the difference standardized by the marginal utility of income (represented by the coefficient on the tax parameter).. Table 7.34 provides the results. Total WTP for a Graveyard of the Atlantic Maritime Heritage Park that provides for increased protection of shipwrecks (corresponding with the Orange Level), a moderate investment in public programs, as well as walking and virtual trails is around $119 (with a 95% confidence interval of $39 - $217). This economic value estimate is expressed as a one-time payment made through an increase in NC state income tax.

Table 7.34: Total Willingness to Pay (TWTP) for Preferred Bundle

Bundle	TWTP ($)	Lower Bound ($)	Upper Bound ($)
Orange Zone Moderate Investment Walking Trail Virtual Trail	118.92	38.88	216.74

Note: Lower and Upper Bounds correspond with 95% Confidence Interval

Discussion

Results from the CE indicate that respondents perceive substantial possible benefits for the preservation of maritime archaeological heritage and particular levels of attributes. As the CE models were sensible and conformed to economic theory, the marginal effects, MWTP, and TWTP estimates have validity and are useful for policy analysis.

First, the marginal effects and MWTP for the Orange Zone implies respondents support and are willing to pay for preserving a greater quantity of shipwrecks compared to the Yellow

Zone. Of course, there are likely strong oversight issues involved with this trade-off that may reduce their WTP, but with a 90% confidence level, there are apparent economic benefits for considering protection of more – rather than less – shipwrecks.

Next, the benefits of making a moderate investment in public programs can be discussed with higher confidence (95%). As described in the survey, a moderate investment means an increase in museum exhibits and opportunities for educational workshops and training in maritime archaeology. It is clear that respondents have a strong preference for these types of opportunities. If these results are compared to respondents' public outreach interests (see Table 7.22; Figure 7.13), they indicate that respondents prefer investments in museum exhibits primarily. As discussed in Chapter 6, however, while workshops and training in maritime archaeology may not attract the same size of audience as museums, those that are interested in attending these outreach programs are often more enthusiastic and interested in maritime archaeological heritage than those interested in simply museum exhibits.

Interestingly, there was a limit to the amount of public programs for which respondents were willing to pay. Although not statistically significant, a large investment in public programs (which included everything in the moderate investment plus the development of public television series and boating tours) actually decreased the probability of people voting for a particular choice set. It also had a negative MWTP, meaning that there was a reduction in utility, and respondents would actually have to be paid to accept it.

Third, respondents exhibited significant preference (95% confidence level) for two of three types of trails: walking and virtual. Walking trails had the highest marginal effects (12%) and MWTP ($63.31) of any attribute level. The marginal effects (8%) and MWTP ($42.70) for virtual was below walking trails but still substantial. Again, respondents were consistent in their

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choices as they were highly rated in the same order for public outreach (see Table 7.23 and Figure 7.13).

Finally, respondents indicated a significant (95% confidence level) willingness to pay for their preferred attributes and attributes level if they were together. By bundling the orange preservation zone, moderate investment in public programs, walking trails and diving trails, respondents, respondents' TWTP for a one-time tax increase is $118.92. This is a reasonable estimate since the MWTP for each attribute ranged from $30 to $60. It also has important implications for possible policy choices.

Conclusion

This chapter has taken an exploratory approach to the results from the project's final survey instrument in order to understand the public's perceptions and willingness to pay for preservation of maritime archaeological heritage. As noted, there is a possible non-response bias due to low response rate when compared to the social-demographic statistics of North Carolina. However, respondents of the survey match the demographics of typical visitors to the Outer Banks (SMR 2006), and may be viewed as representative. Further, while non-response is a concern for state preference techniques, one of the advantages of using the CE is that it can measure trade-offs accurately with fewer responses than a CVM (Snowball 2008). Finally, the validity of the survey instrument was established through a panel of experts (in this case, committee members) (Suen and Ary 1989). Therefore, results from this survey may be considered valid and reliable estimates, and used to address the primary and secondary research questions. The next chapter concludes by addressing these research questions in light of the results and discussions presented here.

CHAPTER 8: CONCLUSION

Introduction

The research questions, theoretical framework, methodologies, and analysis presented in

this project were designed to meet the primary goal and research: to explore and understand how

the public perceives and values preservation of maritime archaeological heritage, specifically the

in situ remains of shipwrecks resting in North Carolina's Graveyard of the Atlantic. Any

heritage resource, including maritime archaeological heritage, possesses two types of values:

cultural value and economic value. These values often create dissonance and contestation as

multiple perspectives compete over multiple uses and meanings of heritage. This was illustrated

in the first stage of this project between the three different stakeholder groups. This project,

however, was interested in measuring the cultural and economic values of another stakeholder

group – the general public.

Therefore, this dissertation concludes by revisiting the research questions posed in

Chapter 1. This chapter first summarizes the respondents' cultural and economic values. It next

discusses possible policy and management implications based off the data from the survey.

Third, there is a re-examination regarding how the theoretical framework of Cultural Capital was

formative in designing the mixed-methods survey and discrete choice model. The chapter then

discusses future research before presenting some concluding comments.

Cultural Value of Maritime Archaeological Heritage

Cultural value is based on the tastes and perceptions of individuals or groups, and is often

said to have "inherent" or "intrinsic" worth (Graham et al. 2000; Throsby 2001; Noonan 2003;

Snowball 2008). Therefore, one of the secondary research questions directly

asked about the public's awareness and perceptions to maritime heritage in general and maritime archaeological heritage specifically. Those who responded to the survey were aware of both maritime heritage and maritime archaeological heritage resources on the Outer Banks and in the GOA. They exhibited relatively high degrees of knowledge and experience in terms of remembering, reading about, or seeing a shipwreck in a museum.

Respondents were consistent and reliable in their responses regarding what they associated, perceived, and preferred regarding shipwrecks. Similar to the first and second stakeholder groups in Stage I, respondents primarily associated shipwrecks with educational benefits of understanding history, and creating a sense of identity for North Carolina. They reliably reported that they were interested in the historical periods and shipwrecks involved with piracy, the Civil War, and World War II, with reduced interest in the more recent the history and ship types. Still, respondents were generally supportive of almost all the options presented in the different questions, with means trending between one (strongly agree / very interested) and two (agree / interested) on the five point continuum scale. However, they did not associate maritime heritage or shipwrecks with fishing or ecological systems. These variables were consistently rated the lowest when presented, with means that trended towards "neither agree nor disagree" (3). They preferred to acquire information through museum exhibits, with walking and virtual trails as secondary options. These results indicate that respondents value the cultural importance of maritime archaeological heritage and its role in providing information and identity to the public.

Economic Value of Maritime Archaeological Heritage

The economic value of heritage has been traditionally discussed in terms of cultural

tourism or the selling of artifacts, which are driven by the private market's models of supply and

demand. As shown, however, the private market cannot adequately estimate the total value of

heritage resources because they are generally considered public goods with non-market values.

There are limited ways to estimate economic value for these types of values, especially non-use

values which require stated preference methods, such as CVM or CE (Navrud and Ready 2002;

Noonan 2003; Snowball 2008). The CE was chosen for this project because of the multi-stage

process required to develop it, and to answer the following research question:

> What are the welfare estimates, such as willingness to pay (WTP), for preservation of
> maritime cultural heritage resources and related attributes (e.g. informal and formal
> education opportunities, heritage trails, and facilities) through the stated preference
> technique of choice experiment?

Results from the CE portion of the survey indicate that respondents have significant and

substantial MWTP and marginal effects for an increase in preservation (orange zone) that would

protect at least 107 shipwrecks and 13,498 square miles of seafloor ranging from north of Nags

Head to Morehead City; a moderate investment in public programs that would increase museum

exhibits, educational workshops, and training in maritime archaeology; the creation of walking

trails with signs, brochures, and pamphlets located at designated facilities, sidewalks, bike trails,

and roads along the Outer Banks detailing the histories and stories of shipwrecks; and the

development of virtual trails through mobile and video technology that would take them on

virtual dives to shipwrecks. The smaller preservation zone (yellow zone – protecting at least 68

shipwrecks and 2,192 square miles of seafloor), a large investment in public programs (including

a television series and boat tours to shipwrecks, or the creation of Scuba diving trails did not

have impacts on respondents' voting preferences.

Again, respondents were consistent and reliable in their preferences. For instance, when asked what type of public outreach options they were interested in, they primarily preferred museum exhibits, with walking and virtual trails as secondary options. Results from the CE supported these preferences the MWTP and marginal effects for a moderate investment in public programs and walking trails were close to each other and the highest of any other option. Since moderate investment in public programs contained the development of more museum artifacts, this was likely a cause for respondents' interest in it. The implications of these results provide important insight into possible management and policy decisions.

Policy and Decision Making

One of the goals of this dissertation was to offer the collected, analyzed, and synthesized information as a baseline to inform future preservation, public outreach, and education efforts. Since respondents had consistent preferences both in terms of their cultural and economic values, any potential policy should seriously consider the implications of data from the CE tempered with the attitudes and perceptions from the other sections. For example while respondents have a significant MWTP and marginal effects for the Orange Preservation Zone, their attitudes towards oversight should be factored as well. Results from the survey indicate that federal government oversight of the preservation zone would be met with distrust and possible opposition. This distrust of government is not surprising as it is part of American identity (Kingdon 1999), reflects how many North Carolinians feel about the federal government in general (Elon University 2013), and echoes the opinions of the second and third stakeholder groups from the first stage of the project.

The only stakeholder group the general public trusted less than the federal government were private enterprises, such as dive stores, indicating that they did not think private market would adequately oversee the protection of shipwrecks, which is consistent with theories of open-access resources. This perception also revealed that respondents were removed from the contention that was evident between these stakeholder groups as discussed in Chapter 6. While each viewed the other as a cultural threat to shipwrecks, respondents perceived both the federal government and private dive industry with equal skepticism, illustrating another facet of dissonance among all stakeholder groups.

Respondents were more supportive of the State of North Carolina overseeing management and preservation. Of course, this is not possible beyond three miles from the shoreline where state's jurisdiction ends. Increased preservation efforts, however, should involve close cooperation with North Carolina and other local trusted agencies, such as partnerships with universities and counties, in order to facilitate support with North Carolinians who trust the state as a steward over their interests. Again, this perception reflects a local heritage where heritage is often more intimate and strongly associated with constructs of identity (Johnson 1995b; Graham et al. 2000). With such skepticism and possible distrust of management agencies in mind, respondents' preference for more preservation rather than less does imply that they perceived economic benefits of preserving maritime archaeological heritage and were willing to pay for them. This offers some policy scenarios that may be considered.

First, there is a statistically significant and economically meaningful Total Willingness to Pay (TWTP) for a Graveyard of the Atlantic Maritime Park with the following attributes: orange preservation zone; moderate investment in public programs, and creating walking and virtual heritage trails (see Table 7.34). The average TWTP for this program is $118.92. According the

US Census Bureau (2014), there are over 3 million households in North Carolina. If TWTP was aggregated over all the households in North Carolina, it would yield an investment over $350 million. An annuity yielding 5% would generate over $17 million a year. Second, if the most conservative estimate of TWTP were used ($38.88; Table 7.34) and aggregated over all households, it would yield $116 million and more than $5 million in annual revenue with a 5% annuity. Third, TWTP can be estimated even more conservatively by aggregating results based on the demographics of survey respondents, instead of all North Carolina households. Survey respondents were predominately male, married, and had children. According to the USCB (2012), there are 1.8 million households in North Carolina that match these demographics. Aggregating the lower bound estimate of TWTP ($38.88) over these households produces $69.98 million, which yields $3.5 million per year at 5%.

Finally, since the inclusion of the larger preservation zone may create vociferous opposition, particularly from the Outer Banks fishing and diving communities (as discussed in Chapter 6), but also from the general public who has an inherent distrust of government oversight, management strategies that focus on individual attributes would be immediately less contentious. For instance, respondents clearly perceived substantial benefits for the creation of public outreach opportunities. They consistently preferred opportunities to experience and learn about shipwrecks through investment in programs that create more museum exhibits, training and lecture in maritime archaeology, walking trails, and virtual trails. Table 8.1 illustrates the aggregated marginal willingness to pay (MWTP) for these attributes using the most conservative estimates from Table 7.32 over married with children households (1.8 million; USCB 2012) with annual annuity dividends at 5%.

Table 8.1: Lower Bound Estimates for MWTP of Specific Attributes Aggregated over Households with 5-percent Annuity.

Attributes	Attribute Levels	Lower Bound MWTP ($)	Aggregate $ (by 1.8 million households)	Annuity (at 5%)
Programs	Moderate Investment	29.03	$52 million	$2.6 million
Trails	Walking Trail	35.66	$64 million	$3.2 million
	Virtual Trail	15.09	$27 million	$1.35 million

If the annual costs of managing the park are less than annuity benefits, then the establishment of the park would be an improvement in economic efficiency.

To engage the public immediately, public outreach materials that present information about major historic battles or events, such as the Civil War, World War II, and piracy would have immediate name recognition and impact. This is important as it was revealed that respondents remembered shipwrecks that had popular culture associations, such as QAR and *Edmund Fitzgerald*. There are substantial opportunities, however, to inform the public about other periods of history and vessel types that played important, but less famous, roles in shaping the Outer Banks's maritime heritage. More modern periods and vernacular craft need to be included in informational material as these seem to be low-information areas. Additionally, the role shipwrecks play in providing and supporting healthy ecological systems in the GOA needs to be emphasized and shipwrecks provide tangible places that can anchor these issues that are often abstract.

Theoretical Framework of Cultural Capital

In order to explore and measure the cultural and economic values, an operating framework was required to answer the following research question:

Is it possible to combine frameworks and methods from different disciplines in an attempt to create a holistic context of the social value of maritime archaeological heritage through qualitative and quantitative analysis?

The theoretical framework that was chosen was the Theory of Cultural Capital, which is defined as "an asset which embodies, stores, or provides cultural value in addition to whatever economic value it may possess" (Throsby 2001:46). This organizing principle was used as a conceptual means to bridge the gap between economics and culture as it recognizes economic value and cultural value are two different values, but that resources with cultural capital can have both. It asserts that there is a strong correlation between cultural values and economic values (Throsby 2001:47).

This appears to be true based on the results from the survey. The general public were positive towards cultural value questions regarding preservation and education. They also had high MWTP for specific attributes. This indicates that those who valued preservation of maritime archaeological heritage took the time to answer the survey, and were willing to pay more than those who did not. However, with a possible Non-Response Bias confound, these results should applied with caution.

As an organizing principle, the theory of Cultural Capital was useful for purposes of this study because it offered suggestions about how to measure both the cultural and economic values. Since cultural value is inherently multi-faceted, Throsby suggested five different ways to measure it. Table 8.1 provides these methods and how this study incorporated them to different degrees (Chapter 3 provides definitions for each of these steps). These suggestions allowed a thoughtful way to engage and measure different stakeholders. The CE also was useful in this process due to its multi-staged format (Snowball 2008) that allowed these steps to be incorporated into the methodology.

