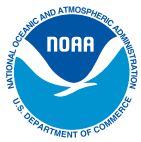
"Graveyard of the Atlantic"

An Overview of North Carolina's Maritime Cultural Landscape

September 2014

Joseph Hoyt, James P. Delgado, Bradley Barr, Bruce Terrell and Valerie Grussing



Office of National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Maritime Heritage Program Series: Number 4

NOAA's Office of National Marine Sanctuaries Maritime Heritage Program works cooperatively and in collaboration with partners in and outside of NOAA. We work to better understand, assess and protect America's maritime heritage and to share what we learn with the public, as well as other scholars and resource managers.

This is the fourth volume in a series of technical reports that document the work of the maritime heritage program both within and outside of national marine sanctuaries. These reports will examine the maritime cultural landscape of America in all of its aspects, from overviews, historical studies, excavation and survey reports to genealogical studies.

No. 1: The Search for *Planter*: The Ship That Escaped Charleston and Carried Robert Smalls to Destiny
No. 2: Archaeological Excavation of the Forepeak of the Civil War Blockade Runner *Mary Celestia*, Southampton, Bermuda
No. 3: "The Redwood Coast": An Overview of Northern California's Maritime Cultural Landscape
No. 4: "Graveyard of the Atlantic": An Overview of North Carolina's Maritime Cultural Landscape
No. 5: Survey and Assessment of the U.S. Coast Survey Steamship *Robert J. Walker*, Atlantic City, New Jersey

These reports will be available online as downloadable PDFs, and in some cases, will also be printed and bound.

Additional titles will become available as work on the series progresses.

Cover Images (Clockwise from Uncle Sam): Thomas Nash cartoon (Harper's Weekly); WWII mid-Atlantic convoy (National Archives); Cape Fear chart (NOAA Central Library); Life-saving station (Library of Congress); Algonquian peoples in fishing canoe (The Mariners' Museum); Spanish Galleon (National Gallery of Art)

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Monitor National Marine Sanctuary

ONMS Maritime Heritage Program

NOAA Office of National Marine Sanctuaries
2014
1305 East-West Highway
Silver Spring, Maryland 20910

Abstract

North Carolina's shoreline from Currituck Sound to Cape Fear is a dramatic marine setting influenced by dynamic environmental change, with barrier islands that stretch along hundreds of miles of coastline, from 20 to 40 miles offshore, that have been inhabited for thousands of years. Both natural and human actions have impacted this region of America and its marine and shoreside resources. Interactions and overlapping activities have left physical and cultural traces in the landscape. These traces include place names, ocean highways and inlets no longer traveled, coastal settlements, industrial structures, and shipwrecks, all of which form a maritime cultural landscape that is unique and nationally important. This coast is a perfect illustration of how the offshore ocean connects with the shore and beyond in terms of humanity's engagement with the marine environment. This is a region that helped build the economy and communities of not only North Carolina, but also of the nation. It also became a place settled by people who came to establish lives for themselves and their families on these rugged, often storm-tossed shores. A number of them remain part of the cultural landscape to this day.

This report is an initial review of the complex, dynamic and fascinating maritime cultural landscape of the "Graveyard of the Atlantic." This document is an overview and an introduction to the relationship between these cultural resources, as well as human interaction with the marine environment in coastal North Carolina. The concept of the maritime cultural landscape as a tool for characterizing this coast is the beginning of a process of engagement and partnership with the present coastal community to define, better understand and share its stories, while marketing the area for sustainable heritage-based tourism and inspiring wider awareness and support for protecting and promoting the unique cultural heritage of the region.

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Left column, top to bottom: Harpers Weekly; northcarolinashipwrecks.blogspot.com; National Park Service; National Archives; National Park Service; Harper's Weekly; North Carolina Collection, the University of North Carolina at Chapel Hill Library. Right column: ©National Geographic Society

Figure 1. The "Graveyard of the Atlantic": Some of the hundreds of wrecks, coastal communities, inlets and the Outer Banks are dramatically depicted in these images (left column). The map (right column) actively encourages tourism, as well as an appreciation of one dramatic aspect of the region.

Introduction

This document is one of a new series of overviews prepared by NOAA's Office of National Marine Sanctuaries (ONMS) to examine the maritime cultural landscapes near and in existing national marine sanctuaries. ONMS protects USS *Monitor*, one of the hundreds of wrecks in the "Graveyard of the Atlantic." *Monitor* is an element in this region's broader maritime cultural landscape. This document not only places USS *Monitor*'s wreck in a geographical context in this landscape, but it also helps place *Monitor* in the wider context of the Outer Banks as an environment in which human beings and their cultures reflect their relationship to this special ocean place. As an overview, this document is a work in progress, as dynamic and changing as the North Carolina coast itself.

A Dramatic Marine Setting

North Carolina's shoreline from Currituck Sound to Cape Fear is a dramatic marine setting noted in the 19th century as "being worse and more dreaded than any other part of the Atlantic Coast," as mariners contended with the heavy seas and high winds that characterized the area off Cape Hatteras where the Gulf Stream and the Labrador Current collide (Barfield 1995:9). The resulting shipwrecks, in the hundreds, gave rise to the designation of this area as the "Graveyard of the Atlantic."

This is an area of dynamic environmental change, with barrier islands that stretch along hundreds of miles of coastline, from 20 to 40 miles offshore, making them "unique in the world's landforms" due to their distance and distinctive shape (Frankenberg 2012). Molded by the ocean, and having formed between massive sandy shoals, the coastal banks are long, crescent shaped beaches that stretch between four major capes (Frankenberg 2012:3). Flood-prone and unstable, the Outer Banks have nonetheless been inhabited for thousands of years. Both natural and human actions have impacted this region of America and its marine and shoreside resources. The geography of the Outer Banks is always in motion – and people respond to those changes – as "beaches erode and accrete….sandbars form and disappear; navigation channels shift; islands change shape as terminal sand spits elongate; dunes form, disappear and migrate to places they have never been before" (Frankenberg 2012:4-6). Sea level rise, the result of climate change over the last tens of thousands of years, and also evident in modern times, is another cause of changes in the Outer Banks.

A Place of Constant Change

These constant changes to the Outer Banks as the result of sea level change, storms, erosion and deposition of sand result in opening and closing of inlets that penetrate the islands and reach into the sounds. These sounds, which connect the islands to the mainland, have also shaped the activities and culture of the people who came here to live and work. These interactions and overlapping activities have left physical as well as cultural traces in the landscape. These traces range from place names, ocean highways and inlets no longer traveled, coastal settlements, industrial structures, and shipwrecks to name a few, all of which form a maritime cultural landscape which, like the Outer Banks themselves, is unique and nationally important. This coast is a perfect illustration of how the offshore ocean connects with the shore and beyond in terms of humanity's engagement with the marine environment. This is a region that helped build not only North Carolina, but also the nation's economy and communities. It also became a place settled by people who came to establish lives on these rugged, often storm-tossed shores for themselves and their families. A number of them remain a part of the cultural landscape to this day.

This report is an initial review of the complex, dynamic and fascinating maritime cultural landscape of the "Graveyard of the Atlantic." The shipwrecks that help comprise the maritime cultural landscape represent a major, but not sole, part of a landscape defined by barrier islands, inlets, tenacious human settlements, fishing grounds, oyster beds, lighthouses, life-saving stations, forts, battlefields, sea lanes, coastal highways, ferry routes…. and more. This document is an introduction to the relationship between these resources and human interaction with the marine environment in coastal North Carolina. The concept of the maritime cultural landscape as a tool for characterizing this coast is the beginning of a process of engagement and partnership with the present coastal community to define, better understand and share its stories, while marketing the area for sustainable heritage-based tourism and inspiring wider awareness and support for protecting and promoting the unique cultural heritage of the region.

Figure 2. Changing Shorelines at Cape Fear: This 1857 U.S. Coast Survey chart of the entrances to the Cape Fear River depicts in color how the area's shoals had changed over time.

In engraving this chart the Superintendent expressly and distinctly requires that the methods of representing the two surveys shall be distinctly and clearly defined — thus for survey of 57 the dots shall be large and seperate ····· 6ft ····· 12ft ····· 18ft — Curve for Survey of 54 the dashes shall be longer and wider intervals between them ---- for three line, -·-·-·- for 6ft -·-·-·-·- for 12ft -···-···-··· for 18ft

R P H
June 1st

U.S. COAST SURVEY

A.D. BACHE Superintendent

COMPARATIVE CHART

OF

CAPE FEAR RIVER ENTRANCES

NORTH CAROLINA

From surveys made by the Hydrographic Party

under the command of J.N. MAFFITT Lieut. Comdg. U.S.N. Asst. in 1851-6.

Scale 2$\frac{6}{10}$0

1857

Note. The soundings are expressed in feet to 12 feet, or within the dotted and broken lines, beyond them in fathoms, and show the depth at mean low water — the plane of reference. The characteristic soundings only, are given on the Map, they are selected from the numerous soundings taken in the surveys, so as to represent the figure of the bottom.

Figures inclined show depth in ..... 18$\frac{5}{4}$

Figures vertical show depth in ..... 18$\frac{5}{5}$

Curve · 6 feet
Curve · 12 ·
Curve · 18 · } Survey of ..... 18$\frac{5}{5}$

Curve of 6 feet
Curve · 12 ·
Curve · 18 · } Survey of ..... 18$\frac{5}{4}$

Verified
W. L. Smith Dept. Topl. Engrs.
Asst. in charge of Office

Var 0°53' E

Federal Point

NEW INLET

Federal Point Lt. ★

Zeeks I.

's Island

Statute Miles

Nautical Miles

1857

Library of Congress

Figure 3. Adapting to the Environment: The shallows of the sounds inside the Outer Banks were settled with piers and piling-elevated buildings. Today, traces of pilings marking these sites still exist in tidal areas.

A Story of Human Adaptation

As this report will demonstrate, as have other reports and books, the "Graveyard of the Atlantic" story is one of constant adaptation by humans to this changing maritime landscape. For centuries, one could argue, this adaptation was sustainable in terms of a smaller human population. The Outer Banks were sparsely settled and, therefore, flexible to adapt to extreme weather events that swept across them and the coast. Communities and the ecosystem were more resilient to such occurrences as flooding, changing shorelines, and building up coastal obstacles while opening new routes for maritime access. As the population grew, resources were strained. Maritime forests were cut to supply the shipbuilding market with timber, migratory water fowl were hunted not only for sustenance but for market, and fishing and oystering underwent the same shift from supplying family tables to restaurants near and far. Natural and cultural responses resulted: stocks declined; a hurricane in 1933 destroyed the oyster beds; competition, at times violent and clandestine, like oyster piracy, grew in scope; and ultimately government regulation of fisheries and migratory birds resulted.