Table 8.2: The Theory of Cultural Capital's Recommended Modes of Measurement

Steps	Cultural Capital Recommendations	Dissertation
1	Spatial Mapping	Used Arc GIS to create images of preservation zones
2	Expert Analysis	Expert Panel Survey in Stage I
3	"Thick" Description	Resident Interviews and Public Hearings
4	Content or Symbolic Analysis	Analysis of Stage I to identify themes
5	Attitudinal Analysis	Attitudinal Questions in the Final Survey Instrument

Future Research and Recommendations

This study was the first to use the theory of Cultural Capital and a CE to understand and measure the public's cultural and economic values towards preservation of maritime archaeological heritage. Additionally since this was an exploratory study, most of the results have been descriptive in nature and broad in scope. This allows for considerable possibilities regarding future research that mine deeper into inferential types of questions.

Further economic analysis of the CE could involve comparing cultural indicators, such as social-demographics, with marginal effects and MWTP. Additionally, visitation and recreational behavior can be analyzed against choices of preservation. This could include creating travel cost models – a type of revealed preference. There are components of choice certainty designed to mitigate hypothetical bias that could be further explored. Particularly strong responses from the mixed-methodology portion can be compared against economic portions. Additionally, questions can be examined comparing different portions of the mixed-methodology, including social demographics. Finally, deeper and further analysis of Stage I between stakeholders could discuss the dissonant qualities of heritage.

As it was discussed, however, the survey's response rate was lower than desired, in part due to the termination of the Dillman Method due to budget, and in part due to the length of the

study. Based on the results of the survey, it is believed that response rate would increase with a combination of completing the Dillman method while focusing primarily on Group A of the survey sample, which had the option of taking the survey either as a paper survey or online. The reason why the internet only sample (Group B) was included was to increase response rates through the option of taking the survey online, but this did not occur. It is recommended not to include Group B and original sample of 1000 from Group A to complete the methodology. Other possibilities include separating the sections of the survey, or isolating variable of interest, and creating a more focused instrument based on these results.

Conclusion

In attempting to understand how the public perceives and values the maritime archaeological heritage along the Outer Banks and in the Graveyard of the Atlantic, this dissertation has explored and discussed two underpinning concepts: heritage and value. Heritage was defined as process that is continually involving and relies on discourse that often results in contention and dissonance due to social, political, or economic consequences over who defines heritage and how it is used (Graham et al. 2000; Seaton 2001). Any cultural heritage resource – including maritime archaeological heritage – has two types of inherent values: cultural values and economic values. The differences between these types of values and valuation systems create a duality in heritage as multiple stakeholders with multiple perspectives and agendas compete for dominance. The preservation of maritime archaeological is no exception to this process.

It was evident from analysis of the first stage of this project that invested stakeholder groups have intense disagreements over the best use of shipwrecks as a resource. Any attempt

for increased preservation (such as increasing the MNMS boundaries) would be met with intense opposition at this local scale of heritage. This is to be expected as debates over heritage at the local level are often characterized by great intensity as multiple interpretations compete over the same resource within a limited and more intimate area. Additionally, the premise that local inhabitants value a heritage resource differently from outsiders creates fundamental distinctions between competing claims on the past (Johnson 1995; Graham et al. 2000).

This study, however, wanted to move beyond these stakeholder groups and explore the perceptions and values of non-use stakeholders – North Carolina residents – who would be affected by any policy decision regarding preservation of maritime archaeological heritage resources. The questions, theoretical framework, methodologies, and analysis utilized in this study were incorporated to understand the various perspectives and values of residents. Participants revealed that they placed high cultural and economic values towards shipwrecks. They also held perspectives towards preservation of shipwrecks that at times were similar to archaeologists and managers, but at other times were closer to members of the fishing and diving industries, such as their views regarding oversight.

This dissertation is one of the first studies to examine these types of dissonant perspectives and values using an interdisciplinary model and methodologies adapted from the fields of archaeology, social sciences, and economics. As it is an exploratory study, results should be viewed as preliminary with the goal to provide baseline qualitative and quantitative information towards the uncertainty regarding how the public perceives and values maritime archaeological heritage. This information in turn now becomes part of the discursive process of heritage from which new and important questions may be asked and investigated in order to

create best policy for preserving maritime archaeological heritage in the Graveyard of the

Atlantic.

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APPENDIX A: East Carolina University Institutional Review Board Forms
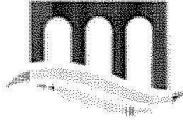
EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board Office
1L-09 Brody Medical Sciences Building• 600 Moye Boulevard • Greenville, NC 27834
Office **252-744-2914** • Fax **252-744-2284** • **www.ecu.edu/irb**

TO: Calvin Mires, Student, Dept. of History, ECU—Mailstop 149

FROM: UMCIRB *KK*

DATE: August 17, 2010

RE: Expedited Category Research Study

TITLE: "The Value of Maritime Archaeological Heritage: Understanding the Cultural Capital of Shipwrecks in the Graveyard of the Atlantic."

UMCIRB #10-0072

This research study has undergone review and approval using expedited review on 8.11.10. This research study is eligible for review under an expedited category number 6 & 7. The Chairperson (or designee) deemed this **North Carolina Sea Grant** sponsored study **no more than minimal risk** requiring a continuing review in **12 months**. Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

The above referenced research study has been given approval for the period of **8.11.10** to **8.10.11**. The approval includes the following items:
- Internal Processing Form (dated 8.6.10)
- Protocol
- Informed Consent (received: 8.11.10)
- Award Brief Memorandum
- Preliminary Questions: Phase I

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

The UMCIRB applies 45 CFR 46, Subparts A-D, to all research reviewed by the UMCIRB regardless of the funding source. 21 CFR 50 and 21 CFR 56 are applied to all research studies under the Food and Drug Administration regulation. The UMCIRB follows applicable International Conference on Harmonisation Good Clinical Practice guidelines.

IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418
IRB00004973 East Carolina U IRB #4 (Behavioral/SS Summer) IORG0000418
Version 3-5-07

UMCIRB #10-0072
Page 1 of 1

East Carolina University

Home   IRB Studies   Issues

IRB Studies > [IMPORTED] The Value of Maritime Archaeological Heritage.

1 / 23   Next >

Activity Details (Revision Completed)Indicates an Amendment has been completed.
This is automatically added by the Amendment sub process.

Author:	Jason Conrad (Office of Human Research Integrity)
Logged For (Study):	[IMPORTED] The Value of Maritime Archaeological Heritage.
Activity Date:	4/10/2013 11:01 AM EDT

Property Changes   Documents / Tasks / Notifications

Property	Old Value	New Value
name		Revision Completed
author		Jason Conrad
Study		UMCIRB 10-0072
activityType		_Protocol_Amendment Completed
Study.Is Amended	no	yes
Study.contacts		Added elements:
		▪ Calvin Mires ▪ Nathan Richards
Study.Amendment Outstanding	yes	no
Study.Date Approved	3/27/2012	3/26/2013
Study.Date Expiration	3/26/2013	3/25/2014
Study.Is Amended	no	yes
Study.Approval Letter	fromString.html	fromString.html
owner.Institution.projects		Added elements:
		▪ UMCIRB 13-000942
Study.Study Staff - Principal Investigator.projects		
Study.Current Agenda Item.owningEntity.status	Amendment Open	Amendment Closed
owner.Institution.projects{UMCIRB 13-000942}.createdBy		Calvin Mires
owner.Institution.projects{UMCIRB 13-000942}.company		East Carolina University
owner.Institution.projects{UMCIRB 13-000942}.status		Original Study

Introductory Email Script: Below is the script used in the introductory email sent to members of the expert panel:

Dear (Name of Participant here):

I am a PhD candidate in East Carolina University's Program in Coastal Resources Management. I am interested in understanding how people view the many shipwrecks on and off the coast of the Outer Banks, and whether they associate shipwrecks with their, or the community's cultural heritage. I am interested in your thoughts on this matter as you have experience and perspective that will be important for me as I talk to and survey individuals as part of my research.
I am conducting a Delphi Survey which is designed to solicit opinions from a panel of experts in a series of rounds or stages. The first round is a qualitative survey with basic, opened questions designed to allow freedom and diversity of opinions and answers. The following round offers more specific and closed-ended questions based on themes and opinions that emgered from the first series of questions. I would appreciate your participation in the following survey.

For all of these questions, please write as much or as little as you feel comfortable. Another survey will follow based on the themes that emerge from this one.

Thank you for taking the time to complete this survey and help my project. This survey has received approval from East Carolina University's Institutional Review Board. It is completely voluntary. Your identity will remain anonymous.

Again, thank you very much for your help. If you have any questions about the survey, please contact me at miresc@ecu.edu; or call (252) 328-1966. Sincerely, Calvin H. Mires PhD Candidate Program in Coastal Resources Management East Carolina University Greenville, NC 27858

Follow this link to the Survey: ${l://SurveyLink?d=Take the Survey}
Or copy and paste the URL below into your internet browser: ${l://SurveyURL}
Follow the link to opt out of future emails: ${l://OptOutLink}

Reminder Email Script: Below is the script used in the follow-up, reminder email to members of the expert panel:

Dear (Name of Participant here):

I am a PhD candidate in East Carolina University's Program in Coastal Resources Management. I am interested in understanding how people view the many shipwrecks on and off the coast of the Outer Banks, and whether they associate shipwrecks with their, or the community's cultural heritage. I am interested in your thoughts on this matter as you have experience and perspective that will be important for me as I talk to and survey individuals as part of my research.

I am conducting a Delphi Survey which is designed to solicit opinions from a panel of experts in a series of rounds or stages. The first round is a qualitative survey with basic, opened questions designed to allow freedom and diversity of opinions and answers. The following round offers more specific and closed-ended questions based on themes and opinions that emgered from the first series of questions. I would appreciate your participation in the following survey.

For all of these questions, please write as much or as little as you feel comfortable. Another survey will follow based on the themes that emerge from this one.

Thank you for taking the time to complete this survey and help my project. This survey has received approval from East Carolina University's Institutional Review Board. It is completely voluntary. Your identity will remain anonymous.

Again, thank you very much for your help. If you have any questions about the survey, please contact me at miresc@ecu.edu; or call (252) 328-1966. Sincerely, Calvin H. Mires PhD Candidate Program in Coastal Resources Management East Carolina University Greenville, NC 27858

 Follow this link to the Survey: ${l://SurveyLink?d=Take the Survey}
Or copy and paste the URL below into your internet browser: ${l://SurveyURL}
Follow the link to opt out of future emails: ${l://OptOutLink}

Consent Document: Below is the consent document presented to residents before the interview commenced.

CONSENT DOCUMENT

Title of Research Study: The Value of Maritime Archaeological Heritage: Understanding the Cultural Capital of Shipwrecks in the Graveyard of the Atlantic
Principal Investigators: Calvin Mires and Dr. Nathan Richards
Institution: East Carolina University
Address: 302 E. Ninth St., Greenville, NC 27858
Telephone #: 252-328-6097

PURPOSE AND PROCEDURES

In participating in this research, you will be providing necessary information regarding how you and other North Carolinians feel about the many shipwrecks off the coast of the Outer Banks. You will also help us better understand what you think is important about preserving shipwrecks and how this might be best accomplished. The focus of this research concerns data collection to estimate the value shipwrecks to you and other North Carolina residents as well as to investigate the connection people may or may not feel towards shipwrecks as part of their heritage. Data collection procedures include oral and phone interviews with participants who will remain anonymous.

POTENTIAL RISKS AND DISCOMFORTS

This research involves no more than minimal risk to participants, meaning the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.

POTENTIAL BENEFITS

By participating in this research study, you may receive the benefit of contributing important information that represents what people feel about preservation of shipwrecks as well as contributing the importance of your maritime heritage to the public.

SUBJECT PRIVACY AND CONFIDENTIALITY OF RECORDS

This research is concerned with understanding how people relate to and value shipwrecks and the levels of their awareness and preferences for preservation of shipwrecks in the Graveyard of the Atlantic. The information will become part of the historical, archaeological, sociological, and economic record. If permitted, an audio-recording device may be used to ensure accuracy of interview. Participation in the collection of data for this research is strictly voluntary and all collected information, including audio recording, will strictly be kept anonymous.

COSTS OF PARTICIPATION & COMPENSATION

By participating in this research study, you will incur no costs. You will not receive any monetary compensation for your participation in this study.

VOLUNTARY PARTICIPATION

Participating in this study is voluntary. If you decide not to be in this study after it has already started, you may stop at any time without losing benefits that you should normally receive. You may stop at any time you choose without penalty.

PERSONS TO CONTACT WITH QUESTIONS

The investigators will be available to answer any questions concerning this research, now or in the future. You may contact the investigator Calvin Mires at 252-328-1966 at any time, or 252-328-6097 Monday through Friday, 8:00 am to 5:00 pm. If you have questions about your rights as a research subject, you may call the Chair of the University and Medical Center Institutional Review Board at phone number 252-744-2914 (days). If you would like to report objections to this research study, you may call the ECU Director of Research Compliance at phone number 252-328-9473 (for research studies conducted through ECU).

CONFLICTS OF INTEREST
This study is funded by the Archaeological Institute of American, which is supporting the costs of this research. Neither the research site, nor Calvin Mires or Dr. Nathan Richards will receive any financial benefit based on the results of this study.

CONSENT TO PARTICIPATE

Title of research study: Outer Banks Shipwrecks: An Analysis of the Public's Willingness to Preserve

I have read all of the above information, asked questions and have received satisfactory answers in areas I did not understand. (A copy of this signed and dated consent form will be given to the person signing this form as the participant or as the participant's authorized representative.)

_____   _____

Participant's Name **(PRINT)**   Signature   Date
Time

PERSON ADMINISTERING CONSENT: I have conducted the consent process and orally reviewed the contents of the consent document. I believe the participant understands the research.

_____

Person Obtaining consent **(PRINT)**   Signature   Date

_____

Principal Investigator's **(PRINT)**   Signature   Date

Final Survey Instrument Letters and Reminders: 1) Advanced notice letter Group A; 2) Advanced notice letter B; 3) Cover letter included with survey questionnaire (Group A only); 4) Reminder postcard Group A; and 5) Reminder and Group B).

1) Advanced Notice Letter Group A

«GreetingLine»

My name is Calvin Mires, and I am doctoral student from East Carolina University's Program in Coastal Resources Management. On behalf of my committee, I would like to invite you to participate in a voluntary study on North Carolina's maritime heritage and shipwrecks off the Outer Banks. We would like to know your thoughts, opinions, and perceptions about the role ships and shipwrecks have played in developing North Carolina both historically and currently as possible tourism and educational assets.