Ever resourceful and resilient, humans through their nature seek new opportunities while persisting. Embracing conservation, a conscious effort to market the natural and cultural uniqueness of the region ensued. Even in the 19th century, a brand had begun to emerge, defined by articles and advertisements. Romantic and comedic depictions, especially of the Outer Banks, joined with lauds to the beach and its more benign weather. This thread was picked up, and by the 1950s, books like Ben Dixon MacNeill's "The Hatteras-man," and David Stick's "The Outer Banks" encouraged visitors to explore this close-by and yet so different area.

Transformative Effects of Post War Development

The primary shift from sustainable, limited, human scale development to a modern, expansive scale of development that covers vast tracts of the barrier islands - stretching the concept of sustainability - resulted from postwar development. The population, both permanent and seasonal, boomed as the result of the construction of bridges across the sounds and between islands. Establishment of a coastal highway, and a resultant real estate boom transformed the face of the landscape beginning in the early 1960s.

The results are dramatic. In Nags Head, the town website advertising its attractions in 2014 notes that "the year round population of 2,800 soars to a summer population of 40,000. What used to be a one-hotel town now includes a brand new hospital, YMCA, multiple worship centers and a variety of shops, restaurants and accommodations from the charming to

the chain" (Destination Commerce Corporation 2014). Formerly open sections of coast are densely occupied, more than half of them held by absentee owners.

In stride with increased infrastructure, when seasonal storms and hurricanes strike, the damage and the resultant costs are also incrementally higher. Wind insurance and flood insurance are facts of life for many, as is damage ranging all the way to total loss. Though usually considered permanent, a highway can be over-washed and undercut, severing a community's lifeline. Lost lives, lost revenues, and the costs to rebuild have been magnified as the density of structures and population continue to grow.

New Concerns over Sea Level Rise

Some predictive models of sea level rise suggest as much as 39 inches above today's levels by the end of the century. Amid arguments over accuracy, concern over what might, or will happen is underscored by losses and damage during no'reasters and hurricanes. In the Raleigh News & Observer, Bruce Siceloff on March 15, 2014 interviewed residents, scientists and politicians over the issues of shoreline change, erosion and sea level rise. He notes that "a rise in sea level of 39 inches (1 meter) would radically reshape North Carolina's broad, low-lying coast – submerging most of the Outer Banks, moving shorelines miles inland and threatening an estimated 2,000 square miles with flooding and increased damage from ocean storms" (Siceloff 2014).

Some scientists and politicians say the rise may be as little as eight inches. Even so, storms, a fact of life for the region, bring surges and damage. To prepare for sea level rise and deal with erosion, local initiatives in some communities like Nags Head have included beach replenishment, while property owners are constructing properties higher on elevated stilts, and the "modest philosophy of 'retreat' from the advancing sea. This doesn't mean packing up and heading for the hills. It's about yielding to the relentless tides – as if there were a real alternative – that, over the past century, have claimed three rows of beach houses in much of Dare County" (Siceloff 2014).

What exactly the future will bring remains both unknown and disputed. What is clear is that the maritime cultural landscape of the North Carolina coast continues to be dynamic, inspiring human responses that are measured in where and what we build and create to contend with the marine environment. Other actions may in time be necessitated, including critical questions for the cultural sector in terms of what exactly to do with important cultural icons and treasures. Do we leave them to the forces of nature, do we continue to take steps to protect them in projects such as the moving of the Cape Hatteras lighthouse, or in time we will be forced to consider more drastic moves for a select few things not unlike the rescue of the soon to be drowned Nile sites about to disappear behind the Aswan Dam?

U.S. Coast Guard

Figure 4. Hurricane Isabel's Impact to Hatteras Island: This image was taken in 2003.

Cultural Landscapes

Cultural landscapes capture the living past that surrounds us and give us a better understanding of the links between the natural history and human history of a place. They illustrate how we have shaped the world, and how the world's natural environments have shaped us. Perhaps most importantly, cultural landscapes can also provide us with valuable insights into the future, such as the relationship between the health of natural resources and human wellbeing and prosperity… At their most basic, cultural landscapes are specific places where combinations of human activity and natural forces have left a discernible mark on the world… Cultural landscapes are reservoirs of human experience that preserve undeniable examples of human triumph and loss. Retaining the intangible as well as the tangible parts of human culture, cultural landscapes can do what the natural sciences alone cannot. They convey the human meaning of places.

—Jensen et al. (2011)

North Carolina's Maritime Cultural Landscapes

NOAA Central Library

Figure 5. Haul-Seine Fishing and the Role of African Americans: The fisheries on the coast, especially in the sounds bordering the banks, employed large segments of the region's African-American population. This scene shows haul-seine fishing at Sutton Beach on Albermarie Sound.

What is a Maritime Cultural Landscape?

Maritime cultural landscapes build on the older and more widely applied concept of the cultural landscape in terrestrial environments. As first suggested by Westerdahl (1992: p.5), maritime cultural landscapes were defined as "human utilization of maritime space by boat, settlement, fishing, hunting, shipping and its attendant subcultures." It "comprises the whole network of sailing routes, old as well as new, with ports and harbors along the coast, and its related constructions and remains of human activity, underwater as well as terrestrial" (Westerdahl 1992: p.6). The concept of the maritime cultural landscape includes not only this cultural history of the physical maritime environment, but also the "cognitive landscape," defined as "the mapping and imprinting of the functional aspects of the surroundings in the human mind. Man in landscape, landscape in man" (Lofgren 1981 cf West-

Figure 6. Heating Tar: Men and boys gather around a fire as tar is melted to caulk a boat on the Outer Banks, ca. 1938.

Library of Congress

erdahl 1992: p.5). It embraces both the changes observed over time with regard to the physical environment and human use, but also the perception of these changes by the people who have lived, and are living, in that place throughout history. How this maritime and ecological landscape has shaped and been shaped by the human activities that have occurred there throughout its history provides the foundation for understanding these cultural landscapes and assessing their significance.

Since Westerdahl's introduction of the topic, many archaeologists, geographers, and historians have adopted maritime cultural landscapes as a theoretical and methodological framework on a range of sites and areas in the United States, Caribbean, Europe and Australia (Ford 2011).

Areas of land and water become valued places when people imbue them with meaning, and in turn these places influence self-identity and affect the way we perceive and behave toward them. Maritime cultural landscapes acknowledge not only our collective contributions to sustaining and improving these places we have given meaning, but can lead to better understanding of how people have contributed to what they have become, what has been learned along the way, and how to use that knowledge to continue to make these places special for the generations to come.

Basic Elements of the Outer Banks

What, then, are the basic elements of the maritime cultural landscape of the Outer Banks and the "Graveyard of the Atlantic"?

It is the location of prominent and long-standing landmarks for navigators involved in international and national maritime traffic connecting the Gulf Stream to the interior waterways of North Carolina. Cape Hatteras and Cape Lookout are among the most famous maritime landmarks in America, whether one considers the geographic places or the iconic lighthouses, and numerous inlets penetrate the barrier islands. In modern times (2014), five inlets penetrate the Outer Banks between Cape Lookout and Virginia, but as many as 24 inlets have existed within the same stretch of coast since Colonial times (Frankenberg 2012). The movement of inlets demanded constant attention from Outer Banks' residents and navigators who threaded their way

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Figure 7. The "Seat of War" on the Coast: North Carolina's coast during the Civil War.

from coastal settlements to open ocean. The water surrounding the Outer Banks served as routes for European exploration, settlement, trade, fishing and warfare hundreds of years ago through today. In many instances the struggles of life in this region are recorded in the remains of ships, and in some cases entire towns, lost due to the shifting sands and opening and closing of inlets.

It is a drowned coastal environment of 18,000 years ago when the ocean off this coast was 300 feet lower (Frankenberg 2012). Ancient mammals lived on these now submerged lands that humans likely migrated through. Early human groups may have settled here as the ancestors of the later Algonquian people. The language base of Algonquian speakers found in the Carolinas links them to other peoples from the Sub-Arctic ranging from the Rockies to the eastern seaboard, all evidence of a migration of the last 2,000 to 3,000 years. Preceding them were earlier people who spoke an even earlier language. These first peoples would have had access to and harvested the resources of an abundant coastal landscape that included paleo-rivers whose beds lie buried beneath the sounds and islands of modern times. That landscape was inundated by sea level rise with the end of the last great Ice Age. Moving inland, clinging to constantly moving barrier islands, these peoples' ongoing settlement would reflect persistence and adaptation to a changing climate.

It is an area strongly shaped and influenced by the offshore marine environment and the edge of the continental shelf, where the Gulf Stream created a fishery and a highway for marine mammals such as whales. It is an environment famed for its storms, from nor'easters to hurricanes, which have lashed the banks, opened and closed inlets, and doomed hundreds of vessels.

> "This hill is, and was in 1497, clearly visible from the Great River. It is not a very high hill, twenty-seven feet at its eastern end near the ocean and sixty-five feet at the High Point of the Hills five miles or so to the west. When the air is clean of mist it is possible to see for thirty miles in any direction from the crest of the ridge, to Ocracoke Inlet on the west, well out above the Great River to the south and east, and across the Sounds to the mainland on the North.
>
> ***—Ben Dixon MacNeill, The Hatterasman (1958), p. 10***

It is an area whose rich pelagic and shoreside marine resources provided sustenance for the Algonquian peoples who lived here for thousands of years. The heritage of the first peoples is today represented not only in the sites of former settlements but also by the traditions and heritage of those people, some of whom have persisted, although to an extent not fully known to the larger public and scholars. Recent research by federally-recognized tribes and the State of North Carolina documents extensive loss of populations to disease, war, resettlement and slavery.

It is an area whose isolation, environment and access to the riches of the sea brought the first non-native settlers to coastal North America. English settlers penetrated the barrier islands to establish the early 16th century colony at Roanoke to vie against Spanish interests and also settled at Cape Fear within decades. Colonial people later settled the banks to fish, hunt whales, and wrest a living from the sea, which at times included the flotsam and jetsam of ships damaged or sunk by the fierce winds and stormy seas that lash the islands. They even harvested the wind with hundreds of windmills that lined the banks a century ago. These people, whose descendants remain important members of the community, have persisted for centuries.

It is an area whose fisheries inspired the growth of a commercial and recreational fishing industry from the 19th century to the current day. Offshore North Carolina, as well as the sounds, has been a critical area of harvestable resources for millennia, providing food and jobs to the region. Cultural practices of shore whaling began in the 1600s. The fishing industry, perhaps more than any other, has shaped the cultural identity of the region. This industry has also left physical remains in the form of shipwrecks as well as terrestrial structures such as fish processing facilities that pepper the landscape as reminders of a rich maritime tradition. Other aspects of commercial extraction and change include aquaculture, beach renourishment, and offshore and onshore wind energy development.

It is a marine environment of constant change in which the inlets that penetrate the banks have served as the impetus for establishing coastal communities. At times part of, but also different from, the broader ocean highway's navigation, most of the shipping that occurred in these inlets and inland waters was regional and


NOAA Central Library; Image by H. W. Elliott

Figure 8. Shad Fishing on Albemarle Sound: Laying out the seine.

local, and confined mostly to small craft. What sets this type of activity apart from basic navigation is how it reflects human adaptation to environmental change.

Prominent inlets such as Ocracoke have become centers for settlement, trade and intense maritime activity for centuries. Other inlets, such as Hatteras, Oregon, or Currituck have also played major roles as they have changed and shifted, impacting communities like Portsmouth, Chicamacomico, Hatteras and Nags Head, to name a few. As inlets and accessibility changed, entire communities would be built up and later abandoned in accordance with the intricate relationship between people, industry and environment. In both existing communities and at abandoned sites, landscape elements may remain, tangibly or archaeologically, as these inlet communities were involved with maritime infrastructure development, including piers, wharves, docks, channels, and dredging among them.

It is an environment whose dynamic landscape is responsible for countless shipwrecks. Each shipwreck may be, and most likely is, indicative of the various human aspects of interaction with the Outer Banks maritime environment, such as coastal and local navigation, warfare, fishing and oystering. In addition, various human uses of the wrecks, including those that stranded but were successfully pulled free and did not become total losses, are part of the landscape. Wrecking events inspired the development of additional resource types that comprise part of the maritime cultural landscape – lighthouses, life-saving stations, historic maps and charts, especially those of the United States Coast Survey. Charts were completed not only because of wrecks but also to avoid wrecks and to encourage the safe transit of goods and commerce.

The coast's maritime environment inspired the construction of lighthouses at Currituck Beach, Bodie Island, Cape Hatteras, Ocracoke, Cape Lookout and Bald Head, as well as the placement of buoys and other markers, including the famous *Diamond Shoals* and *Frying Pan Shoals* lightships. The landscape includes not only existing light stations, but the sites of previous ones, including the former location of Cape Hatteras Light, now too close to the changing shoreline. It includes the anchorages of the lightships, the wreck of the *Diamond Shoals* Lightship, and the later "Texas Tower" facilities built to replace the lightships and the modern lighted buoys, which in turn replaced the Texas Towers.

It is also an environment that inspired the placement of seventeen life-saving stations to assist those in peril on the sea. This included a station manned solely by African Americans at Pea Island from 1875 through WWII. Many of these stations participated in famous and at times near-legendary rescues. Operated by local residents, they exemplified the best of traditions of the sea, the United States Life-Saving Service and eventually the United States Coast Guard.

It is a coastal and ocean landscape that has been shaped and affected by combat and war. Piracy, the final, fatal fight of the notorious Edward Teach or Blackbeard, the American Revolution, the War of 1812, the Civil War, and both World Wars all impacted the area. Coastal forts, battle sites on land and at sea, and numerous shipwrecks attest to these wars, including the vast number of tankers, freighters and U-boats from the WWII Battle of the Atlantic, as well as the graves of lost seamen ashore, such as the graves of the men from HMS *Bedfordshire*, and crew of *San Delfino* at Ocracoke and Cape Hatteras. Fortifications, both temporary and those intended to be permanent dotted this landscape's shores, and offshore, vast minefields delineated the fixed defenses of the Battle of the Atlantic.

It is a place whose history, culture and rugged beauty, as well as the need to provide regular links, inspired maritime as well as non-marine access by land to reach its shores. Among the sites that reflect this are not only modern roads and bridges, former and current ferry docks, but also places like the old haul-over site, or the sound-to-sea portage on Hatteras Island between Black Hammock and Kite Point. Limited wagon roads through the dunes and along the shores replaced intermittent access by horse and foot, and in time gave way to State Route 12, the "Albemarle Highway," which has changed the formerly isolated nature of the area and altered the coastal environment and its communities, giving rise to extensive modern shoreside development. This advance led to increased tourism and settlement that included the nation's first national seashore, and commercial expansion, which marketed the resources and beauty of the maritime environment and dramatically changed the coastal landscape.

It is an area that has influenced specialized vessel types and advanced boatbuilding throughout recent history. The unique conditions of the sounds and inlet in the region heavily influenced the design of vernacular watercraft for numerous industries, including shipping, lightering, passenger, marsh hunting, and fishing. To this day "Hatteras" style fishing vessels are known internationally for their design, and coastal North Carolina still supports some of the leading industry brands in small

> Coastal geologists do not agree when barrier islands similar to the present Outer Banks may have formed. Some think they formed when the rate of sea level rise slowed…
>
> ***— Dirk Frankenberg, The Nature of the Outer Banks (1995), p. 7***

fishing and sport craft.

A significant section of the Carolina coast, barrier islands are recognized for ecological uniqueness and maritime history. Efforts to conserve the resources led to the 1938 establishment of a migratory waterfowl preserve, now Pea Island National Wildlife Refuge. It is also a carefully constructed and managed landscape meant to recreate a now-vanished, unspoiled maritime "wilderness" (Grussing 2008 and Lee 2009). That work commenced during the Great Depression with an extensive program conducted by the Civilian Conservation Corps (CCC). The manufactured maritime cultural landscape of that time and activities includes former CCC camp-sites, such as that outside Buxton. A strong interest in its preservation led to restoration of the landscape, such as the National Park Service's work to create "man-made protective sand dunes, covered with hand-planted grass, backed up by nursery-grown seedling, all installed by the government with millions of dollars of federal funds" (Stick 1964: 24). As post-World War II hopes of an oil boom collapsed, growing local and federal interest in increased tourism spawned the nation's first national seashore, Cape Hatteras National Seashore, in the 1950s.

The later addition of Cape Lookout National Seashore and the nation's first national marine sanctuary established to protect the wreck of USS *Monitor*, as well as wildlife refuges, bird sanctuaries, marine protected areas, including state parks and preserves, and private refuges, retreats and resorts all speak to the importance of this area. The manufactured dunes, the access ramps built through them by the National Park Service for tourist "beach buggies" and later off-road driving and beach fishing enthusiasts, as well as the visitor centers and carefully preserved historic sites within the NPS areas are all part of the ongoing evolution of the Banks' maritime cultural landscape, as is the boom in oceanside beach resort and private home development that followed the opening of NC 12, the coastal highway, and the 1963 Bonner Bridge's construction to link Hatteras with Bodie Island. The first major beach community development, near Avon, in 1962 was the harbinger of a vastly different maritime cultural landscape that is the heavily developed Outer Banks of 2014.

North Carolina has become an important center for scientific inquiry and research. The oceanographic conditions and geomorphology of the area result in a perfect living laboratory for many of the critical marine sciences that help us better understand our world. Its special physical characteristics consequently have led to unique living resources as well, this area being the zoogeographical interface between temperate and subtropical marine ecosystems. As a result biologists, geologists, oceanographers, as well as historians and archaeologists are drawn to this area and likewise extract their work and identity from this unique region. Academic institutions as well as private and non-profit organizations have established marine research centers along North Carolina's coast. A weather station opened at Portsmouth by the U.S. Army Signal Corps in 1876 was one of the first scientific facilities to document the coastal weather in the region. In the early 20th century, the United States Weather Service established a station on the Outer Banks to document the natural forces that influence the Banks and the regions beyond. The successor to the Weather Service, the National Oceanic and Atmospheric Administration (NOAA) continues this work to this day both by land, sea, air and space, focusing on the Outer Banks as part of its mission.

In conclusion, the history and uniqueness of the maritime landscape is recognized and embraced by coastal communities and their residents and elected officials on this section of coast. Concurrently, there has been a sense of the need to protect it, and of the dynamic nature of change. Shifting inlets, beach erosion, development required to support and enhance tourism and the growing population, and seasonal crowding all challenge the Outer Banks. Ocean changes in the offshore environment and impacts of high-powered storms in an increasingly populated area on the Outer Banks create additional challenges. The developments, the parks and refuges, and the activities of today are part of the modern maritime cultural landscape, with their perceived resource values and human uses all part of the ongoing saga of human involvement with this unique coastal and marine environment.

A Drowned Environment: Late Pleistocene and Early Holocene Eras

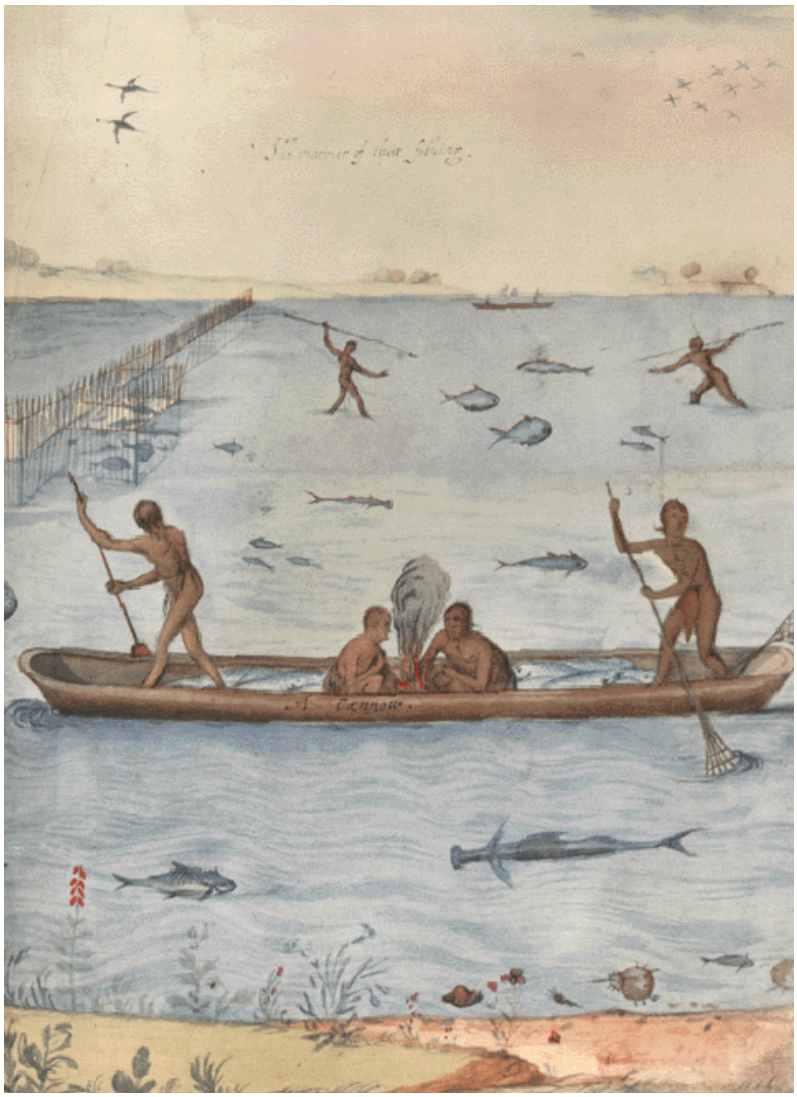
Figure 9. North Carolina's Coast from Space: The turbidity offshore speaks to the dynamic natural forces which have shaped this landscape and consequently the people that have lived within it throughout history.