Your thoughts on these matters are valuable to us as the information yielded from this study *may be seen by North Carolinian law and policy makers as they decide the best way to manage coastal issues and use limited resources.* Your opinions will also offer a foundation for how households like yours value and perceive shipwrecks as part of North Carolina's maritime heritage and history.

However, **your individual responses** will be kept **_completely confidential._** Each survey is assigned a unique identifier code, and only that will be recorded. Your unique ID will only be used to examine different demographic factors in relation to your responses. *Your privacy will be protected to the maximum extent allowable by law.* Moreover, the survey is voluntary; and at any time you can discontinue it. You must be 18 years or older to take the survey. **You can access the survey by typing the following link into your browser. You will also be asked to enter your "Participant ID" as you begin the survey.**

> **Survey Link: «Survey_Link»**
> **Participant ID: «Participant»**

The survey will take approximately 30 minutes. If you do not wish to use the internet to complete the survey, a paper copy will be mailed to you.

Finally, once you have completed the survey, you will **_have the chance to win one of four Visa gift cards_** worth **$100, $50, $25, or $25.** Additionally, there will be additional chances to win various other prizes, such as DVDs, posters, and shipwreck dive cards.

If you have questions about your rights as a participate in this research study, you may contact (anonymously, if you wish) ECU's University and Medical Center Institutional Review Board, 600 Moye Blvd., Brody School of Medicine 4N-70; Greenville, NC 27858, (252) 744-2914, umcirb@ecu.edu.

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and Policy

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379 Flanagan
 Greenville, NC
  27858-4353
phone: (252)328-9373
fax: (252)328-9376
www.ecu.edu/crm

Thank you in advance for your time and willingness to offer valuable feedback to this Ph.D. research study.

Sincerely

Calvin H Mires

Calvin H. Mires, M.A.
Ph.D. Candidate

2.) Advanced Notice Letter Group B

«GreetingLine»

My name is Calvin Mires, and I am doctoral student from East Carolina University's Program in Coastal Resources Management. On behalf of my committee, I would like to invite you to participate in a voluntary study on North Carolina's maritime heritage and shipwrecks off the Outer Banks. We would like to know your thoughts, opinions, and perceptions about the role ships and shipwrecks have played in developing North Carolina both historically and currently as possible tourism and educational assets.

Your thoughts on these matters are valuable to us as the information yielded from this study *may be seen by North Carolinian law and policy makers as they decide the best way to manage coastal issues and use limited resources.* Your opinions will also offer a foundation for how households like yours value and perceive shipwrecks as part of North Carolina's maritime heritage and history.

However, ***your individual responses*** will be kept ***completely confidential.*** Each survey is assigned a unique identifier code, and only that will be recorded. Your unique ID will only be used to examine different demographic factors in relation to your responses. *Your privacy will be protected to the maximum extent allowable by law*. Moreover, the survey is voluntary; and at any time you can discontinue it. You must be 18 years or older to take the survey. **You can access the survey by typing the following link into your browser. You will also be asked to enter your "Participant ID" as you begin the survey.**

| **Survey Link: «Survey_Link»** |
| **Participant ID: «Participant»** |

The survey will take approximately 30 minutes.

Finally, once you have completed the survey, you will ***have the chance to win one***

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fax: (252)328-9376
www.ecu.edu/crm

of four Visa gift cards worth **$100, $50, $25,** or **$25**. Additionally, there will be additional chances to win various other prizes, such as DVDs, posters, and shipwreck dive cards.

If you have questions about your rights as a participate in this research study, you may contact (anonymously, if you wish) ECU's University and Medical Center Institutional Review Board, 600 Moye Blvd., Brody School of Medicine 4N-70; Greenville, NC 27858, (252) 744-2914, umcirb@ecu.edu.

Thank you in advance for your time and willingness to offer valuable feedback to this Ph.D. research study.

Sincerely

Calvin H Mires

Calvin H. Mires, M.A.
Ph.D. Candidate

3) Cover letter included with survey questionnaire (Group A only)

<div>

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fax: (252)328-9376
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</div>

DATE

Greeting,

Last week, an invitation to participate in a voluntary survey on North Carolina's maritime heritage and shipwrecks was sent to you. If you have already completed this survey, thank you very much for your help.

If you have not had time to take the survey yet, please consider doing so. You can access the survey on-line by typing the following link into your browser. You will also be asked to enter your "Participant ID" as you begin the survey.

Survey Link:
http://tinyurl.com/shipwreck50
Participant ID:

If you would prefer to fill out** a paper copy* of the ***same survey rather than using the internet, one has been provided for you in this mailing. If you choose to take the paper survey, you ***do not*** have to complete the internet one. Simply fill out the paper survey, put it in the pre-stamped envelope that was provided, and mail it back.

Your thoughts on these matters are valuable to us as the information yielded from this study *may be seen by North Carolinian law and policy*

makers as they decide the best way to manage coastal issues and use limited resources. Your opinions will also offer a foundation for how households like yours value and perceive shipwrecks as part of North Carolina's maritime heritage and history.

Please remember, your individual responses will be kept ***completely confidential.*** Each survey is assigned a unique identifier code, and only that will be recorded. Your unique ID will only be used to examine different demographic factors in relation to your responses. *Your privacy will be protected to the maximum extent allowable by law*. Moreover, the survey is voluntary; and at any time you can discontinue it. You must be 18 years or older to take the survey. The survey will take approximately 30 minutes.

Also, once you have completed the survey, you will ***have the chance to win one of four Visa gift cards*** worth **$100, $50, $25,** or **$25**. Additionally, there will be additional chances to win various other prizes, such as DVDs, posters, and shipwreck dive cards.

If you have questions about your rights as a participate in this research study, you may contact (anonymously, if you wish) ECU's University and Medical Center Institutional Review Board, 600 Moye Blvd., Brody School of Medicine 4N-70; Greenville, NC 27858, (252) 744-2914, umcirb@ecu.edu.

Thank you again for your time and help in this project.

Sincerely

Calvin H Mires

Calvin H. Mires, M.A.
Ph.D. Candidate

4: Reminder Postcard Group A

SHIPWRECKS IN THE GRAVEYARD OF THE ATLANTIC

Hello!

Recently, we sent you a survey about shipwrecks and maritime heritage in North Carolina. If you have not yet take it, we would greatly appreciate if you would. This PhD research study is *one of the first of its kind in the United States.* By taking this survey, you will be providing some of the *first* information about how North Carolinians value and perceive NC's maritime heritage, *as well as* possibly providing NC lawmakers important policy information regarding coastal management.

When you have completed the survey, please return it in the prepaid envelope. ***If you did not receive, or lost it,*** please call (252) 328-1966, and we will send you another; or if you'd prefer, you can take the survey by following the link to the website and entering your "Participant ID" as you begin the survey.

Survey Link: **http://tinyurl.com/shipwreck57**
Participant ID:

This study is completely voluntary and responses are kept confidential. Once you have completed your survey, you will have the chance to win one of four **Visa gift cards worth $100, $50, $25, or $25, and additional prizes**.

Thank you very much for your time and help!

Calvin Mires

5: Reminder Postcard (Group B)

SHIPWRECKS IN THE GRAVEYARD OF THE ATLANTIC

Hello!

Recently, we sent you a survey about shipwrecks and maritime heritage in North Carolina. If you have not yet taken the survey, we would greatly appreciate if you would.

This PhD research study is *one of the first of its kind in the United States.* By taking this survey, you will be providing some of the *first* information about how North Carolinians value and perceive NC's maritime heritage, *as well as* possibly providing NC lawmakers important policy information regarding coastal management. You can take the survey by following the link to the website and entering your "Participant ID" as you begin the survey.

Survey Link: **http://tinyurl.com/shipwreck43**
Participant ID:

This study is completely voluntary and responses are kept confidential. Once you have completed your survey, you will have the chance to win one of four **Visa gift cards worth $100, $50, $25, or $25, and additional prizes**. If you have any questions, please call: (252) 328-1966.

Thank you very much for your time and help!

Calvin Mires

APPENDIX C: Expert Panel Survey

Expert Survey Questions with Justification: Below are 15 questions asked of the expert panel along with explanations and reasoning behind them.

Question 1: How do you define Maritime Heritage?

The intention of this question was to elicit how each expert defines or would define "maritime heritage" and to understand differences and similarities among various experts about how they interpret and would describe maritime heritage to the general public. It was anticipated that there would be some variety to the answers regarding what is the definition of "maritime heritage," ranging from heritage as a process to more inclusive comments that discuss issues from ship life to cultural landscapes. This question was an essential starting point to determine how professionals interpret, define, and relay maritime heritage as a concept to the public.

Question 2: What do you think are some benefits of preserving Maritime Heritage?

The purpose of this question was to understand what professionals believe are the benefits of maritime heritage. It was hypothesized since this survey was intended for people working in the field associated with maritime heritage that they would have a strong connection to the subject matter and express many types of benefits. These benefits would likely be qualitative in tone, and that most of the responses would discuss how maritime heritage connects the present to the past, providing legacy and stability in a changing world. The rationale for this was to adapt responses to the final survey instrument to compare with the general population.

Question 3: What are some costs for preserving maritime heritage, if any?

Since there are also costs as well as benefits to any choice, this question was designed to have professionals explicitly state and acknowledge what these costs may be.

Question 4: Where do shipwrecks fit in as maritime heritage?

This question allowed respondents to reflect on the nature of shipwrecks within the context of heritage. It was anticipated that responses would stem from how each participant originally defined maritime heritage, but that each respondent would state that shipwrecks are part of maritime heritage in some way. As this dissertation is focused on shipwrecks as maritime heritage, this question was important to understand where experts put shipwrecks within the framework.

Question 5: What do you think are the 5 biggest threats (natural or anthropogenic) to the preservation of shipwrecks?

This intention of this question was to elicit what professionals believe are the five top threats to preservation of shipwrecks, whether they are natural or human. Based on responses, identified threats would be incorporated into the final survey instrument.

Question 6: What do you think are the biggest challenges in the preservation of shipwrecks?

This question was intended to be open-ended, allowing respondents to build on their answers from Question #5. It was hypothesized that whatever threats were listed would be discussed more broadly and in terms that may address these challenges, such as raising education and public awareness.

Question 7: Are all shipwrecks significant archaeological resources worthy of protection? Why or Why not?

This question was designed to gauge where on the spectrum of preservation the respondent sits. It was hypothesized that most will say that not *all* shipwrecks are worthy of preservation. The "Why or Why Not?" follow-up question allowed for expansion of respondent's thoughts.

Question 8: How would you determine if a shipwreck is significantly worthy of protection and preserving?

This question was intended primarily to have respondents define "significance." Since significance comes with specific qualifications in archaeology, some respondents might discuss the A, B,C, and D criteria of archaeological significance. Other terms might include age, historical events, or importance to local cultures (which of course are covered in archaeological site significance, too). Still, respondents outside the field of archaeology would be able to describe their opinions about significance as well in their own words. This question provided insight how respondents might choose preserving one site over another.

Question 9: What do you consider the best practices for preservation of shipwrecks?

The intent of this question was to understand what respondents believe are the best practices for preserving shipwrecks. It was hypothesized that answers would *in-situ* vs. excavation of shipwrecks and associated artifacts, and that many participants would recommend *in-situ* practices as preferable. This question also allowed expert responses to be included in altered form on the final survey, and to be compared to responses from the general population.

Question 10: In your opinion, what are effective management strategies that promote best practices of preserving shipwrecks?

This question was a follow-up to Question #9, allowing participants the opportunity to expand on their answers based on their personal experiences, if applicable.

Question 11: What are three questions you would like to ask (or have asked) other experts, colleagues and managers regarding preservation of shipwrecks?

This question allowed respondents the opportunity to address any issues they felt germane to the management and preservation of shipwrecks by providing questions they would want their peers to answer. It was hypothesized that some of these questions would reveal themes (or actual questions) that could be incorporated into the final survey instrument.

Question 12: If you were to ask five questions on a survey regarding people's perceptions, attitudes, and values towards preservation of shipwrecks, what would they be?

This question was similar to Question #11, except that it was a chance for experts to present questions they would want answered by the public.

Question 13: Do you think people would be willing to pay for the preservation of shipwrecks? This question explicitly asked experts their thoughts towards the public's willingness to fund preservation of shipwrecks. As estimating the public's WTP for preservation is one of the primary research goals of this study, this question provided a point of comparison between the current perceptions of experts versus data collected from the public.

Question 14: What do you consider the biggest change archaeologists face in educating the public about shipwrecks? How have you approached this challenge?

This open ended question was designed to understand where efforts in public outreach are needed. There could be many answers here, depending on the respondents' experiences and professions. The follow-up question asked about how respondents approached the challenge is an opportunity for respondents to put forth strategies they have found successful. The rationale was to compare the common elements of success (or failure) of different strategies.

Question 15: What are five common questions you face from the public? How have you answered them?

The goals of this question was to understand what questions the public thinks are important enough to ask experts, and to learn how experts have answered these questions, providing insight into their interactions with the public. It was hypothesized that many experts would reveal common themes revealed through these questions as it was believed professionals often face similar questions from different populations about shipwrecks and their preservation.

APPENDIX D: Guiding Question for Resident Interviews

<u>Guiding Questions</u>
- Describe knowledge and interest in shipwrecks in general and those off coast of North Carolina?
    - Interest in seeing and learning about shipwrecks? Level of interest (e.g. diving, museums, books)?
- Are shipwrecks in important? Why or why not? If so, to whom are they important? What kinds of shipwrecks are important?
- What things would you like to know and learn about shipwrecks?
    - If you dived on a shipwreck, what you would like to see, or do?
    - Would shipwreck trails on land and in the water interest you? If so, what type of information would you be interested in regarding shipwrecks?
- Who do you think benefits from or enjoys shipwrecks? Who should be able to enjoy shipwrecks?
- Do you think shipwrecks need to be preserved? Why or why not? How should we preserve them? Or not?
    - Role of local, state or federal government, divers, and public?
    - Sanctuaries or protected areas?
- What criteria should be used to preserve a shipwreck? [age, events, persons, use?] Who should decide?
- Who owns a shipwreck?
- Interest in informal training opportunities, such as avocational archaeological training?
- What do you think maritime archaeologists do? Why do you think they do this?
    - What you would like to ask a maritime archaeologist if you had the chance?
- What are the most valuable objects on a shipwreck? What should be done with them?
- Does it matter if divers take souvenirs from shipwrecks? What happens if the shipwreck is a grave site?
- Do you think of shipwrecks when you think of NC? Why or why not? What do you think of when you think of NC?
    - Do you think visitors to NC think of shipwrecks when planning their trips?
- How would you describe yourself? Your maritime heritage?
- Do you or your family have any connection with the sea? Working on it? Enjoying it?
    - If so, could you describe your history?
- What is the best way the shipwrecks should be used now? In the future?
- What threatens a shipwreck?
- Any issues you would like to discuss regarding shipwrecks?