During the last glacial maximum, much of the world's ocean water was contained in ice. As a result, the sea level was as much as 300 feet lower. As such, the Late Pleistocene shoreline extended much further east than it does today, out to approximately the continental shelf. Modern bathymetric surveys have revealed features on the seabed, which indicate a flooded landscape where canyons and old riverbeds can be identified. Though never conclusively proven, it is likely Paleo-period peoples would have inhabited this landscape and left discoverable remains behind. Modern anecdotal stories of fisherman's nets recovering stone knapped spear heads and mammoth bones with tool marking abound in local lore. Scientific evidence of drowned ancient settlements and land use is the subject of ongoing oceanographic archaeological research.

As glacial ice melted and the Holocene period began, the water rose significantly and started processes that created one of the largest networks of barrier islands on the planet. Since that time the Outer Banks have undergone an unending reshaping of the barrier islands as inlets opened and closed, shoals built up as a result of colliding currents, and the entire island slowly began migrating westward. This physical shaping of the area dictated the way human beings interacted with the landscape from the beginning of the Holocene period right up to present day, this includes major anthropogenic processes starting in the 1930s.

Native American Peoples

> "They have another method of taking fish by means of certain mats fixed in the water with sticks, like a fence; which, woven in a strait, gradually contracts…a more cunning trap for fish is not known in England…"
>
> ***— John White, 1590***



The Mariners' Museum

Figure 10. Early Fishing Depicted by John White: English colonist and artist John White's depictions of the people, country and practices of the New World in the 16th century included this image of fishing practiced on the waters of what are now Virginia and North Carolina.

Archaeological evidence of first peoples at the end of the Paleo period shows a cultural material shift to what is known as the Archaic culture. These were nomadic tribes that relied wholly on hunting and gathering, which would have included exploitation of rich pelagic and tidal marine resources such as shellfish. Modern development and storms occasionally uncover evidence of these early settlements, defined through the middens of deposited shell intermixed with other materials, artifacts and charcoal. The next cultural development included the introduction of small-scale agriculture beginning in what is known as the Woodland period. Archaeological discoveries on the Outer Banks also include pottery from this period and culture.

One example is site 31DR1, a midden first documented in the 1930s, resurveyed in the 1950s, test excavated in 1983, and with a new portion exposed by storm surges in the town of Buxton in August 1993 that was partially excavated and studied in the summer of 1994. Defined by the excavators, as the likely capital or largest settlement of the Croatan, this was one of a series of sites where both the marine environment and the maritime forests of the Outer Banks were utilized for sustenance and year-round occupation by these pottery-making, agrarian people. In all, a 1954 survey of Hatteras Island documented seven archaeological sites related to the first peoples of the Outer Banks (Ewen et al. 2011); others whose locations were buried or obscured have been noted but not reported through accidental discoveries in the decades since (Carl Bornfriend, interview by James Delgado, April 12, 2014).

At the time of European contact, the majority of Eastern North Carolina native peoples were practicing a Woodland style lifeway, which included exploitation of marine resources. It is estimated that there were upwards of 100,000 individuals in the North Carolina area belonging to various tribes from three major language groups, Algonquian, Iroquoian and Siouan. The Siouan speaking tribes lived in the Cape Fear Region. Algonquian tribes located in eastern North Carolina were the Chowanoke, Croatan, Hatteras, Moratoc, Secotan, Machapunga, Pamlico, Coree, Neusiok, Pas-

The Mariners' Museum

Figure 11. Unnamed Algonquian Man: This depiction by John White is one of his more famous images.

quotank, Perquimans, Poteskeet, Roanoke, and Yeopim, amongst others. The Algonquian groups tended to be more coast and sound oriented, while the Iroquoian and Siouan-speaking groups were typically found further inland in the Piedmont and in the western part of the state. The Algonquian and Siouan people were the first native people encountered by European settlers. The cultural encounter between Europeans and the first peoples reshaped the landscape and ultimately decimated and relocated much of the population of the entire coastline. By 1729, a Colonial survey noted that for "Indians, none inhabiting the Sea Coast, but about 6, or 8, but at Hatteras, who dwell among the English" (Moseley 1733).

Many place names of these first peoples still persist although no state or federally-recognized tribes remain in the Outer Banks area. The people persist, too, although there are some who only privately associate themselves with the first peoples of the Outer Banks, being the descendants of those "who dwell among the English" (Bornfriend 2014). These groups include the Cape Fear, Chowanoke, Coree, Hatteras, and Croatan. Though none of these groups are federally recognized today, some Cape Fear descendants are probably members of the Waccamaw Siouan Tribe; descendants of the Coree, Bay River, Machapunga and Pamlico Indians continue to live in Dare, Hyde and Tyrell counties; Chowanoke descendants likely live in the lower Chowan River region; and little is known of the Hatteras or Croatan now (http://www.voicesofthesandhills.com/tribes/known-tribes.html). Regardless of the dispossession of the first peoples of the Outer Banks, what has persisted on these shores and waters, in addition to an unknown number of descendants, are archaeological sites, place names, and perhaps memories and traditions, whether written on a map or not. Roanoke Island, the Town of Manteo, Hatteras Island, Wanchese, Chicamacomico, Pamlico Sound, and Perquimans River are just a few modern eponyms tracing their origin to the first peoples and their names for these places. These place names reflect the fundamental truth that their roots are found in the rich heritage of the native people who once called this area home.

The centuries of cultural contact, the decimation of the population, forced relocation as the result of wars, disease and political decisions by the non-native culture have left little evidence beyond eponyms and occasionally unearthed archaeological evidence in what once was a rich and diverse center of interaction with this maritime cultural landscape. Therefore, thousands of years of this rich heritage are missing here. The key questions within the context of this document are what were these peoples' relationships and interactions with the maritime landscape? How did it shape their culture? Where did they go, and why? What is their connection today to this particular maritime cultural landscape? The "why" is difficult, if not impossible, for non-native people to write. Addressing this lack of knowledge and native voice is essential, and it is important to strive to learn what one can in the absence of a native voice, and reach out specifically to any and all descendants who can provide insight and share what they are willing to share. In lieu of descendant interpretation, all that remains for now is an archaeological summary solely from a European perspective, without any native voice.

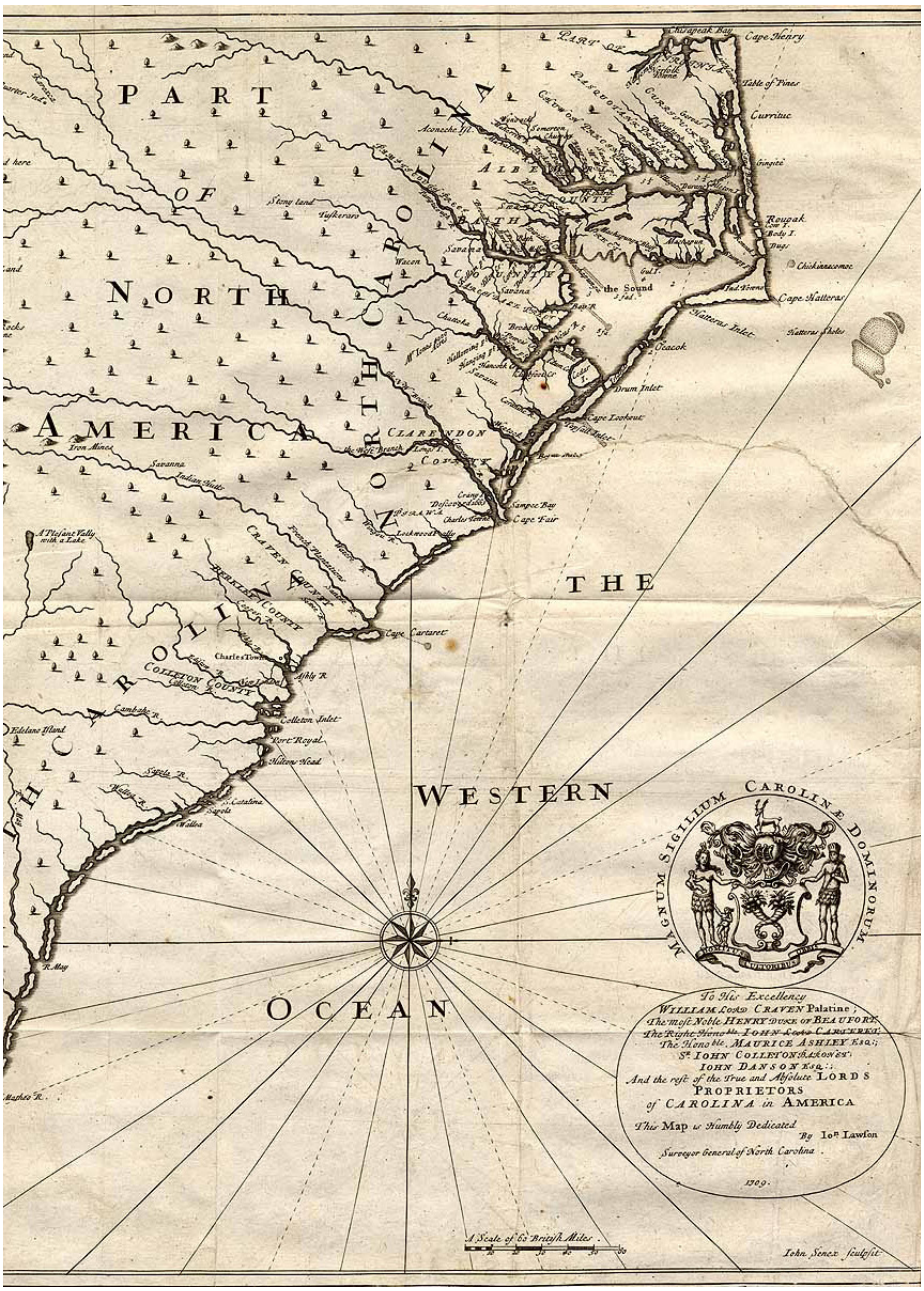
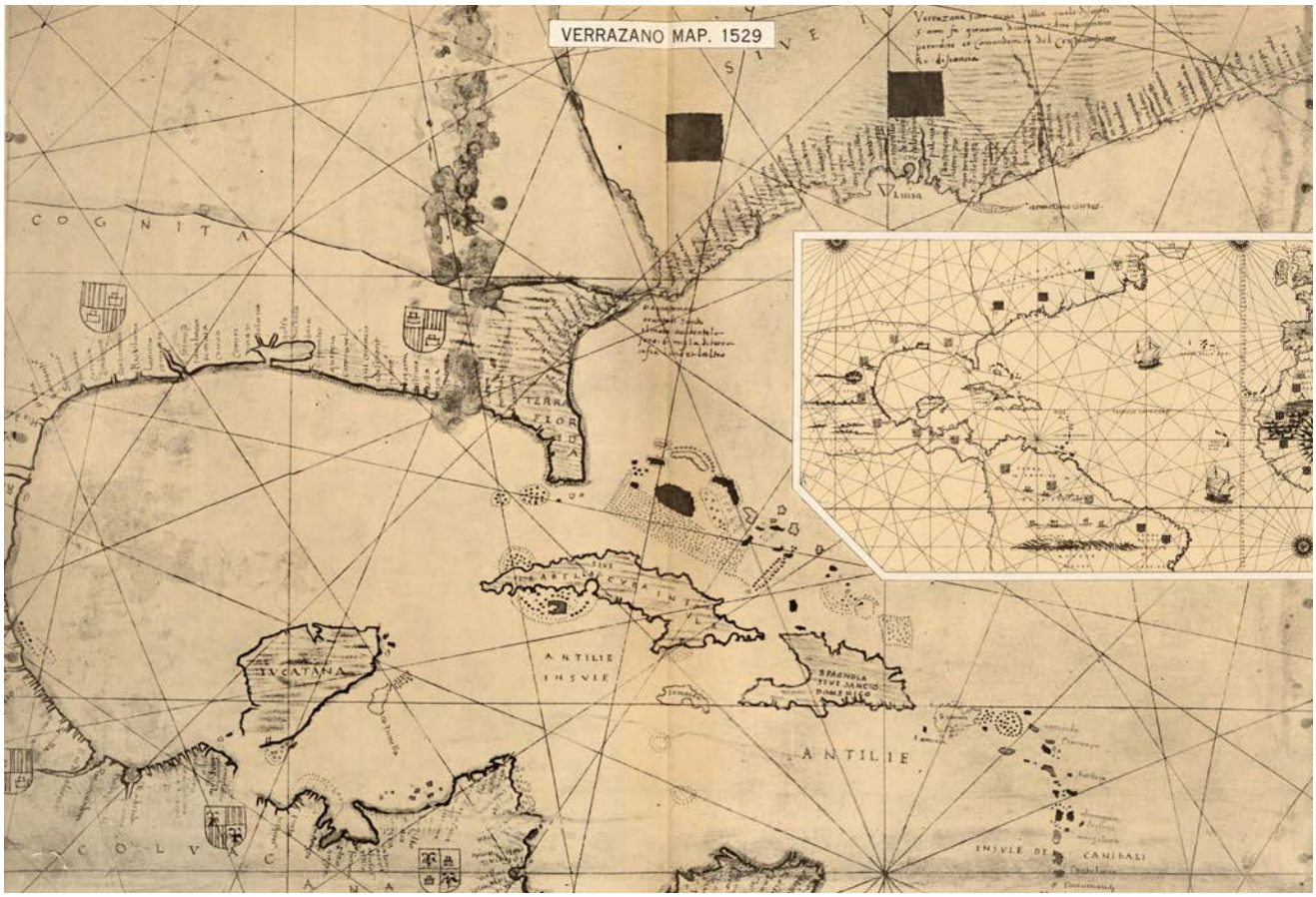