APPENDIX E: Discussion of Questions and Rationale for Final Survey Instrument

Appendix E presents the survey questions and other issues not discussed in detail in Chapter 5 of the dissertation.

Section 1: Recreation and Travel Interests

The goals of Section 1 were understand respondents' recreational and travel behavior, motivations, and interests in visiting North Carolina's beaches. There were nine questions total. Table E.1 provides each question as presented on the final survey. The following is a discussion for why each question was included.

Table E.1: List of questions in Section 1 of survey

#	Question
1	Have you ever visited a beach in North Carolina?
2	Which beaches have you visited within the last three years
3	How many times did you visit a beach in the following years? (2012)
4	How many times did you visit a beach in the following years? (2011)
5	When you visit a beach, how would you describe how long you typically stay?
6	When you go to the beach, where do you normally stay?
7	In one sentence, could you tell us why you like to go to a beach?
8	Please look at this list of activities and indicate which activities you like to do while at a North Carolina beach (Select all that apply)
9	Do you own a boat?

Question #1: Have you ever visited a beach in North Carolina?

This introductory question allowed respondents to answer "yes" or "no" providing immediate data regarding the respondent's relationship to visiting beaches in North Carolina. If the respondent answered "no," they were directed to "skip" to question 9. Those who answered "yes" were presented with follow up questions designed to understand their visitation patterns and behavior.

Question #2: Which beaches have you visited within the last three years?

The goal of this first follow up question was to learn where those who visited NC beaches went. It was anticipated that there would a wide variety of answers, ranging from general to specific. This assumption stemmed from pretests where those who went to beaches frequently were able to provide specific names (e.g. Nags Head Beach, Currituck Beach, Pea Island Beach), but those who went less frequently provided only regional names, such as Hatteras (meaning everything from Hatteras north of Nags Head) or even simply the Outer Banks. This variety was acceptable for the purposes of this project as it was not the main goal to know exactly where respondents were. In fact, the level of detail in the responses was an indicator of the familiarity and background the respondent has with North Carolina's shorelines.

Questions #3: How many times did you visit a beach in the following years? (2012) and

Question #4: How many times did you visit a beach in the following years? (2011)

The purpose of these questions was to understand the respondent's visitation frequency in order to compare whether the amount of visits had effect on their attitudes towards preservation and valuing shipwrecks. Questions 3 and 4 were originally designed as one question: "How many times did you visit a NC beach in the last three years?." Pretests showed that there was confusion among respondents about what determined the "last three years." It was suggested to reduce the time to the last two years and to offer categorical options (i.e. 2011 and 2012) since many people associate events with specific time.

For each year provided (2012 and 2011), respondents were provided 10 choices (Table E.2): These choices were developed in consultation with committee members and through pretesting. If respondents selected "more than 7 times," there was a follow up opportunity for them to report how many times they were at the beach. The reason the "Uncertain" response was added also derived from pretests when respondents' simply were not sure, and were afraid of writing in the wrong number.

Question #5: When you visit a beach, how would you describe how long you typically stay?

The goal of this question was to learn about the typical length of stay for respondents in order to understand behavior patterns. The hypothesis is that the longer a person stays (or "consumes" the experience) at the beach, the more exposed the individual would be to various amenities, assets, and opportunities beaches provide, including opportunities to learn about different types of cultural heritage. Those who have shorter visits will have to make different choices based on their priorities, income, and time frame.

Respondents were presented six with options (Table E.3). These choices were developed through committee and pretesting. If respondents selected, "More than a week," they were provided an opportunity to report how much longer their stays were.

Question #6: When you go to the beach, where do you normally stay?

The goal of this question was to understand where visitors stay when they visit the beach, providing insight to their behavior and visitation practices. Information provided could help in developing effective strategies for disseminating public outreach material to high frequented locations. Respondents were presented seven with options (Table 5D.4). These choices were developed through committee and pretesting. If respondents selected, "Other," they were provided an opportunity to report where they chose to stay.

Question #7: In one sentence, could you tell us why you like to go to a beach?

This open ended question allowed respondents to put in their own words their personal motivations for visiting beaches.

Table E.2: Questions #3 and #4

#	Variable
1	None
2	1 time
3	2 times
4	3 times
5	4 times
6	5 times
7	6 times
8	7 times
9	More than 7
10	Uncertain

Table E.3: Question #5

#	Variable
1	It Varies
2	Daytrip without Overnight Stay
3	1 day and 1 overnight stay
4	2 to 3 days
5	1 week
6	More than a week

Table E.4: Question #6

#	Variable
1	Campsite
2	Hotel
3	Rental Home
4	Second Home
5	Friends / Family
6	I do not stay overnight
7	Other

Table E.5: Question #8

#	Variable
1	Beach Driving
2	Shell Collecting
3	Bird Watching
4	Picnicking
5	Bicycling
6	Walking
7	Camping
8	Jogging
9	Recreational Fishing
10	Museums
11	Tournament Fishing
12	Attending Special Events
13	Commercial Fishing
14	Attending Natural / Environ Programs
15	Kayaking/ Canoeing
16	Visiting Cult/Hist Sites
17	Motor Boating
18	Visiting National Parks
19	Sailing
20	Visiting Lighthouses
21	Windsurfing
22	Surfing
23	Sunbathing
24	Swimming
25	SCUBA diving
26	Other

Question #8: Please look at this list of activities and indicate which activities you like to do while at a North Carolina beach

This question allowed respondents to select from a list of 25 activities and an option of "other" (Table E.5). For those who select "other," there was an opportunity for them to write in these other activities. As compared to the open ended question before it, this question provided insights into specific activities, providing context into what specifics motivate recreational behavior at the beach. Activities included a range of natural and cultural events that were developed through committee and pretesting. Information will help researchers understand where cultural activities rate among respondents motivations for visiting beaches.

Question #9: Do you own a boat?

As this survey was about shipwrecks, it was important to understand if respondents had relationship with boats of any type. Those who answered no to Question #1 were directed to this question because it is not necessary to go to the beach to own a boat. Respondents could answer "yes" or "no" to this question, and if they answered "yes," they were asked to identify the type of vessel, and where they used it most often. This provided information about the nature and use of their vessels.

Section 2: NC Maritime History and Heritage

The goals of Section 2 were to acquire information regarding the attitudes, awareness, perceptions, and knowledge of North Carolina's maritime history and heritage. It was assumed that many respondents would not have a background of knowledge about either subject, and that they would need some basic information before proceeding to the section's questions. Therefore, two information blocks were presented for each subject (maritime history and maritime heritage, respectively) before asking questions about the subject matter. These information blocks were designed to give the minimal background necessary to understand the depth and breadth of these topics.

First, information about North Carolina's maritime history was presented (Figure E.1). Then instructions were given informing respondents of the following: "For the following question about North Carolina's Maritime History, please select the statement that best reflects your opinion." This was followed by Question #10:

North Carolina's Maritime History

North Carolina has one of the longest and richest maritime histories in the United States. Native Americans used the waterways for daily transportation, trade, and settlement hundreds of years before Europeans arrived. In 1585, the English first tried to establish a colony on Roanoke Island. Since then hundreds of thousands of ships have sailed and steamed along North Carolina's coasts, estuaries, and rivers. North Carolina's maritime history is full of dramatic events ranging from piracy to Naval battles in the Civil War and World Wars I and II. Generations of North Carolinians have also helped shaped this history by creating communities and industries that have shaped North Carolina's connection to its waters.

Figure E.1: Information block for North Carolina's maritime history (figure by author).

Question #10: I am interested in these historical periods of NC maritime industry.

Respondents were asked to indicate which historical periods they were interested in via a likert scale, ranging from strongly agree to strongly disagree. They were eight time periods for them to consider (Table 5D.6). Considerable deliberation went into selecting these historical periods. The challenge was finding the balance between too many and not enough. Each historical time frame could be broken down further into smaller periods of time, but such division would itself become unwieldy and perhaps immaterial to the general population. Further, not all time periods overlap (for example, "World War I" and the "Roaring 20s and the Great Depression." This was intentional as the time periods chosen were selected based on representing major developments that were recognizable and distinct. The process for this selection involved reviewing literature of shipbuilding, ships, and historical events outside of the maritime domain, incorporating data from expert surveys and resident interviews, and discussing categories with committee members.

It is important for managers to understand what historical areas of interest the public has when it comes to history. For instance, if there is a large interest in a certain period, then managers can understand that at the moment these resources are valued more highly by the public. This is not to say that the others are worth less, but that perception and awareness of certain periods are more in the public's view more than others. This can have important implication about choices need to be made in marketing preservation to the public.

Next, an informational block discussed and defined maritime heritage (Figure E.2). Originally, this block contained examples of both the "physical and non-physical" aspects of maritime heritage, but pretests indicated that such examples could serve as a source of information bias. Therefore they were removed.). Then instructions were given informing respondents of the following: "For the following question about North Carolina's Maritime Heritage, please select the statement that best reflects your opinion." This was followed by Question #11:
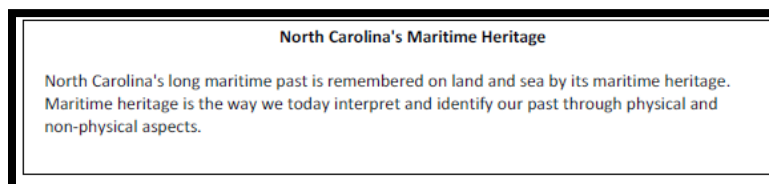
Figure E.2: Information block for North Carolina's maritime heritage (figure by author).

Question #11: When I think of NC's Maritime Heritage, I usually think of.

The goal of this question was to measure what types of associations and what levels of awareness respondents held towards different types of heritage resources on the Outer Banks. Understanding these associations is important as managers seek to create messages that are more effective in reaching the public. Respondents were presented with 15 options, including an option for "Other" and a line to write a response that was not offered (Table E.7). They could select from a likert scale ranging from strongly agree to strongly disagree. Variables were

Table E.6: Question #10

#	Variable
1	Colonial Period (1585-1776)
2	Early American (1776-1860)
3	Civil War (1861-1865)
4	Late 19th/Early 20th Century (1865-1914)
5	World War I (1917-1918)
6	Roaring 20s and Great Depression (1920-1936)
7	World War II (1942-1945)
8	Cold War and After (1945-Present)

Table E.7: Question #11

#	Variable
1	Beaches
2	Atlantic Ocean
3	Pamlico / Albemarle Sound
4	Fishing
5	Coastal Towns and Villages
6	Lighthouses
	Life Saving Stations
	Ships
	Shipbuilding
	Shipwrecks
	Festivals
	Tourism
	Beach Driving
	Food

Table E.8: List of questions and themes in Section 3 of survey

#	Question	Theme
12	Have you heard of the Graveyard of the Atlantic?	The Graveyard of the Atlantic
13	When I think of the Graveyard of the Atlantic, I usually think of:	
14	Can you name a shipwreck in NC off the top of your head?	Shipwrecks
15	Can you name a shipwreck in the United States off the top of your head?	
16	Have you ever seen a shipwreck or part of a shipwreck in a museum?	
17	Have you ever read a book about a shipwreck or shipwrecks?	
18	When I think of shipwrecks, I usually think of:	
19	Do you, or have you, ever SCUBA dived?	
20	Have you ever dived on a shipwreck in NC?	
21	If you could would you like to dive on a shipwreck?	
22	If you could dive (or have dived) on shipwreck, please select what you would find interesting about the experience:	
23	For the following, please select how interested you would be to learn more about shipwrecks through the particular program.	Educational Programs about Shipwrecks
24	For the following, please select how interested you would be to learn about different aspects of the shipwreck	

developed through literature reviews, interviews, expert survey, committee members, and pretesting.   It was expected that certain variable would be more closely associated with North Carolina's maritime heritage than other, and whether any of these variables would have a relationship with whether or not respondents favored preservation of shipwrecks.

Section 3: Shipwrecks in the NC Maritime History and Heritage

Section 3 further focuses the respondent onto the primary subject at hand: shipwrecks. It has 14 questions, the most of any section, and is broken into three thematic parts covering "The Graveyard of the Atlantic," "Shipwrecks," and "Educational Programs about Shipwrecks" (Table E.8). Each theme was introduced with an information block about each theme. The following describes each thematic portion of Section 3 and its corresponding questions.

The first part introduced and asked questions about the "Graveyard of the Atlantic." Figure E.3 shows the informational block that was provided. It describes the environmental factors that comprise the Graveyard of the Atlantic in order to explain why there were so many ships, and hence shipwrecks, in the area. After this, two questions followed.

Question #12: Have you heard of the Graveyard of the Atlantic?

This question allowed respondents to answer "yes" or "no" providing immediate data regarding the respondent's background knowledge to the Graveyard of the Atlantic. It is recognized that by providing the information block before this question, there is the possibility of information bias. A better wording of the question would have been, "Have you heard of the Graveyard of the Atlantic before now?;" or to have placed this question on the previous page before the information. Data from this question will have to be examined carefully, and possibly thrown out. Still, the intention was to measure respondents knowledge and awareness of the area with a direct "yes" or "no" question.

The Graveyard of the Atlantic

Shipwrecks are examples of the physical remains of North Carolina's maritime history and heritage. They can be found all over the state, resting below the waves of NC's rivers, estuaries, and coasts. One area in particular that has become associated with NC shipwrecks is the **"Graveyard of the Atlantic."**

The Graveyard of the Atlantic is an area of approximately 325 miles of NC coastline and more than 15,000 acres of Atlantic Ocean. Here, two powerful currents (the Gulf Stream and Labrador Current) meet to create "ocean highways" for ships moving up and down the Atlantic Seaboard. For hundreds of years, thousands of vessels have taken advantage of these currents to travel up and down the state for various purposes, but they also faced threats to their success and existence.

Figure E.3: Information block for the Graveyard fo the Atlantic (figure by author).

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Table E.9: Question #13

#	Variable
1	Ships
2	Shipwrecks
3	Map Showing Shipwrecks
4	Fishing
5	Hurricanes
6	Storms
7	Outer Banks
8	Beaches
9	Lighthouses
10	Life Saving Stations
11	Other

Question #13: When I think of the Graveyard of the Atlantic, I usually think of:

Question 13 asks respondents to provide their perceptions and attitudes towards what they associate with the Graveyard of the Atlantic. Understanding these factors creates a better context of what people perceive the Graveyard of the Atlantic to be, and this information could be useful in developing efficient messages about preserving maritime archaeological resources that would immediately resonate with the public. It also could show areas that the public does not associate with the Graveyard of the Atlantic. This information could then be used to understand why this lack of awareness and perception exists, or possibly not focus on those areas immediately.

The question presents 10 choices (Table E.9) with a likert scale ranging from strongly agree to strongly disagree. There is also an option for respondents to select "Other" and then write in something that was not presented. These variables were developed through literature reviews, expert surveys, interviews, and committee guidance as representative of prominent features of the Graveyard of the Atlantic.

After question #13, the second portion dealing with shipwrecks was introduced via an informational block (Figure E.4). This information described the possible amount of shipwrecks in the Graveyard of the Atlantic and a general overview of their possible significance. After the information was presented, there were 15 questions that asked respondents about their knowledge, background, interests, perceptions, and attitudes towards shipwrecks, scuba diving, and diving on shipwrecks. The following discusses these questions.

> **Shipwrecks**
> Potentially, over 2,000 vessels have been lost in the Graveyard of the Atlantic. The remains of some of these ships still exist as shipwrecks, spanning hundreds years of history, architecture, technology, industry and maritime culture. While the locations of many of these shipwrecks are unknown, the known shipwrecks can be associated with historic events, historic figures, and daily activities that helped shape North Carolina and the United States to varying degrees.

Figure E.4: Information block for Shipwrecks (figure by author).

Question #14: Can you name a shipwreck in NC off the top of your head? and *Question #15: Can you name a shipwreck in the United States off the top of your head?*

Questions #14 and #15 provide respondents the opportunity to express background knowledge (if any) with shipwrecks, through a series of "yes/no" questions about whether they know of any shipwreck either in North Carolina or in the United States. The phrase "off the top of your head" was included to dissuade participants from performing a search for a shipwreck. If respondents answered, "yes," they were provided with the opportunity to name the shipwreck(s). The reason these follow-up questions were included were to measure which shipwrecks were most known to the population. This information helps establish knowledge background and prior awareness of shipwrecks.

Question #16: Have you ever seen a shipwreck or part of a shipwreck in a museum? and *Question #17: Have you ever read a book about a shipwreck or shipwrecks?*

These questions were included to understand the level of experience respondents may have had with shipwrecks – whether that experience was direct (actually seeing a shipwreck in a museum) or indirect (reading a book about shipwreck(s)). It helped provide further background information and context. A natural hypothesis would be that there is a relationship between respondents who have greater experience and knowledge of shipwrecks and their willingness to preserve them. These questions were "yes/no" questions with no follow-ups.

Question 18: When I think of shipwreck, I usually think of:

Question 18 is similar to other types of perception and attitude questions that have preceded it. It was designed to measure what respondents think of when they think of shipwrecks. Often managers and professionals in preservation engage the public through stories of shipwrecks, and data from this question will help shed light on the type of stories or factors that the public is interested in learning about. There were 13 variables (Table E.10) that respondents could rate with the likert scale ranging from strongly agree to strongly disagree, and an option to choose "Other." These variables were developed from the expert survey, particularly from Question #15 of that survey, which read, "What are five common questions you face from the public? How have you answered them?." The questions presented to the experts revealed public fascination with many of the possibilities listed in this question. It will be interesting to understand how respondents rate each of these choices.

Question #19: Do you, or have you, ever SCUBA dived?

Question 19 shifted the focus away from shipwrecks briefly, asking a direct "yes/no" question about respondents' SCUBA diving experience. It was important to understand whether or not the respondent had any diving experience and to what degrees as divers are the only stakeholding group able to visit and experience shipwrecks *in situ.* This experience might affect the way they view and value shipwrecks and their preservation. If respondents answered, "yes," they were directed to Question #20, but if they answered "no," they were told to skip the next question and proceed to Question #21.

Table E.10: Question #18

#	Variable
1	History
2	Survivors
3	Lives Lost
4	Treasure
5	Adventure
6	Mystery
7	Fishing
8	Sharks
9	Other Types of Fish
10	Coral Reefs
11	SCUBA Diving
12	Tourism
13	Other

Question #20: Have you ever dived on a shipwreck in NC?

This question was for only respondents who answered "yes" to Question #19. This was a follow-up question designed to learn the diving behavior of the respondents who were divers. If respondents answered, "yes," to question, then there was a second follow-up asking what shipwrecks they have dived on in North Carolina. This again was incorporated to understand diving behavior and which shipwrecks were popular dive sites. After answering this question, respondents were instructed to move forward to Question #22.

Question #21: If you could dive, would you like to dive on a shipwreck?

This question was for respondents who answered "no" to Question #19. This question was included to acquire insight into whether non-diving respondents would like to SCUBA dive if given the opportunity. This information would provide an understanding into whether respondents would have any motivation to visit and experience shipwrecks.

Question #22: If you could dive (or have dived) on a shipwreck, please select what you would find interesting about the experience:

Question 22 measured respondents' interests and possible motivations in what they would like to experience diving on a shipwreck. This information provides managers with an understanding of what the public would like to experience from a shipwreck, if it were possible. Respondents were presented with 10 choices (Table E.11), and again could rate them using a likert scale ranging from "very interesting" to "very uninteresting." These variables were developed through the expert surveys, local interviews, committee members, and pretesting.

Table E.11: Question #22

#	Variable
1	Seeing the Shipwreck
2	Experience History
3	Finding Treasure
4	Seeing Wildlife
5	Sharks
6	Getting Diving Experience
7	Getting a collectible from a shipwreck
8	Recreation
9	Adventure
10	Being with Friends and Other Divers

After question 22, the third part of Section 3 began with an informational block (Figure E.5) describing the different types of educational programs involving shipwrecks. This was important to familiarize respondents to the standard methods of public outreach that archaeologists use. It also allowed the various programs to be defined and introduced before the choice experiment in Section 4. There were two questions designed to measure respondents interests in these programs as well what types of information they would want to know. Finally, these questions could serve as possible validity and consistency checks for respondents' answers in the choice experiment.
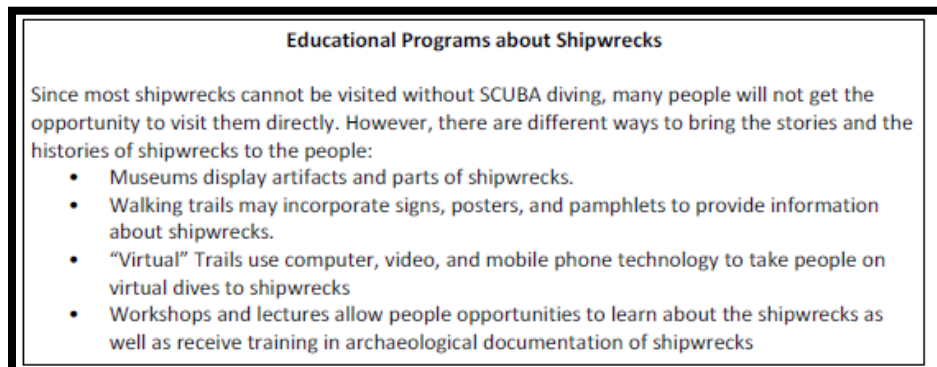
Figure E.5: Information block for Educational Programs about Shipwrecks (figure by author).

Table E.12: Question #23

#	Variable
1	Seeing the artifacts in a museum
2	On a walking trail
3	On a "virtual" trail
4	Workshops
5	Training in maritime archaeology

Table E.13: Question #24

#	Variable
1	How the ship sank
2	Why the ship sank
3	Where it was built
4	What it did before it sank
5	Its Crew
6	Its Passengers
7	Its Cargo
8	What happened to it after it sank

Question #23: For the following, please select how interested you would be to learn more about shipwrecks through the particular program:

The goal of this question was to measure respondents' interest in individual programs listed defined in the information. This information will help policy makers and managers decide what types of informal education opportunities would make good investments as well as providing insight into what possible consumers of heritage material are looking for. The five choices presented (Table E.12) were the same as in the informational block. Respondents could indicate their interest through a likert scale, ranging from "very interested" to "very uninterested."

Question #24: For the following, please select how interested you would be to learn about different aspects of the shipwreck:

The goal of this question was to understand what types of stories interested respondents the most. Similar to Question #18, by understanding what people want to learn about, better educational and learning materials could be developed or strengthened by focusing on highly rated themes. There eight choices (Table E.13) on a likert scale ranging from "very interested" to "very uninterested." These choices were based strongly from the expert surveys, supplemented with the literature reviews and pretesting.

Question #25: For the following, please select how interested you would be to learn about these types of shipwrecks.

Question #25 was the final question for Section 3. The goal of the question was to understand what types of shipwrecks interested respondents the most. Similar to Question #`18 and Question #24, information from this question may guide develop public outreach materials through understanding people's interests in different kinds of shipwrecks. There 11 choices (Table E.134 on a likert scale ranging from "very interested" to "very uninterested." These choices were based strongly from the expert surveys, supplemented with the literature reviews and pretesting.

Table E.14: Question #25

#	Variable
1	Fishing Ships
2	Cargo Ships
3	Pirate Ships
4	Military Ships
5	Wooden Ships
6	Iron and Steel Ships
7	Recreational Boats
8	Sailing Ships
9	Steam Ships
10	Gas and Diesel Boats
11	Submarines

Section 4: Graveyard of the Atlantic Maritime Park (Choice Experiment)

Chapter Five discusses the construction of profiles, choice sets, and versions needed to implement the survey in detail. This section of the appendix will discuss the development of attributes, their levels, and their presentation in the survey's hypothetical scenario. The six attributes were 1) Preservation Zones; 2) Public Programs; 3) Walking Trails; 4) Virtual Trails; 5) Diving Trails; and 6) one-time tax increase (payment vehicle).

Preservation Zones:

The attribute "Preservation Zones" had three levels: Red Zone, Yellow Zone, and Orange Zone. Since understanding the public's willingness to pay for preservation was the primary research goal for this study, preservation was the major theme that needed to be developed for the CE. Development of the attribute faced the immediate challenge of how to represent the resources (shipwrecks) in the study. Early phases of the survey design considered different possibilities, including creating hypothetical preservation boundaries that included all shipwrecks within the boundary or creating hypothetical preservation zones around specific shipwrecks based on archaeological significance. It was decided that the latter choice presented to many difficulties in presenting and explaining it to the public, and therefore the first option was selected for development.

There was precedence for this decision based on NOAA's Thunder Bay National Marine Sanctuary's (TBNMS hereafter) Final Management Plan (2009). In this plan, TBNMS presented three options for expanding their sanctuary boundaries presented (Figure E.6).
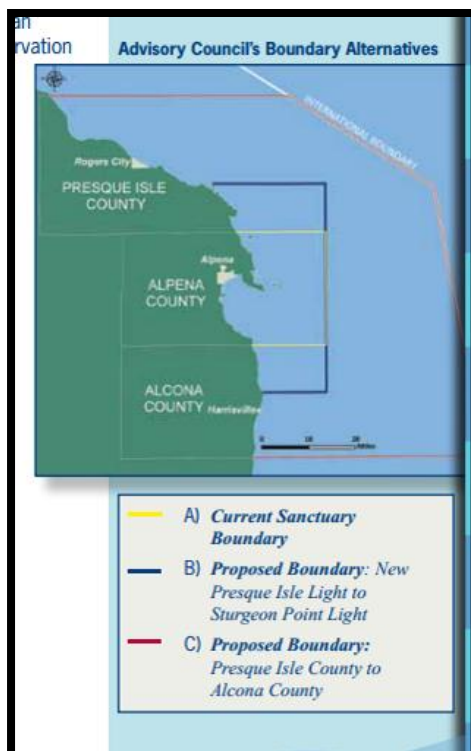
Figure E.6: TBNMS's Options for Sanctuary Expansion
(http://thunderbay.noaa.gov/pdfs/management%20plan_final.pdf)

Using this graphic as model, three maps of the different preservation zones were constructed. The first image was straightforward in design as it would describe the current state of affairs, or status quo, in terms of North Carolina's and Federal protection of shipwrecks in the Graveyard of the Atlantic. AWOIS and GIS were used to construct "Red Zone" (Figure E.7).

The two alternatives (Yellow Zone (Figure E.8) and Orange Zone (Figure E.9)) underwent constant develop and discussion about essential characteristics, such as size, coverage both in terms of shipwrecks and square acreage, and presentation elements such as color, shape, and image quality. Many decisions were made based on what was best for the survey and how people responded to the versions. Pretesting was crucial for this. For example, the "Orange Zone" was originally colored green, and labeled "Green Zone." Testing indicated that this created a "traffic light" phenomenon where people could interpret green as "good," red as "bad," and yellow as "neutral." This mimicked traffic lights symbolism where red means stop; yellow means slow down; and green means go. This association could create response bias and threaten the validity of the study. Therefore, the "Green Zone" was made into "Orange Zone" as orange was a neutral color in terms of this study and retested.