Figure 12. Map of the Carolinas: In his book *A New Voyage to Carolina* (1709), John Lawson (1674-1711) documented his understanding of some of the native settlements and place names.

European Exploration



Biblioteca Ambrosiana, Milan

Figure 13. The Reach of Exploration: This 1529 map, said to be from Verrazano's voyage of 1524, depicts Europeans' increased awareness of the Atlantic and Caribbean regions. The Carolinas and their coasts were only a small part of that larger maritime landscape.

European exploration of the North Carolina coast and the Outer Banks began within half a century of Columbus' voyages. While Spanish mariners may have made landfall around Cape Fear in 1521, the first documented encounter came when explorer Giovanni da Verrazano, sailing in the ship *La Dauphine* under Royal French charter, landed a man briefly at Cape Fear in March 1524. After a friendly encounter with the local people, who rescued the man after he was battered by surf after swimming ashore, the Cape Fear people warmed and dried him, and returned him to the waiting boat. Verrazano characterized the Outer Banks as an isthmus, with the sounds behind them an unexplored "open sea" that Verrazano thought to be the Pacific Ocean "which is the one without doubt which goes about the extremity of India, China and Cathay."

Native accounts shared with later English explorers described Spanish shipwrecks that occurred. One stranded Spanish sailors who built a boat and departed, only to be lost when that boat also wrecked sometime around 1559. In another wreck, no one survived, but "the shippe, or some part of her, being cast on the sande, out of whose sides they drew the nailes, and spikes, and with these made their best instruments" (Stick 1958:14).

English explorers visited the Outer Banks in 1584 as part of an expedition sent by Sir Walter Raleigh to scout for a site to settle. After entering the sound through a now-closed inlet believed by modern historians to be near modern Oregon Inlet, they reconnoitered Roanoke Island, interacting with the local tribe called the Roanoac. What followed was an extensive period of other visits, and the eventual establishment in 1587 of an English settlement on Roa-

University of North Carolina-Chapel Hill Library Maps Collection

Figure 14. An Early Map of North Carolina: This is one of the earliest maps of North Carolina compiled by Theodore DeBry in 1590. It would be hundreds of years before accurate charts were made of the area. Charts like these were all early colonists had to navigate the shifting shoals of the Outer Banks.

> "Wee beheld the Sea on both sides to the North, and to the South, finding no ende of any both waies. This lande laye stretching it selfe to the West which after wee founde to be but an Island of twentie leagues long, and not ebove six miles broade."
>
> ***- Arthur Barlow, 1584***

noke Island, the fabled "Lost Colony." The site of that fortified settlement (1587-1590) is now Fort Raleigh National Historic Site.

Considerable archaeological work has taken place at Fort Raleigh and led to the reconstruction of the earthwork fort at the site. Drawing on accounts from the local Croatan people, John Lawson noted that oral tradition indicated the "lost colonists" of Fort Raleigh had settled with them after their abandonment of the site prior to 1590. Lawson noted "A farther Confirmation of this we have from the Hatteras Indians, who either then lived on Ronoak-Island, or much frequented it. These tell us, that several of their Ancestors were white People, and could talk in a Book, as we do; the Truth of which is confirm'd by gray Eyes being found frequently amongst these Indians, and no others. They value themselves extremely for their Affinity to the English, and are ready to do them all friendly Offices. It is probable, that this Settlement miscarry'd for want of timely Supplies from England; or thro' the Treachery of the Natives, for we may reasonably suppose that the English were forced to cohabit with them, for Relief and Conversation; and that in process of Time, they conform'd themselves to the Manners of their Indian Relations." Archaeological excavation of the 31DR31 site at Buxton in the late 1990s recovered 16th century artifacts from the site, which the excavation team attributed to the "Lost Colony."

Research by local historians Barbara Midgette and Fred Willard (http://www.lost-colony.com/Archaeology.html) suggests that the site of the inlet through which the explorers entered the sounds and reached Roanoke Island, with a small sound-side port known as Port Ferdinando, and where a monument of Colonial possession and a fortification was erected, may be archaeologically present at the current site of the Bodie Lighthouse. Prior to the formation of Oregon Inlet, they believe the earlier inlet closed between 1775 and 1808. To date, no mention has been made of any work to confirm or deny this hypothesis.

An Atlantic Ocean Highway

NOAA

Figure 15. The Gulf Stream as Charted by Benjamin Franklin: In 1769 while serving as Postmaster General, Benjamin Franklin created this map of the Gulf Stream, which he considered to be vital to commerce and communication. As an important sea-lane, sailors have been using this natural feature in the maritime landscape for centuries. North Carolina's Outer Banks are positioned at the northernmost point of the Gulf Stream off of the Eastern Seaboard.

The Colonial period began a steady stream of maritime commerce along the mid-Atlantic which continues to present day. Two major oceanic currents, the Labrador Current and the Gulf Stream, act as major arteries of commerce due to the added speed they impart to vessels traveling within them. One of the best ways to think of an oceanic current is to imagine a moving walkway in an airport. The ships still must move under their own power, but hitching a ride on a reliable current

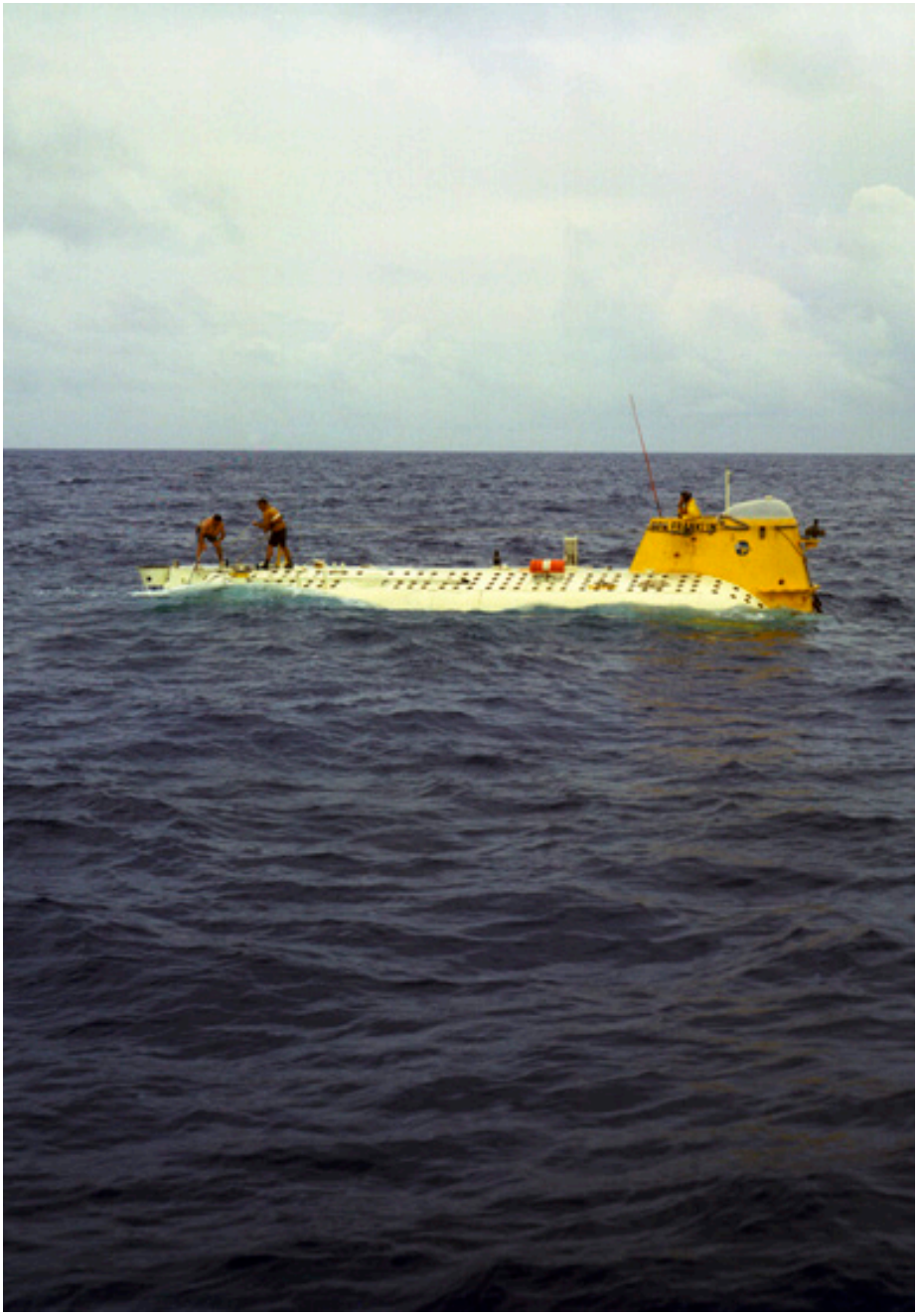
reduces transit times and costs.