The size of each zone and presenting information pertinent and easily understandable to respondents also went through a series of development phases. The Red Zone was again straightforward as it represented the three miles that is under North Carolina's protection under federal law. For the alternatives, it was decided that one zone needed to represent the "heart" of
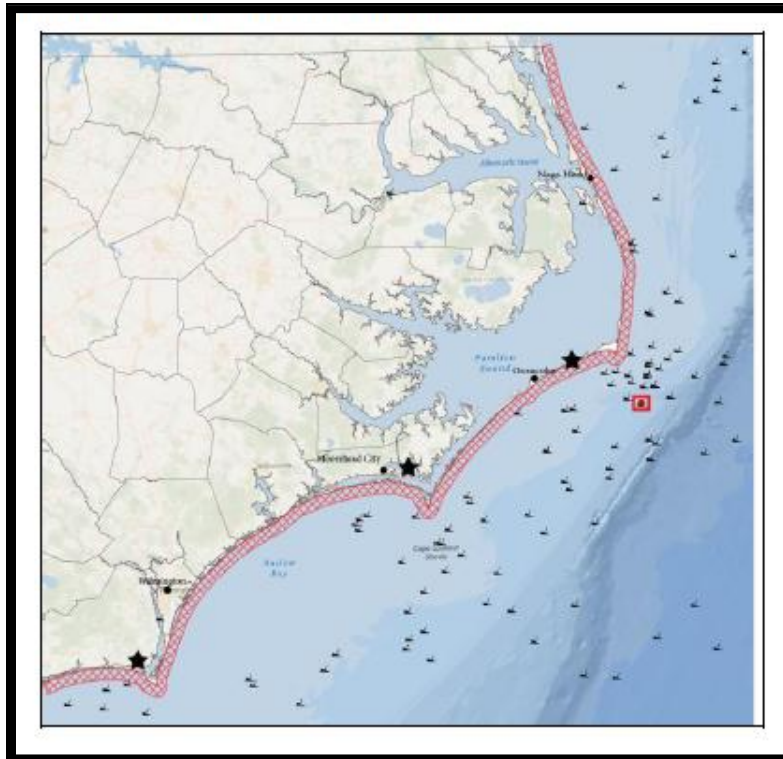
Figure E.7: Map of Red Zone as Presented in Final Survey Instrument (figure by Stephen Sanchagrin and author).
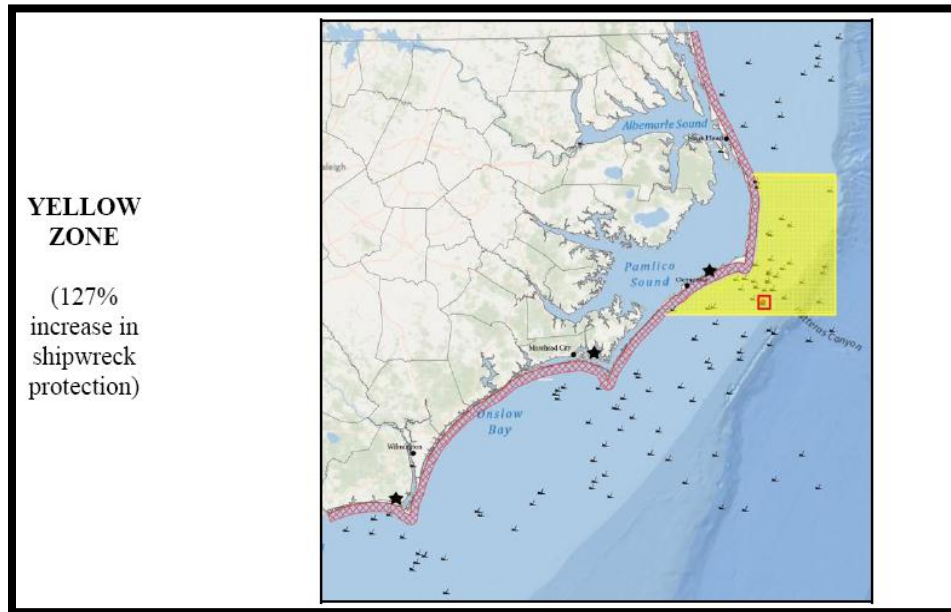
Figure E.8: Map of Yellow Zone as Presented in Final Survey Instrument (figure by Stephen Sanchagrin and author).
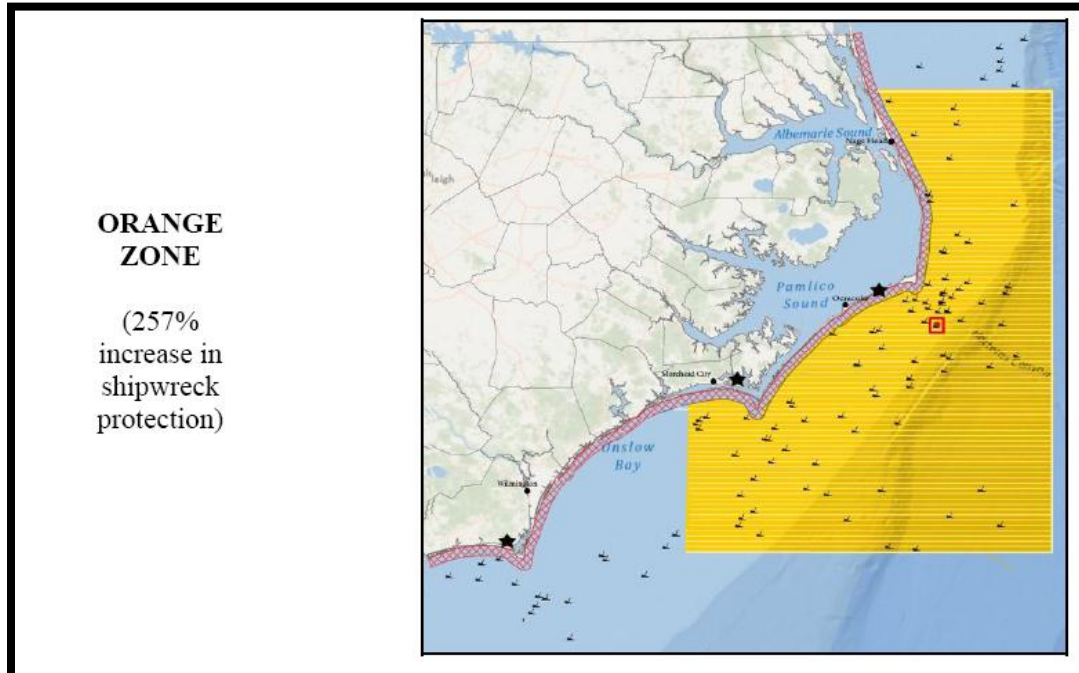
Figure E.9: Map of Orange Zone as Presented in Final Survey Instrument (figure by Stephen Sanchagrin and author).

the Graveyard of the Atlantic (Yellow Zone), and another needed to be inclusive of the Outer Banks (Orange Zone).

The Yellow Zone covered the area around Diamond Shoals. This area represented the largest density of shipwrecks in the Graveyard of the Atlantic and has been often referred to as the "heart" of the Graveyard of the Atlantic. It represented a 127% increase in known shipwrecks and 2,192 spare miles of Atlantic Ocean bottomland.

The Orange Zone covered the area north of Nags Head down to south of Moorehead City and the current location of some the most visited shipwrecks by SCUBA divers as well as the site thought to be Blackbeard's *Queen Anne's Revenge*. It represented the most inclusive and largest change in protection of shipwrecks. It was a 257% increase in shipwreck protection and covered 13,498 square miles of bottomlands.

The Yellow and Orange Zones offered respondents easy to understand and perceive changes in the current state of protection compared to the Red Zone. It also offered discrete choices among the alternatives in that there was a clear change in size and protection between the Yellow and Orange Zones. Percentages of change were included next to the maps as well as their differences highlighted and reinforced the choices and were easy to understand relative to each other. While there were more detailed maps and databases involving shipwrecks, it was purposefully chosen to keep maps for the survey clean of too much detail that would overload and possibly confuse respondents. The maps chosen provided a satisfactory representation and model for the survey.

Public Programs

The second major category that emerged from the expert survey and local interviews was the role and desire for public outreach programs. These programs took several forms from museum exhibits, training opportunities to heritage trails. In considering these categories and designing attributes and associated levels it was determined to separate public programs and trails. Public programs were defined for the purposes of this study as exhibits, educational workshops, and avocational training in maritime archaeology. These types of programs were inspired and created primarily from the local interviews when interviewees were asked what types of educational opportunities they (or their communities) would possibly be interested in. Early versions of the survey provided the change in these programs in great detail. Pretesting showed that this level of detail was information overload, and participants did not read all of the information, but skipped over it. Therefore, each successive version tried to streamline the information. The wording of "investment" was the result of this process, and became the attribute levels.

"No Investment" was the status quo. "Moderate Investment" was the first alternative and represented limited an increase in museum exhibits and creation of education workshops and training in maritime archaeology. A "Large Investment" was the third level and included everything described in the "moderate investment" level plus development of a public television series about shipwrecks and boating tours to shipwrecks.

Maritime Heritage Trails

The other major sub-category of public outreach was heritage trails. Interviewees expressed strong interest in different types of trails. Walking trails were often discussed in local interviews with virtual and diving trails sometimes appearing in discussions. Originally, maritime heritage trails was going to be a level with walking, virtual, and diving trails as attributes of this level. The pragmatics of creating an efficient choice experiment, however, required reconsideration of this strategy. For this purpose, each trail was made into an attribute with its levels becoming either "yes" or "no," indicating whether the respondents wanted the trail (yes) or wanted to maintain the status quo (no). Defining of each of these trails had already occurred in Section 3 of the survey, and therefore a brief reminder was all that was needed here.

One-time Tax Increase (Payment Vehicle)

Not including the status quo price of $0, there were three price levels for this attribute: $12, $55, and $145. There was not a prescribed method for choosing the prices presented to respondents. It was important to have significant changes the prices so that respondents would not have to make choices between small increments, thereby creating confusion in their minds over what the difference really were. Additionally, these prices had to seem realistic. Rounded numbers (for example, $5, $10, $100, or $500) could appear artificial and remind respondents that the scenario was hypothetical. Close discussion with committee members and pretesting were used to develop prices that seemed reasonable to respondents.

Section 5: Preservation and Management

Section 5 was the follow-up to the CE, providing questions designed to measure respondents' attitudes and knowledge of preservation and preservation related topics, such as management, management agencies, access, and significance. Table E.15 shows the nine questions and their corresponding themes. The following is a discussion of these questions.

Table E.15: List of questions and themes in Section 5 of survey

#	Question	Theme
32	When I hear the phrase "preserve a shipwreck," I think	Preservation
33	What quality of job do you think the following agency would do, if it were in charge of preserving shipwrecks?	Management
34	Is a preserving a shipwreck as important as protecting marine wildlife?	Management
35	Does preserving a shipwreck help or hinder fishing?	Management
36	Do you think a shipwreck should be preserved, if it …(several variables then presented)	Significance
37	What do you thing are reasons for a shipwreck to fall apart?	Preservation
38	Would you ever consider prohibiting SCUBA divers from diving on a shipwreck?	Access
39	Please select the following criteria you would use to determine which shipwrecks would not be allowed to visit?	Access
40	How do you think shipwrecks contribute to the following:	Significance

Question #32: When I hear the phrase, "preserve a shipwreck," I think:

The goal of this question was to understand respondents' attitudes towards preservation. Up to this point, respondents had started from general recreation question (Section 1) and followed more focusing questions about maritime archaeological resources (Sections 2 and 3) before making economic choices about their WTP for preserving these resources. This question allowed respondents to consider the term of preservation and express their attitudes about it. They were presented with 13 choices (Table E.16), which they could respond via a likert scale from "strongly agree" to "strongly disagree. These variables were developed from archaeological literature discussing preservation as well as questions commonly asked to experts. This information will help managers have a better understanding about the public's attitudes towards preserving shipwrecks with which areas of misunderstanding about the best practices for shipwrecks may be recognized.

Question #33: What quality of job do you think the following agency would do, if it were in charge of preserving shipwrecks?

During the interview phase of Stage I, it was clear that while interviewees were in favor of preserving shipwrecks, they had a strong distrust of oversight from any outside agency. Particularly strong were feelings of anti-government, and many reasons for these feelings had little to no relevance to shipwrecks (or preserving). Instead, this distrust of government was

Table E.16: Question #32

#	Variable
1	Nothing, I don't know what that phrase means
2	Raise the shipwreck entirely and put it in a museum
3	Bring up all artifacts you can and sell all of them to fund future preservation
4	Bring up all artifacts you can, keep the important ones, and sell the unimportant ones to fund future preservation
5	Bring up all artifacts you can, and put them all in a museum
6	Bring up some of the artifacts, and sell them
7	Bring up some of the artifacts, and put them in a museum
8	Bring up none of the artifacts, but document them on the shipwreck with photographs, mapping, video, and publications
9	Cover the shipwreck with protective material
10	Mark the shipwreck with buoys
11	Do not allow anyone to fish on it
12	Do not allow anyone to dive on it
13	Leave it completely alone

Table E.17: Question #33

#	Variable
1	Federal
2	State
3	Counties
4	Towns
5	Universities
6	Private Dive Stores

developed through other experiences and then transferred to any agency that may be seen as impinging lifestyles through regulation. This question was put in the survey to see if these feelings carry over to the general populace, or if they are local in nature. The question presents six different entities (Table E.17) that respondents could rate on a likert scale ranging from "best": to "worst." For each entity, there was a follow-up question of "Why?." This allowed individuals to express their reasons for their opinion, and it will be interesting to see if their reasons follow the local interviews' model – namely that feelings of trust or distrust have little to do with the issue at hand but shaped by the political climate and context of personal experience and attitudes.

Question #34: Is preserving a shipwreck as important as protecting marine wildlife?

This question was included to measure respondents' attitudes toward the importance of maritime archaeological resources versus marine biological resources. It was a discrete "yes" or "no" question, and was adapted from the expert survey.

Table E.18: Question #36

#	Variable
1	More than 200 years old
2	More than 100 years old
3	More than 50 years old
4	Associated with a famous event or battle
5	Associated with a famous person or group of people
6	Represents an identity of a city, village, or community
7	Represents a maritime industry
8	Represents an unique technology
9	Has treasure on it

Question #35: Does preserving a shipwreck help or hinder fishing?

One theme that appeared in the expert survey and local interviews was the relationship between shipwrecks and fishing. Some claimed that shipwrecks were great for fishing as they provided submerged structures that acted like reefs allowing for a food chain up to apex predators to be developed. Others viewed them as hazards to fishing if they were going to be zoned off for protection, which would create fishing prohibitions. This question was included to acquire insight about the public's attitudes towards whether preserving shipwrecks would help or hinder fishing. It was a discrete "yes" or "no" question.

Question #36: Do you think a shipwreck should be preserved, if it is:

The goal of this question was to measure respondents' attitudes towards criteria of preserving shipwrecks. Many of the variables listed (Table E.18) are used by archaeologists to determine significance of historic sites as part of the section 106 process and nominating sites to the National Record of Historic Places. This information will offer a comparison of the general population's opinions about criteria for the significance of preserving shipwrecks to professionals in the historic preservation. Variable #9 (treasure) was included as often maritime archaeologists face questions regarding shipwrecks treasure and the ethics surrounding those vessels. The purpose of including this variable was to test whether the populace felt that "treasure" created significance for a vessel. For each variable, respondents could answer "yes" or "no" to indicate if they considered that criterion was important in preservation decisions.

Question #37: What do you think are reasons for a shipwreck to fall apart?

This question addressed respondents' thoughts about different types of threats (natural or anthropogenic) to the preservation of shipwrecks. This information will help managers, archaeologists, and heritage professionals have a better understanding of what attitudes the public holds towards the different types of threats. There were 14 options (Table E.19) respondents could answer via a likert scale ranging from "Major Reason" to "Not a Reason." These variables were developed from the expert survey, literature reviews, and committee members.

Table E.19: Question #37

#	Variable
1	Damage during wrecking event
2	What material the ship is made of
3	Salt Water
4	Time
5	Ocean Currents
6	Seasonal Storms
7	Hurricanes
8	Marine animal activity
9	Fishing trawling nets
10	SCUBA divers
11	Salvage Companies
12	Archaeologists
13	Removing artifacts
14	Removing parts of the shipwreck itself

Question #38: Would you ever consider prohibiting SCUBA divers from diving on a shipwreck?

This was a direct "yes" or "no" question designed to acquire immediate feedback about respondents' attitudes towards diving access to shipwrecks. If respondents selected "yes," they were instructed to proceed to next question. If they responded, "no," they were asked to skip to question #40.

Question #39: Please select the following criteria you would use to determine which shipwrecks divers would not be allowed to visit

This question was only for respondents who answered "yes" to Question #38. It was a follow-up question to understand what types of criteria they considered important enough to limit access to scuba divers. There were nine variables (E.20) respondents could rate based on likert scale ranging from "strongly agree" to "strongly disagree." These variables were similar to those in Question #36 and were designed to test respondents' attitudes towards the value of shipwreck using criteria that professionals in the fields of archaeology and heritage management often use. Again treasure was included as a variable to measure people's attitudes towards it as a contributing factor limiting access to shipwrecks.