These currents were especially important during the age of sail when vessel maneuverability was tied exclusively to harnessing the natural forces of the winds and currents. Much of the initial wealth in the New World was concentrated in the Caribbean region, and once a vessel had taken on a cargo it needed to return to European parent countries. Using the Gulf Stream, these vessels would be carried up the east coast of what is now the United States until they met Cape Hatteras. It is at this point that the Gulf Stream meets the Labrador Current and changes the trajectory of the Gulf Stream very conveniently towards Europe. Spanish voyagers knew Cape Hatteras from early voyages of exploration, and referred to it as Cape San Juan.

As this trade route continued to develop into a major maritime thoroughfare interstitial ports began to develop along the coast. The development of depots, service ports, towns and other infrastructure along major routes of travel is a hallmark of human settlement throughout time. Along with ever-increasing maritime traffic came a greater number of shipwrecks. This was particularly true off of North Carolina, which is home to notoriously shifting inlets and shoals, as well as heavy weather and a 'confused sea' a result of colliding oceanic currents.

The Gulf Stream continues to this day to be a critical part of economic commerce as well as an important part of our collective heritage. The Gulf Stream is the brush that has painted the landscape of coastal North Carolina. It brings with it warm subtropical waters and creates a diverse ecosystem that has provided extraordinary fishing grounds for thousands of years. Early efforts to understand the Gulf Stream began in Colonial times and continued into the 19th century when the Office of Coast Survey commenced studies and worked to map this vast undersea "river." This work continued well into the next century. The Gulf Stream was also famously the setting for an historic scientific mission, which took place in 1969. The mesoscaphe *Ben Franklin*, a research submersible manned by explorer Jacques Piccard, conducted a 30-day underwater mission in the Gulf Stream which covered nearly 1,500 miles from Florida to Nova Scotia. In addition to collecting oceanographic data, NASA also used this mission to evaluate continuous close confinement for space missions.

> "There is a river in the ocean. In the severest droughts it never fails, and in the mightiest floods it never overflows. Its banks and its bottoms are of cold water, while its currents are warm. The Gulf of Mexico is its fountain and its mouth is in the Arctic Seas. It is the Gulf Stream. There is in the world no other such majestic flow of waters. Its current is more rapid than the Mississippi or the Amazon."
>
> ***- Matthew Fontaine Maury, 1855***



seawifs.gsfc.nasa.gov

Figure 16. Mesoscaphe *Ben Franklin*: The submersible vessel (PX-*15*) is seen here during the Gulf Stream Mission, 1969. Restored and preserved ashore on the Pacific Coast at the Vancouver Maritime Museum in British Columbia, the submersible is one of the more remote and yet significant aspects of the Graveyard of the Atlantic/Gulf Stream maritime cultural landscape.

The "Bankers": The Historic Inhabitants of the Outer Banks

University of North Carolina-Chapel Hill

Figure 17. The Wreck of *Priscilla*: Local residents of Hatteras Island salvage components of the vessel *Priscilla* in 1900. Recovering items washed ashore was a commonplace necessity for many on the Outer Banks through much of its post-European contact history.

The Outer Banks are an area whose isolation, environment and access to the riches of the sea brought the first non-native settlers to this part of Colonial America. The first Colonial settlers appear to have come to Kinnakeet (now Avon) in or around 1711 when the first grant of land was made. Living on the narrow barrier islands of the Outer Banks was a way of life reserved for a hearty lot. The coastal winds were harnessed, for example, to grind corn as early as 1723 with mainland-introduced windmills rising at Kinnakeet. Now gone, those windmills were a prominent feature of the maritime cultural landscape of the Banks.

The sandy banks natives are colloquially known as "Bankers," the cultural identity of those who made a way of life in this remote and harsh environment. One of the earliest references to the term "Bankers" is found in a 1752 report regarding the plunder of a distressed Spanish galleon in Ocracoke Inlet:

> *On or about the 3rd September 1750, a Spanish Ship called* Nuestra Senora de Guadalupe *of the Burthen ... was by distress of extreme bad weather in a most shattered and dangerous condition forced into Ocacock River ... and in spite of all the assistance which could be sent to them by the Civil Magistrate plundered by the Bankers: being a people so called from their inhabiting near the banks of the sea shoar.*

Nearly 150 years later the area is described in an 1892 *Harper's Weekly*:

> *If there were any spot on earth that one would expect to find untenanted, it surely would be this stretch of sand between ocean and sound. ...Yet, there is a hardy race who*

NOAA

Figure 18. Corolla Schoolhouse: This single room schoolhouse was built partially of timbers from ships wrecked along the Outer Banks. Resourceful residents would routinely use remains washed ashore for building purposes. This schoolhouse was restored in 1999 and still functions as a school today.

has lived here from father to son for over a century. They exist entirely by hunting, fishing, rearing cattle and acting as guides.

Most early European settlers on the Outer Banks practiced a subsistence-based lifestyle. They engaged in small-scale agriculture and relied on hunting, fishing and raising some livestock. They would typically reside on the more stable and forested sound side of the banks. Much of the native vegetation, predominantly live oaks and juniper, was clear-cut over time to build homes or to bring to market.

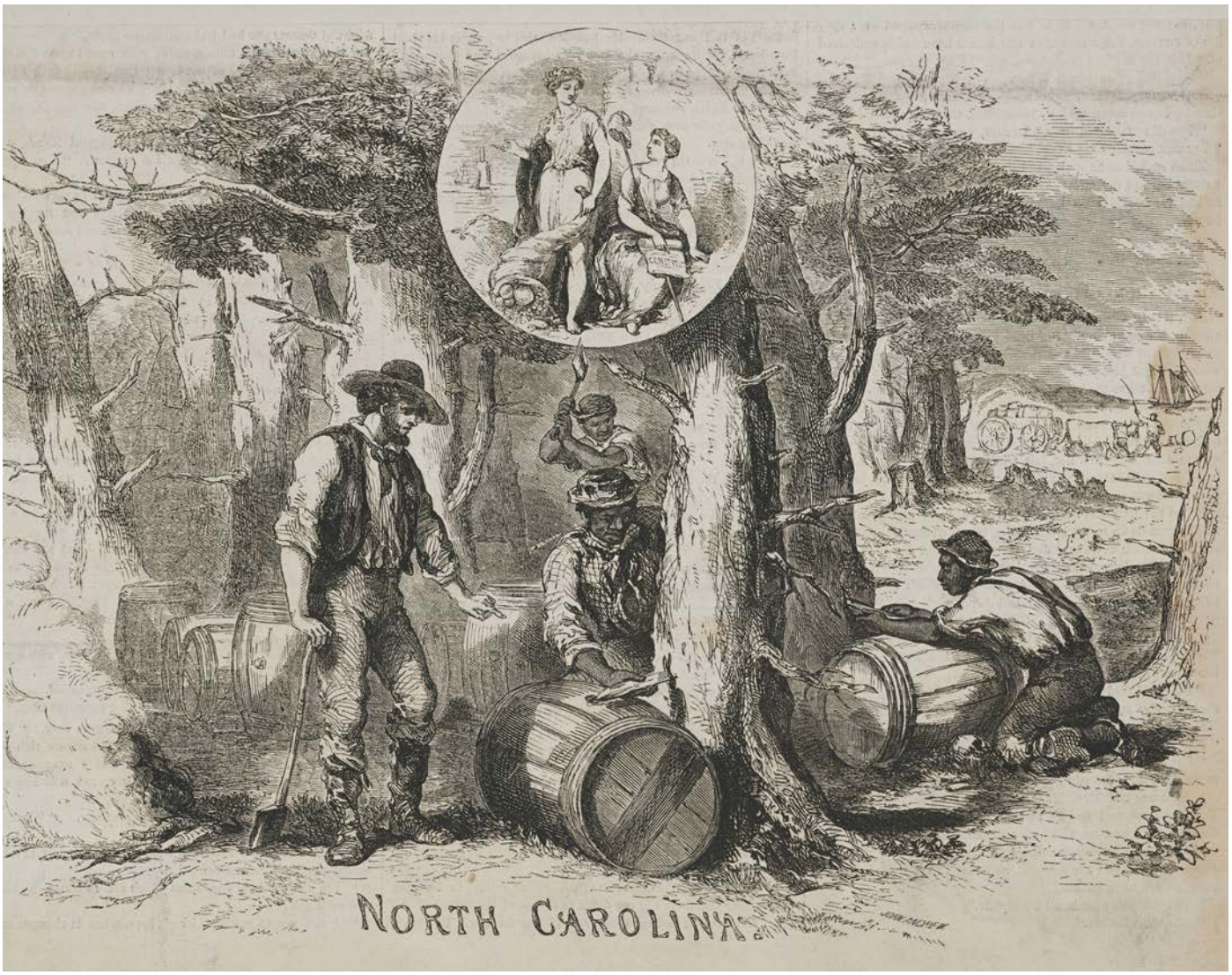
Wreck salvage along the Outer Banks was a full time job for many early Bankers. The first known evidence of this was in the colonial period with the loss of the vessel, *Swift Advice*, which came ashore near Chicamacamico in 1698. The remains of the cargo, which consisted of guns, furniture, sails, and various provisions, were all removed by the local Bankers in a matter of days. As timber became increasingly scarce, the ship's hulls often became a source of building materials. One example, of this is a single room schoolhouse built in Corolla using shipwrecked timbers, which is still in use today.

Shipwrecks shaped the cultural landscape of Bankers in many ways. Employment and extra resources came in the form of salvageable materials that washed up on the beaches. As commerce increased so did the incidence of shipwrecks. This provided yet another alternative, employment as a surfman in the Life-Saving Service. Many of the local residents who live on the Outer Banks today claim ancestry to those who were wrecked along the shore and never left.

"...it is not without sound reason that any islander will tell you that here is the safest place on the earth in time of storm. Nobody has been hurt by one – provided he took the sea's warning."