Question #40: How do you think shipwrecks contribute to the following:

This was the last question before the demographics section and was included to measure respondents' attitudes and perceptions for what they thought were benefits of shipwrecks to society based general themes that could be used as "umbrella" concepts for possible outreach efforts. There were four variables (Table E.21) that they could rate through a likert scale ranging from "a lot" to "nothing." While many more types of benefits could have been included, many had already been presented in different ways throughout the survey. These four were chosen as

they were simple and direct concerning themes of history, heritage, cultural tourism, and benefits for marine life.

Table E.20: Question #39

#	Variable
1	Fragile
2	Unsafe
3	Special Training
4	Grave Site
5	Belongs to Foreign Nation
6	Represents community…town
7	Represents maritime industry
8	Represents unique technology
9	Has treasure on it

Table E.21: Question #40

#	Variable
1	Understanding Our History
2	Creating Sense of Identity for North Carolina
3	Creating Tourism for North Carolina
4	Creating Areas to Fish
5	Creating artificial reefs for marine animals

Section 6: Demographics

There were eight questions in this section asking standard questions about demographics: gender, marital status, race/ethnicity, age, dependents, education, income and zip code.

Shipwrecks in the Graveyard of the Atlantic Survey

Ph.D. Program in
Coastal Resources Management
Institute for Science and Coastal Policy
East Carolina University
Greenville, NC 27858

Thank you for taking time to complete this survey. It should take approximately 30 minutes. There are six sections covering areas of 1) recreation and travel interests; 2) North Carolina maritime history and heritage; 3) shipwrecks in the Graveyard of the Atlantic; 4) a Graveyard of the Atlantic Maritime Park; 5) preservation and management; and 6) demographics. When you have finished please place the survey in the pre-addressed, stamped envelope and mail it back.

SECTION 1: RECREATION AND TRAVEL INTERESTS

1. Have you ever visited a beach in North Carolina?   ○ Yes   ○ No

    If **YES**, please **PROCEED** to **NEXT Question**
    If **NO**, please **SKIP** to **Question 9**

2. Which beaches have you visited within the last three years?

    a. Please **identify** the beach on your list **above** that you go to most:

3 and 4. How many times did you visit a NC beach in the following years?

	None	1	2	3	4	5	6	7	More than 7	Uncertain
2012	○	○	○	○	○	○	○	○	○	○

If selected "More than 7" how many? ☐☐

	None	1	2	3	4	5	6	7	More than 7	Uncertain
2011	○	○	○	○	○	○	○	○	○	○

If selected "More than 7" how many? ☐☐

5. When you visit the beach, how would you describe how long you typically stay? (Please select one)

○ It varies   ○ 2 to 3 days

○ Daytrip without staying overnight   ○ 1 week

○ 1 day and 1 overnight stay   ○ More than a week

If selected more than a week, how long? ☐

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6. When you go to the beach, where do you normally stay? (Please select one)

- ⭕ Campsite
- ⭕ Hotel
- ⭕ Rental Home
- ⭕ Other (please list): [   ]
- ⭕ Second Home
- ⭕ Friends / Family
- ⭕ I don't stay overnight

7. In one sentence, could you tell us why you like to go to a beach in North Carolina?

[   ]

8. Please look at this list of activities and indicate which activites you like to do while at a North Carolina beach. (Select all that apply)

- ⭕ Beach Driving
- ⭕ Bird Watching
- ⭕ Bicycling
- ⭕ Camping
- ⭕ Recreational Fishing
- ⭕ Tournament Fishing
- ⭕ Commercial Fishing
- ⭕ Kayaking/Canoeing
- ⭕ Motor Boating
- ⭕ Sailing
- ⭕ Wind-Surfing
- ⭕ Sunbathing
- ⭕ SCUBA Diving
- ⭕ Shell Collecting
- ⭕ Picnicking
- ⭕ Walking
- ⭕ Jogging
- ⭕ Museums
- ⭕ Attending special events
- ⭕ Attending nature/environmental programs
- ⭕ Visiting cultural/historical sites
- ⭕ Visiting National Parks
- ⭕ Visiting Lighthouse
- ⭕ Surfing
- ⭕ Swimming
- ⭕ Other (please list): [   ]

9. Do you own a boat? (Please select one)　　　○ Yes　○ No

    a. If yes, what type of boat is it?

                  ┌──────────────────────────────┐
                  └──────────────────────────────┘

    b. If yes, where do you use it most often?

                  ┌──────────────────────────────┐
                  └──────────────────────────────┘

SECTION 2: NC MARITIME HISTORY AND HERITAGE

North Carolina's Maritime History

North Carolina has one of the longest and richest maritime histories in the United States. Native Americans used the waterways for daily transportation, trade, and settlement hundreds of years before Europeans arrived. In 1585, the English first tried to establish a colony on Roanoke Island. Since then hundreds of thousands of ships have sailed and steamed along North Carolina's coasts, estuaries and rivers. North Carolina's maritime history is full of dramatic events ranging from piracy to Naval battles in the Civil War and World War I and II. Generations of North Carolinians have also helped shape this history by creating communities and industries that have connected people to the water for hundreds of years.

For the following question about North Carolina's Maritime History, please select the statement that best reflects your opinion.

10. I am interested in these historical periods of NC maritime history:

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
a. Colonial Period: 1585-1776	○	○	○	○	○
b. Early American: 1776-1860	○	○	○	○	○
c. Civil War: 1861-1865	○	○	○	○	○
d. Late 19th/Early 20th Century: 1865-1914	○	○	○	○	○
e. World War I: 1917-1918	○	○	○	○	○
f. Roaring 20s and Great Depression: 1920-1936	○	○	○	○	○
g. World War II: 1942-1945	○	○	○	○	○
h. Cold War and After: 1945-Present	○	○	○	○	○

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North Carolina's Maritime Heritage

North Carolina's long maritime past is remembered on land and sea by its maritime heritage. Maritime heritage is the way we today interpret and identify our past through physical and non-physical aspects.

For the following question about North Carolina's Maritime Heritage, please select the statement that best reflects your opinion.

11. When I think of NC's Maritime Heritage, I usually think of:

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
a. Beaches	O	O	O	O	O
b. Atlantic Ocean	O	O	O	O	O
c. Pamlico / Albemarle Sounds	O	O	O	O	O
d. Fishing	O	O	O	O	O
e. Coastal towns and villages	O	O	O	O	O
f. Lighthouses	O	O	O	O	O
g. Life Saving Stations	O	O	O	O	O
h. Ships	O	O	O	O	O
i. Shipbuilding	O	O	O	O	O
j. Shipwrecks	O	O	O	O	O
k. Festivals	O	O	O	O	O
l. Tourism	O	O	O	O	O
m. Beach Driving	O	O	O	O	O
n. Food	O	O	O	O	O
o. Other?					

The Graveyard of the Atlantic

Shipwrecks are examples of the physical remains of North Carolina's maritime history and heritage. They can be found all over the state, resting below the waves of NC's rivers, estuaries, and coasts. One area in particular that has become associated with NC shipwrecks is the "**Graveyard of the Atlantic.**"

The Graveyard of the Atlantic is an area of approximately 325 miles of NC coastline and more than 15,000 acres of Atlantic Ocean. Here, two powerful currents (the Gulf Stream and the Labrador Current) meet to create "ocean highways' for ships moving up and down the Atlantic Seaboard. For hundreds of years, thousands of vessels have taken advantage of these currents to travel up and down the state for various purposes, but they also faced threats to their success and existence.

12. Have you heard of the Graveyard of the Atlantic? ○ Yes   ○ No

For the following question about the Graveyard of the Atlantic, please select the statement that best reflects your opinion.

13. When I think of the Graveyard of the Atlantic, I usually think of:

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
a. Ships	○	○	○	○	○
b. Shipwrecks	○	○	○	○	○
c. Map showing shipwrecks	○	○	○	○	○
d. Fishing	○	○	○	○	○
e. Hurricanes	○	○	○	○	○
f. Storms	○	○	○	○	○
g. Outer Banks	○	○	○	○	○
h. Beaches	○	○	○	○	○
i. Lighthouses	○	○	○	○	○
j. Life Saving Stations	○	○	○	○	○
k. Other?					

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Shipwrecks

Potentially, over 2,000 vessels have been lost in the Graveyard of the Atlantic. The remains of some of these ships still exist as shipwrecks, spanning hundreds years of history, architecture, technology, industry and maritime culture. While the locations of many of these shipwrecks are unknown, the known shipwrecks can be associated with historic events, historic figures, and daily activities that helped shape North Carolina and the United States to varying degrees.

14. Can you name a shipwreck in NC off the top of your head?   O Yes   O No

   a. If yes, which one(s)

15. Can you name a shipwreck in the United States off the top of your head?   O Yes   O No

   a. If yes, which one(s)

16. Have you ever seen a shipwreck or part of shipwreck in a museum?   O Yes   O No

17. Have you ever read a book about a shipwreck or shipwrecks?   O Yes   O No

For the following question, please select the statement that best reflects your opinion.

18. When I think of shipwrecks, I usually think of:

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
a. History	O	O	O	O	O
b. Survivors	O	O	O	O	O
c. Lives lost	O	O	O	O	O
d. Treasure	O	O	O	O	O
e. Adventure	O	O	O	O	O
f. Mystery	O	O	O	O	O
g. Fishing	O	O	O	O	O
h. Sharks	O	O	O	O	O
i. Other types of fish	O	O	O	O	O
j. Coral reefs	O	O	O	O	O
k. SCUBA diving	O	O	O	O	O
l. Tourism	O	O	O	O	O
m. Other?					

19. Do you, or have you, ever SCUBA dived? (Please select one)

If **YES**, please *PROCEED* to *NEXT Question*   O Yes   O No
If **NO**, please *SKIP* to *Question 21*

20. Have you ever dived on a shipwreck in NC?   O Yes   O No

a. If yes, what shipwreck(s) have you dived on? (Now *PROCEED* to *Question 22*)

21. If you could, would you like to dive on a shipwreck?   O Yes   O No

22. If you could dive (or have dived) on a shipwreck, please select what you would find interesting about the experience:

	Very Interesting	Interesting	Neither Interesting Nor Uninteresting	Uninteresting	Very Uninteresting
a. Seeing the shipwreck	O	O	O	O	O
b. Experiencing history	O	O	O	O	O
c. Finding treasure	O	O	O	O	O
d. Seeing wildlife	O	O	O	O	O
e. Sharks	O	O	O	O	O
f. Getting diving experience	O	O	O	O	O
g. Getting a collectible from a shipwreck	O	O	O	O	O
h. Recreation	O	O	O	O	O
i. Adventure	O	O	O	O	O
j. Being with friends and other divers	O	O	O	O	O

Educational Programs about Shipwrecks

Since most shipwrecks cannot be visited without SCUBA diving, many people will not get the opportunity to visit them directly. However, there are different ways to bring the stories and the histories of shipwrecks to the people:

- Museums display artifacts and parts of shipwrecks.
- Walking trails may incorporate signs, posters, and pamphlets to provide information about shipwrecks.
- "Virtual" Trails use computer, video, and mobile phone technology to take people on virtual dives to shipwrecks
- Workshops and lectures allow people opportunities to learn about the shipwrecks as well as receive training in archaeological documentation of shipwrecks

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23. For the following, please select how interested you would be to learn more about shipwrecks through the particular program:

	Very Interested	Interested	Neither Intersted Nor Uninterested	Uninterested	Very Uninterested
a. Seeing the artifacts in a museum	O	O	O	O	O
b. On a walking trail	O	O	O	O	O
c. On a "virtual" trail	O	O	O	O	O
d. Workshops	O	O	O	O	O
e. Training in maritime archaeology	O	O	O	O	O

24. For the following, please select how interested you would be to learn about different aspects of the shipwreck:

	Very Interested	Interested	Neither Intersted Nor Uninterested	Uninterested	Very Uninterested
a. How the ship sank	O	O	O	O	O
b. Why the ship sank	O	O	O	O	O
c. Where it was built	O	O	O	O	O
d. What it did before it sank	O	O	O	O	O
e. Its crew	O	O	O	O	O
f. Its passengers	O	O	O	O	O
g. Its cargo	O	O	O	O	O
h. What happened to it after it sank	O	O	O	O	O

25. For the following, please select how interested you would be to learn about these types of shipwrecks:

	Very Interested	Interested	Neither Intersted Nor Uninterested	Uninterested	Very Uninterested
a. Fishing ships	O	O	O	O	O
b. Cargo ships	O	O	O	O	O
c. Pirate ships	O	O	O	O	O
d. Military ships	O	O	O	O	O
e. Wooden ships	O	O	O	O	O
f. Iron and Steel ships	O	O	O	O	O
g. Recreational boats	O	O	O	O	O
h. Sailing ships	O	O	O	O	O
i. Steam ships	O	O	O	O	O
j. Gas and diesel boats	O	O	O	O	O
k. Submarines	O	O	O	O	O

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The map below shows the current state of shipwreck protection and public programs in North Carolina:

I. Red Zone: the area marked in **red** represents the following aspects of shipwreck protection:
- Protection for 30 known submerged shipwrecks
- Protection for any shipwrecks that may yet be discovered over an area of 1,015 square miles of ocean bottomlands
- For protected shipwrecks, it is illegal to remove any artifacts on or around a shipwreck (including the ship itself) without proper permission – and doing so may result in possible fines or jail time.

II. USS _Monitor_ (marked by the dot in the red square on the map)
- The USS _Monitor_ is a Civil War shipwreck, resting 18 miles off Cape Hatteras. It is the only shipwreck outside of the red zone that receives explicit protection from illegal salvaging.

III. Three maritime museums (marked with stars on the map)

IV. No organized heritage trails or public programs

NOW SUPPOSE, North Carolina wants to develop a "*Graveyard of the Atlantic Maritime Park*," with three primary goals:

1. To offer more shipwrecks protection from illegal artifact removal, by increasing the geographical preservation zones where state and federal preservation laws would apply, but with the following limitations and regulations:

   - Current fishing practices – whether recreational or commercial – **would not** be affected.
   - Current recreational SCUBA diving activities **would not** be inhibited and recreational divers would have access to dive on shipwrecks.
   - Removal of any kind of artifact from anywhere on or around the shipwreck would be expressly prohibited.

2. To increase the number of programs offered to the public
3. To create a series of different kinds of maritime heritage trails

Here are the options to be considered:

PRESERVATION ZONES *(maps for Yellow and Orange Zones can be found on next page)*	
Red Zone	Status Quo; 30 submerged shipwrecks protected
Yellow Zone	38 more shipwrecks (68 total; 127% increase); 2,192 sq. miles of bottomland
Orange Zone	39 more shipwrecks (107 total; 257% increase); 13,498 sq. miles of bottomland

PUBLIC PROGRAMS	
No Investment	Status Quo; no increase in museum exhibits, and no investment for educational workshops, training in maritime archaeology, or other public programs.
Moderate Investment	Increase museum exhibits and provide educational workshops and training in maritime archaeology
Large Investment	Everything thing in "Moderate Investment" **and** development of a public television series about shipwrecks; creation of boating tours to shipwrecks through partnerships with private boating charters on the Outer Banks.

MARITIME HERITAGE TRAILS	
None	Status Quo; currently there are no types of maritime heritage trails
Walking	Signs, brochures, and pamphlets placed near designated facilities, sidewalks, and roads of the Outer Banks that detailed histories and stories of shipwrecks
Virtual	Using computer, video, and mobile phone technology to take people on virtual dives to shipwrecks
Diving	Developed for SCUBA divers who want to learn more about the shipwrecks while diving

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Yellow Zone

(127% increase in shipwreck protection)
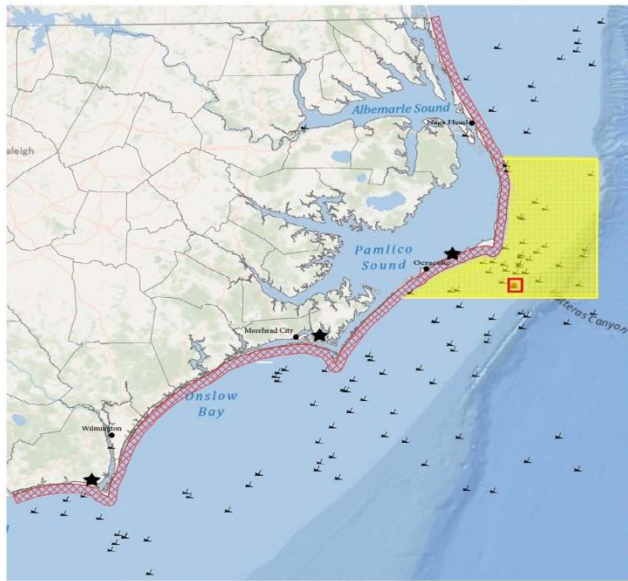
Orange Zone

(257% increase in shipwreck protection)
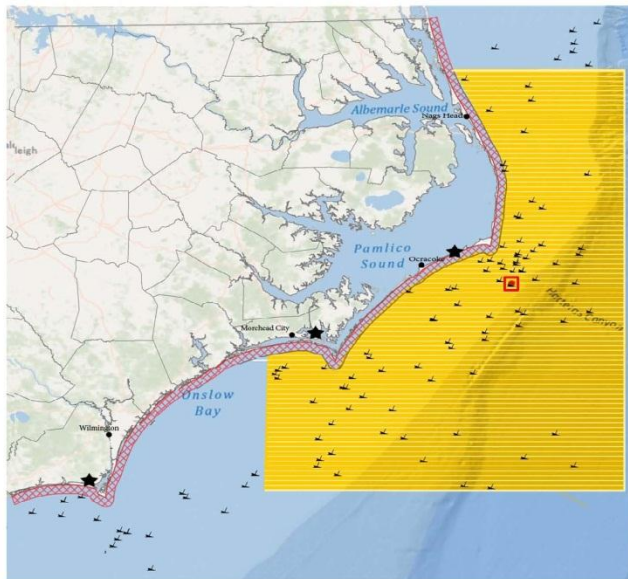
Funding for the Graveyard of the Atlantic Maritime Park

- The Graveyard in the Atlantic Maritime Park would be started through a ***one-time increase in state income tax*** that would ***never be*** instituted again.

- These start-up funds would be used to initiate the desired programs for the park, which would then raise future funds through fees for services and fines from those who removed artifacts from shipwrecks.

- There is some uncertainty over the associated costs of the program. That is why the state is considering different tax prices. Every NC tax-payer would be responsible for paying their share.

On the next two pages, you will find three opportunities to vote on what kind of park and funding level you would prefer.

- In each case, you may choose the status quo *with no tax increase* if you do not like any of the programs presented.

- It is important that you select one option for each voting opportunity as it will help determine what attributes you care about most.

Keep in mind that NC policy makers and administrators will see these results, and that any one-time increase in taxes would limit your ability to buy other goods and services.

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I: Here is the first voting opportunity
(Please chose one of the four options below by putting an "X" in one of the empty boxes)

26.		Program 1		Program 2		Program 3		Status Quo
Preservation Zone		Red Zone		Red Zone		Yellow Zone		Red Zone
Public Programs		No Investment		Moderate Investment		Moderate Investment		No Investment
Walking Trails		Yes		No		Yes		No
Virtual Trails		Yes		No		Yes		No
SCUBA Diving Trails		No		Yes		No		No
One-time Tax		$12		$145		$55		$0
put an "X" in **one** of the boxes to the right		☐		☐		☐		☐

27. How confident are you about this choice from these options? (Please select one)
○ Very Certain   ○ Somewhat Certain   ○ Somewhat Uncertain   ○ Very Uncertain   ○ Don't Know

II: Now consider another voting opportunity with different choices
(Please choose one of the four options below by putting an "X" in one of the empty boxes)

28.		Program 4		Program 5		Program 6		Status Quo
Preservation Zone		Yellow Zone		Yellow Zone		Red Zone		Red Zone
Public Programs		Large Investment		No Investment		Large Investment		No Investment
Walking Trails		Yes		No		No		No
Virtual Trails		No		Yes		Yes		No
SCUBA Diving Trails		Yes		No		No		No
One-time Tax		$12		$55		$145		$0
put an "X" in **one** of the boxes to the right		☐		☐		☐		☐

29. How confident are you about this choice from these options? (Please select one)
○ Very Certain   ○ Somewhat Certain   ○ Somewhat Uncertain   ○ Very Uncertain   ○ Don't Know

III: Finally, consider this third opportunity with different choices
(Please chose one of the four options below by putting an "X" in one of the empty boxes)

30.		Program 7		Program 8		Program 9		Status Quo
Preservation Zone		Orange Zone		Orange Zone		Yellow Zone		Red Zone
Public Programs		Large Investment		No Investment		No Investment		No Investment
Walking Trails		No		Yes		No		No
Virtual Trails		No		Yes		No		No
SCUBA Diving Trails		Yes		No		Yes		No
One-time Tax		$145		$12		$55		$0
*put an "X" in **one** of the boxes to the right*		☐		☐		☐		☐

31. How confident are you about this choice from these options? (Please select one)
  ⭕ Very Certain   ⭕ Somewhat Certain   ⭕ Somewhat Uncertain   ⭕ Very Uncertain   ⭕ Don't Know

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For the following question, please select the statement that best refelects your opinion.

32. When I hear the phrase "preserve a shipwreck," I think:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a. Nothing, I don't know what that phrase means	O	O	O	O	O
b. Raise the shipwreck entirely and put it in a museum	O	O	O	O	O
c. Bring up all artifacts you can and sell all of them to fund future preservation	O	O	O	O	O
d. Bring up all artifacts you can, keep the important ones, and sell the unimportant ones to fund future preservation	O	O	O	O	O
e. Bring up all artifacts you can, and put them all in a museum	O	O	O	O	O
f. Bring up some of the artifacts, and sell them	O	O	O	O	O
g. Bring up some of the artifacts, and put them in a museum	O	O	O	O	O
h. Bring up none of the artifacts, but document them on the shipwreck with photographs, mapping, video, and publications	O	O	O	O	O
i. Cover the shipwreck with protective material	O	O	O	O	O
j. Mark the shipwreck with buoys	O	O	O	O	O
k. Do not allow anyone to fish on it	O	O	O	O	O
l. Do not allow anyone to dive on it	O	O	O	O	O
m. Leave it completely alone	O	O	O	O	O

33. What quality of job do you think the following agency would do, it it were in charge of preserving shipwrecks? (Please select one)

	Best	Good	Fair	Bad	Worst
a. Federal Government	O	O	O	O	O
Why?					
b. State of North Carolina	O	O	O	O	O
Why?					
c. Counties along the Outer Banks	O	O	O	O	O
Why?					
d. Towns or townships on the Outer Banks	O	O	O	O	O
Why?					
e. Universities	O	O	O	O	O
Why?					
f. Private Dive Stores	O	O	O	O	O
Why?					

34. Is preserving a shipwreck as important as protecting marine wildlife?   O Yes   O No

35. Does preserving a shipwreck help or hinder fishing?   O Help   O Hinder

36. Do you think a shipwreck should be preserved, if it is: (Please select Yes or No for each statement)

	Yes	No
a. More than 200 years old	O	O
b. More than 100 years old	O	O
c. More than 50 years old	O	O
d. Associated with a famous event or battle	O	O
e. Associated with a famous person or group of people	O	O
f. Represents an identity of a city, village, or community	O	O
g. Represents a maritime industry	O	O
h. Represents an unique technology	O	O
i. Has treasure on it	O	O

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For the following, please select the reasons that best reflect your opinions.

37. What do you think are reasons for a shipwreck to fall apart?

	Major Reason	A Reason	Don't Know	Little Reason	Not a Reason
a. Damage during the wrecking event	O	O	O	O	O
b. What material the ship is made of	O	O	O	O	O
c. Salt water	O	O	O	O	O
d. Time	O	O	O	O	O
e. Ocean currents	O	O	O	O	O
f. Seasonal storms	O	O	O	O	O
g. Hurricanes	O	O	O	O	O
h. Marine animal activity	O	O	O	O	O
i. Fishing trawling nets	O	O	O	O	O
j. SCUBA divers	O	O	O	O	O
k. Salvage companies	O	O	O	O	O
l. Archaeologists	O	O	O	O	O
m. Removing artifacts	O	O	O	O	O
n. Removing parts of the shipwreck itself	O	O	O	O	O

38. Would you ever consider prohibiting SCUBA divers from diving on a shipwreck? (Please select one)

O Yes   O No   If **YES**, please *PROCEED* to *NEXT Question*
If **NO**, please *SKIP* to *Question 40*

39. Please select the following criteria you would use to determine which shipwrecks divers would not be allowed to visit?

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
a. The shipwreck is fragile	O	O	O	O	O
b. The shipwreck is unsafe to dive on	O	O	O	O	O
c. The shipwreck requires special dive training	O	O	O	O	O
d. The shipwreck is a grave site	O	O	O	O	O
e. The shipwreck belongs to a foreign nation	O	O	O	O	O
f. Represents a community, village, or town	O	O	O	O	O
g. Represents a maritime industry	O	O	O	O	O
h. Represents unique technology	O	O	O	O	O
i. Has treasure on it	O	O	O	O	O

40. How do you think shipwrecks contribute to the following: (Please select one)

	A Lot	Some	Don't Know	A Little	Nothing
a. Understanding our history	O	O	O	O	O
b. Creating a sense of identity for North Carolina	O	O	O	O	O
c. Creating Tourism for North Carolina	O	O	O	O	O
d. Creating areas to fish	O	O	O	O	O
e. Creating artificial reefs for marine animals	O	O	O	O	O

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SECTION 6 : DEMOGRAPHICS

The following questions ask for some information about your household. Remember, this is an anonymous survey, and this information is for statistical purposes only.

(Please select one for each question)

41. Gender:

O Male
O Female

42. Marital Status:

O Married
O Single
O Other: [_____]

43. Race / Ethnicity:

O Native American or Native Alaskan

O Asian

O Black or African American

O White

O Native Hawaiian or Pacific Islander

O Hispanic

O Person of two or more races

O Other: [_____]

44. What year were you born?

[ ][ ][ ][ ]

45. Do you have any dependents?

O Yes　**If yes, how many?**　[ ][ ]
O No

46. Highest level of education:

O Elementary school

O High school

O College

O Post-graduate

47. Annual household income:
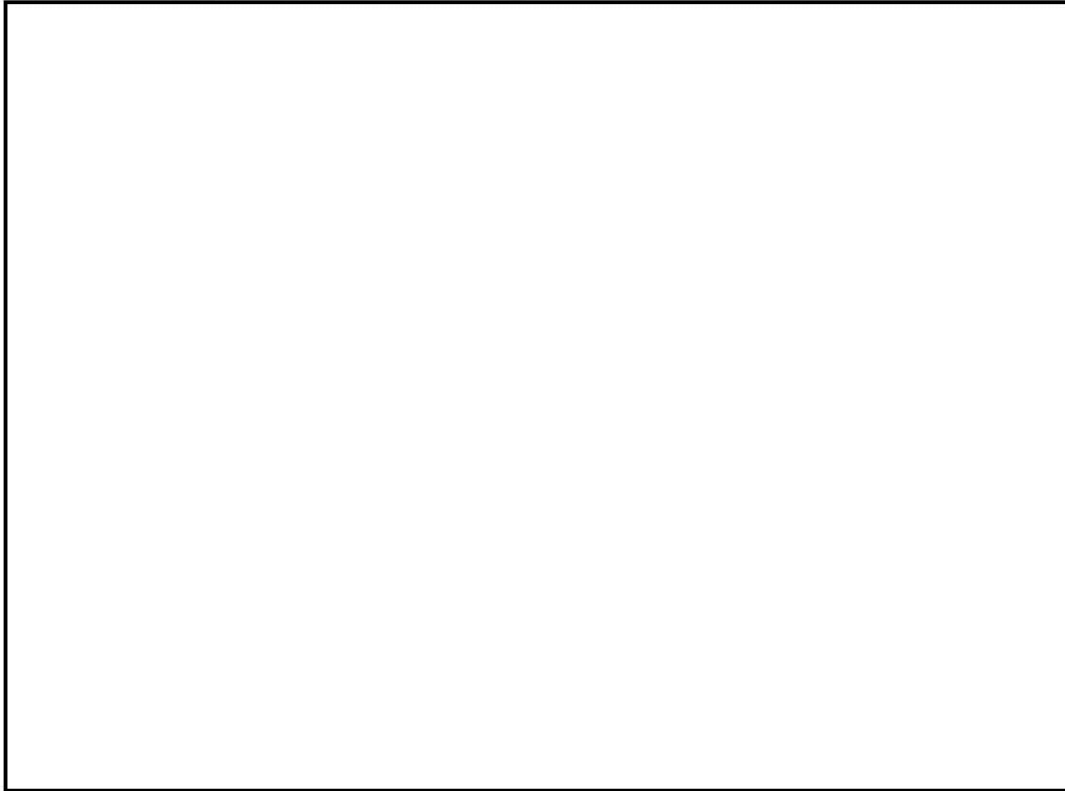
O Less than $20,000

O $20,001 - $40,000

O $40,001 - $80,000

O $80,001 - $120,000

O $120,001 or more

48. What is your zip code?

[ ][ ][ ][ ][ ]

Any additional comments you may have about this survey, or shipwrecks in the Graveyard of the Atlantic would be appreciated here.

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Your contribution of time to this PhD. study is greatly appreciated.Please return your completed questionnaire in the postage paid return envelope to the following address as soon as possible.

Thank you.

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