- Ben Dixon MacNeill, The Hatterasman (1958), p. 119

Trade and Coastal Settlements

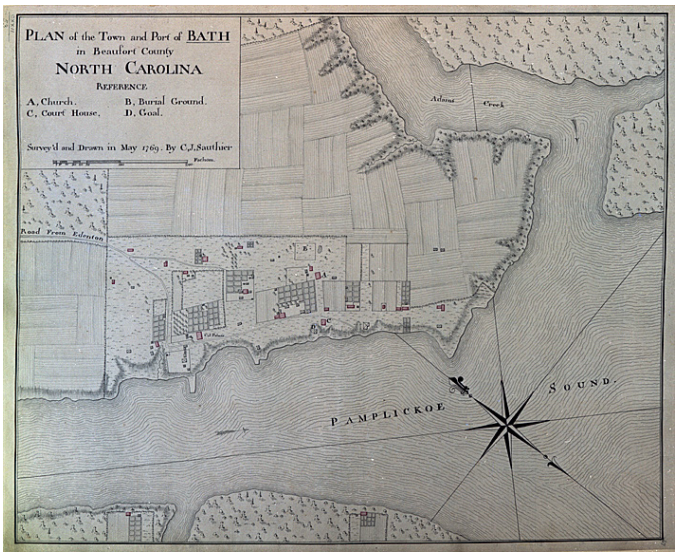


University of North Carolina-Chapel Hill North Carolina Collection

Figure 19. The Turpentine Industry: Products made from pine trees were in high demand by shipbuilders and mariners in the early colonial period, and gave rise to towns such as Wilmington. This illustration depicts a coastal North Carolina turpentine distillery before the Civil War.

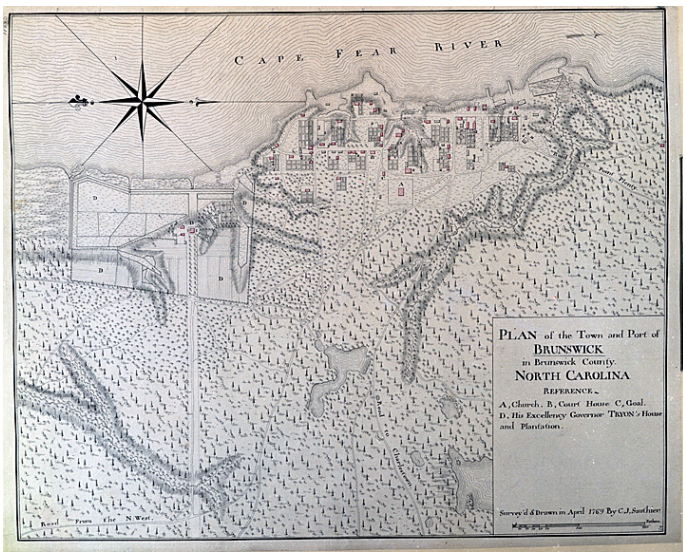
The "Tarheel" State

During the colonial period, North Carolina emerged as an important place along the ocean highway. England, as an island nation, had depleted a great deal of its native supply of naval stores, which were critical for the Royal Navy. Naval stores consisted of products derived from pine forests, chiefly tar, pitch, and turpentine. The vast pine forests of the mid-Atlantic were an extremely valuable resource for the Royal Navy's wooden vessels, making these items one of Colonial North Carolina's most important exports, particularly out of Wilmington. Those involved with the industry were known as "Tarheels," a name that still evokes a sense of cultural identity in North Carolina.



North Carolina Archives, Raleigh

Figure 20. Bath, NC: As surveyed and drawn by J.C. Sauthier in May 1769.



North Carolina Archives, Raleigh

Figure 21. Brunswick, NC: As surveyed and drawn by J.C. Sauthier in May 1769.

Bath: North Carolina's First Town

The small town of Bath, located on the "inner banks" of North Carolina was the state's first port of entry having been incorporated in 1705. Most of the maritime commerce going through this port consisted of naval stores as well as other typical early colonial goods such as furs and tobacco. The town served as the de facto colonial capital. The town was also home to the pirate Blackbeard for a time. Today the town of Bath is remarkably similar to what it was in the colonial period and is a heritage tourism destination. Archaeological work at Bath (a State Historic Site) has focused on various aspects on land, including former and current home sites. One excavation, in 1960, documented a likely 1739 structure's remains, which included a cellar "made of stones that had arrived as ballast in the holds of sailing ships that docked at Bath" according to the NC Department of Cultural Resources (NCDCR 2012). Ongoing archaeological projects are planned and intend to seek and examine the aspects of the site's initial settlement and interactions with the local first peoples.

Brunswick Town

The first permanent European settlement on the Lower Cape Fear River, Brunswick Town was founded in 1725 and became a port of entry in 1729. Brunswick during its early years essentially served as the capital of North Carolina. Located 20 miles north of the mouth of the Cape Fear River to make it less vulnerable to attacks by foreign powers or pirates, Brunswick was accessible for deep-draft vessels and was settled by mariners as well as merchants. It flourished as a port where incoming finished goods entered and country-produced products like naval stores, tobacco lumber and furs were shipped out. By 1730, there were about a dozen households. Rivalry with the newly established port of Newton (today's Wilmington), attacks by Spanish privateers in 1748, and a 1761 hurricane also damaged the town's prospects. Abandoned and ruined during the Revolutionary War, the port area remained in use until river dredging allowed larger ships to finally bypass Brunswick in favor of a direct connection to Wilmington without the labor and cost of lightering to shallower draft vessels. The site was re-occupied by Confederate troops during the Civil War and an earthworks defense, Fort Anderson, was built on the site. Archaeological excavation beginning in the 1950s uncovered foundations and today Brunswick is a North Carolina Historic Site with displays, a museum and the walking tours of the exposed ruins as well as Fort Anderson.

New Bern

Like many early coastal settlements, New Bern was located on the "inner banks," which provided much more stable conditions for establishing a town while still offering access to the sea. New Bern was settled in 1710 by predominantly German and Swiss immigrants who named the town after the capital of Switzerland. It served as the capital of the colonial government, and the colonial government house, Tryon Palace, still stands there today.

Wilmington

In the 1720s European settlers began arriving in the Cape Fear region, and by 1733 had incorporated a town known as New Carthage. This town would not be known as Wilmington until 1740. Wilmington's location was ideal and quickly grew as an important port city. The primary trade was maritime with particular attention to naval stores and lumber. The infrastructure developed for this trade, which extended to the Banks, included the lighthouses, and forts, but also wharves, docks, piers, warehouses, Custom Houses, and a variety of other structures industrial, mercantile and governmental to deal with the powerful maritime origins and context of this port – and in time this extended to other settlements in the larger maritime landscape of coastal North Carolina. The importance of this colonial port gave rise to the city's nickname "Port City" which is still in common usage today. Of all the early coastal settlements in North Carolina, Wilmington has persisted as a center of commerce and is the only modern major metropolitan area on the North Carolina coast.

Shell Castle Island

In the 1700s, Ocracoke Inlet was one of the busiest inlets on the East Coast of what would become the United States. This

lighthouse was nestled amongst a busy little marine depot that was one of North Carolina's most important ports from the late 1700s until the early 1800s. Shell Castle Island was essentially a lightering facility, offloading ocean going cargoes and transferring them to regional vessels designed for plying the shallow waters of Pamlico Sound. At its height this facility consisted of wharves, warehouses, a windmill and gristmill, homes, a lumberyard, notary public and even a tavern. The fate of the town and the lighthouse reflect the changing nature of the landscape in North Carolina. As new inlets were opened by hurricanes and Ocracoke inlet shifted and shoaled, the entire town was abandoned by 1818 and has long since completely disappeared.

Kinnakeet

The settlement of Kinnakeet (modern Avon) commenced around 1711 and remained sparsely occupied, without a well-defined urban core, for over a century. Most homes faced away from the ocean and exposure to its weather, and instead faced the sound, and were surrounded and protected by the local maritime forest. The population grew in time with shipwreck victims deciding to stay; as the Outer Banks' history website notes, "Longtime island names like Austin, Oden, Gray, Etheridge, Willis, O'Neal and Scarborough all reportedly owe their Hatteras heritage to shipwrecks" (http://www.hatterasguide.com/history/)

The hurricane of 1846 that hit the Banks between Ocracoke and Bodie Island created a navigable inlet, Hatteras Inlet, which replaced the silting and unreliable Colonial Inlet at Ocracoke. Then, as now, the maritime environment of the Outer Banks and human responses to it were reflected in what we now term the maritime cultural landscape; in this case, a shift in settlement size, density and infrastructure.

As a result of the new inlet, coastal maritime trade developed at Kinnakeet, which became the key spot from which deep-water cargoes could be landed and then redistributed to smaller Banks communities via small, shallow-draft vessels. The new "port" also burgeoned as demand for pilots who could navigate the inlet and the various shoals were hired, mariners settled in town, and the increase in shipping provided income for Bankers who could sell provisions as well as timber cut from the maritime forest, notably live oak, a key material for shipbuilding.

The 1860 United States Census recorded 661 inhabitants of Hatteras Island, 84 of them enslaved, with 318 of those people resident at Kinnakeet. Other settlements also arose where once there had been isolated farmsteads at Chicamacomico (now known as Rodanthe and Waves) and at Clarks (Salvo) and Trent (Frisco).

After the Civil War, as the Outer Banks history website notes, "Hatteras Village, because of its deep inlet, grew to be the second leading port in North Carolina, next to Wilmington (http://www.hatterasguide.com/history/). The inlet served the inland communities of New Bern, Washington, Edenton, Elizabeth City and Plymouth. It was a prosperous time that sparked the building of many of the historic homes in Hatteras Village. Residents of the other villages sailed to Hatteras Village for their supplies. In 1870, Dare County was formed and included Hatteras Island, which had previously been a part of Hyde County."

Library of Congress

Figure 22. Kinnakeet Life-Saving Station: The crew stands in front of the station, geared up and ready to deploy on a hazardous coast.

Harvesting the Sea

Harvesting fish, shellfish, and marine mammals from the waters bordering the Outer Banks dates to prehistoric times and continued through the Colonial period to modern times. It is one of the oldest persistent maritime activities in the region. In the Colonial period and well into the 19th century, much of this activity was focused on subsistence – survival – as the Bankers relied on the sea and sound as well as the land for their meals. The later 19th century saw a shift to market fishing that included harvesting seaweed, turtles and shellfish ranging from clams, scallops, oysters, and even porpoises, with a porpoise-meat processing plant in Hatteras Village for the six-year period spanning 1885 to 1891. The 20th century saw the rise of a more industrialized fishery, especially focusing on menhaden. At the same time, recreational fishing also commenced, giving rise to offshore boats, but also to coastal and sound-based fishing piers, such as the famous Jennette's Pier, the first Outer Banks fishing pier. Constructed in 1939 at Nags Head, the wood-pile and decked pier was 754 feet long, 16 feet wide, and terminated at a 28-foot wide "T." The pier, with its attendant shops and changing rooms (for bathers) stood until largely destroyed by Hurricane Isabel in 2003 just after it was donated to the North Carolina Aquarium. Rebuilt as a 1,000-foot long concrete educational pier between the years 2009-2011, Jennette's remains a prominent feature of the maritime cultural landscape.

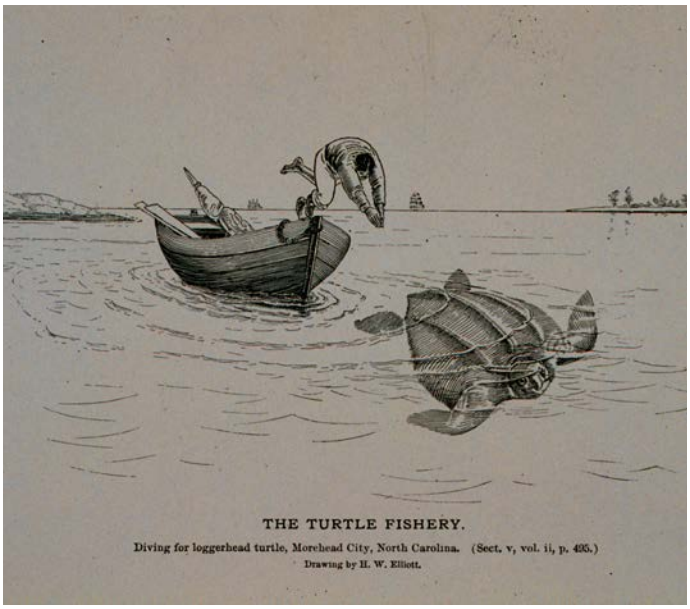
Whaling

Whales were an important commodity during the colonial period. Their blubber provided oil for lamps and lights, while their bones, teeth and baleen were used to manufacture a range of products from chess pieces to hairbrushes. It is known that New England whale men voyaged to hunting grounds off of North Carolina as early as 1667, and early settlers on the Outer Banks routinely made use of strandings since the 1660s as well. Early on, most of the whaling industry was predominantly shore whaling. Whales would be spotted from lookout towers on shore or small boats. These boats would then approach a whale and attach a drogue (block of wood) via a harpoon, which would act as a marker float enabling the small boats to encircle and lance the whale before hauling them ashore for harvesting. In the colonial period leases were let out for sections of shoreline for the purpose of whaling. The targeted species was predominantly the right whale, or an occasional sperm whale. This industry continued in some capacity into the early 20th Century. In its heyday, shoreside tryworks were established on Shackelford Banks near Cape Lookout, which became a hub of transplanted New England Whalers. As the industry progressed traditional offshore whaling took place of shore-based techniques until the industry declined.

Turtle Fishery

The terrapin, or turtle fishery, existed from early times, primarily for local sustenance. As with other pelagic resources, the later 19th century introduced a brief commercial fishery, described in 1884 by Frederick True:

The most northern points at which any considerable turtle fishery is prosecuted are Beaufort, and Morehead City, NC. A small number of loggerhead, hawks bill, and green turtles enter Cove and Bogiie Sounds and other shallow inlets in this vicinity during the summer months, in search of food. The green turtles arrive about the first of April and disappear early in November. The loggerheads and hawks-bills are of medium size, the average weight of the former being about 50 pounds; the green turtles are small, and weight about 8 pounds each. The capture of loggerheads in this vicinity was formerly affected by means of spears or "gauges." The turtles were struck by the fishermen with these implements while swimming in the water. They were frequently very badly wounded, however, and often injured to such a degree that they were unfit for shipment or sale. To avoid this difficulty Mr. Joshua Lewis, of Morehead City, conceived the idea of diving upon the turtles while in the water, and securing them with his hands. When starting out in search of them he ties the painter of his boat to his leg; then rowing along leisurely until one is seen, he approaches it and dives upon it from the boat. Seizing the anterior edge of the carapace with one hand, and the posterior edge with the other, he turns the head of the turtle upward, when the animal immediately rises to the surface, bringing the fisherman with it. If the water is deep he steers the turtle toward a shoaler spot, keeping hold of it with one hand; and with the other pulling the boat after him. When a suitable spot is reached he seizes the animal and throws it into the boat. Usually there is no difficulty in bringing turtles to the surface and directing them toward shallow water, but occasionally a very large one is encountered, which is strong and unmanageable. In such case the fisherman is forced to let go his hold and return to the surface, allowing the turtle to escape. The method of capturing turtles by diving is employed at present by many of the fishermen in this locality, and the greater proportion of those taken are captured in this way. Good swimmers do not hesitate to dive for a turtle when seen, however great may be the depth of the



NOAA Central Library/Library of Congress

Figures 23 - 26. Sustained by the Sea: Turtles, whales, fish and shellfish were regularly caught to sustain North Carolina's coastal residents. Everyone participated, including women who mended and washed fishing nets. (Top Left: The turtle fishery; Top Right: Fishing on the sound; Middle: Women mending nets; Bottom: A whale ashore)

Library of Congress

Figure 27. A Fisherman Mends His Nets: As he sits dockside.

water. The small number of hawks-bill turtles taken are captured by the same method as that employed for loggerheads, and usually no distinction is made between the two kinds. The green turtles are caught in dragnets and seines. The loggerhead turtles find a ready sale at limited prices in the interior cities of North Carolina, and a small shipping business has been established. The fishermen receive about 50 cents apiece for the turtles, which induces them to catch all that come in their way, but does not warrant their engaging very extensively in the fishery. The average annual catch of loggerheads in this vicinity does not exceed two hundred. The green turtles are usually eaten by the fishermen, who consider them a delicacy, but occasionally they are sold to dealers for about 15 cents apiece. The catch at this point, if sold at local prices, would have a value of not more than $50.00 (Goode 1884:495-496).

Menhaden Fishery

North Carolina's sounds have long been an abundant natural resource for harvesting the sea. Menhaden were once one of the most commercially important species in the region. Large commercial fishing concerns were built around the small oily fish. For the most part the fish were processed as meal or rendered into oil. These processing facilities once peppered the coastal landscape. This industry provided hundreds of jobs and was a major economic driver for many coastal towns in North Carolina. The first such menhaden factory was established on Harker's Island in 1865 and operated until 1873 before relocating to Cape Lookout. The industry continued to grow well into the 20th century, creating generations of traditional watermen and fishermen.

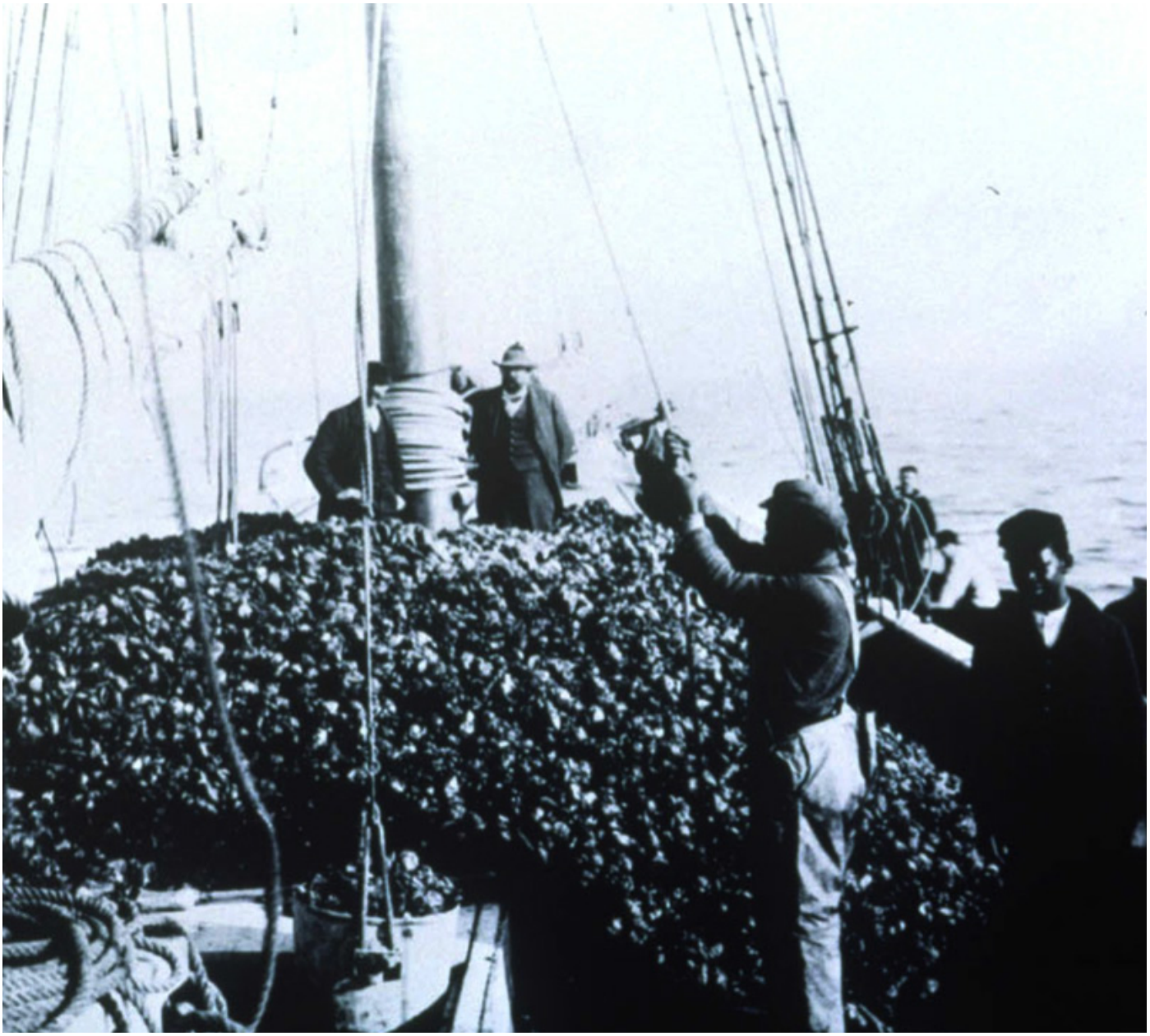


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Figure 28. Hauling in Oysters: A massive oyster haul on the deck of a sailing vessel in Washington, NC in 1884. Huge harvests such as this built a large industry but also contributed to the decline of the fishery.

Oysters, Clams and Blue Crab

The Carolina sounds were once host to an enormous population of oysters. There was a voracious market and harvesting was reasonably easy. By 1822, competition was such that North Carolina had banned out-of-state oystermen and limited harvest to hand tongs, making dredging and raking illegal. In 1858, the state had already begun promoting oyster farming with a law that enabled one to secure up to 10-acre sections of estuarine environment perpetually if they would seed it with spat. Within 30 years there were over 52,000 acres of licensed private oyster gardens.

By the 1890s northern 'oyster pirates' began showing up in North Carolina waterways. As a result, in 1891, North Carolina passed an Oyster Law, which ensured enforcement of regulations by providing a patrol craft. This still persists today. That same year, the Board of Shellfish Commissioners was established which has evolved into the extant Marine Fisheries Commission.

Sustainable oyster farming is still prevalent in the area, carrying on a long heritage of harvesting the sea. In addition to oysters, other species such as blue crab, shrimp and clams have been staples of North Carolina fisheries. Each of these industries has provided and continues to provide jobs and social identity for hundreds of North Carolina families. The changing nature of the fisheries and technology left important legacies in the landscape in the form of docks, piers, and processing plants, as well as less tangible but equally important buoys and markers delineating channels and "claims" to oyster beds.

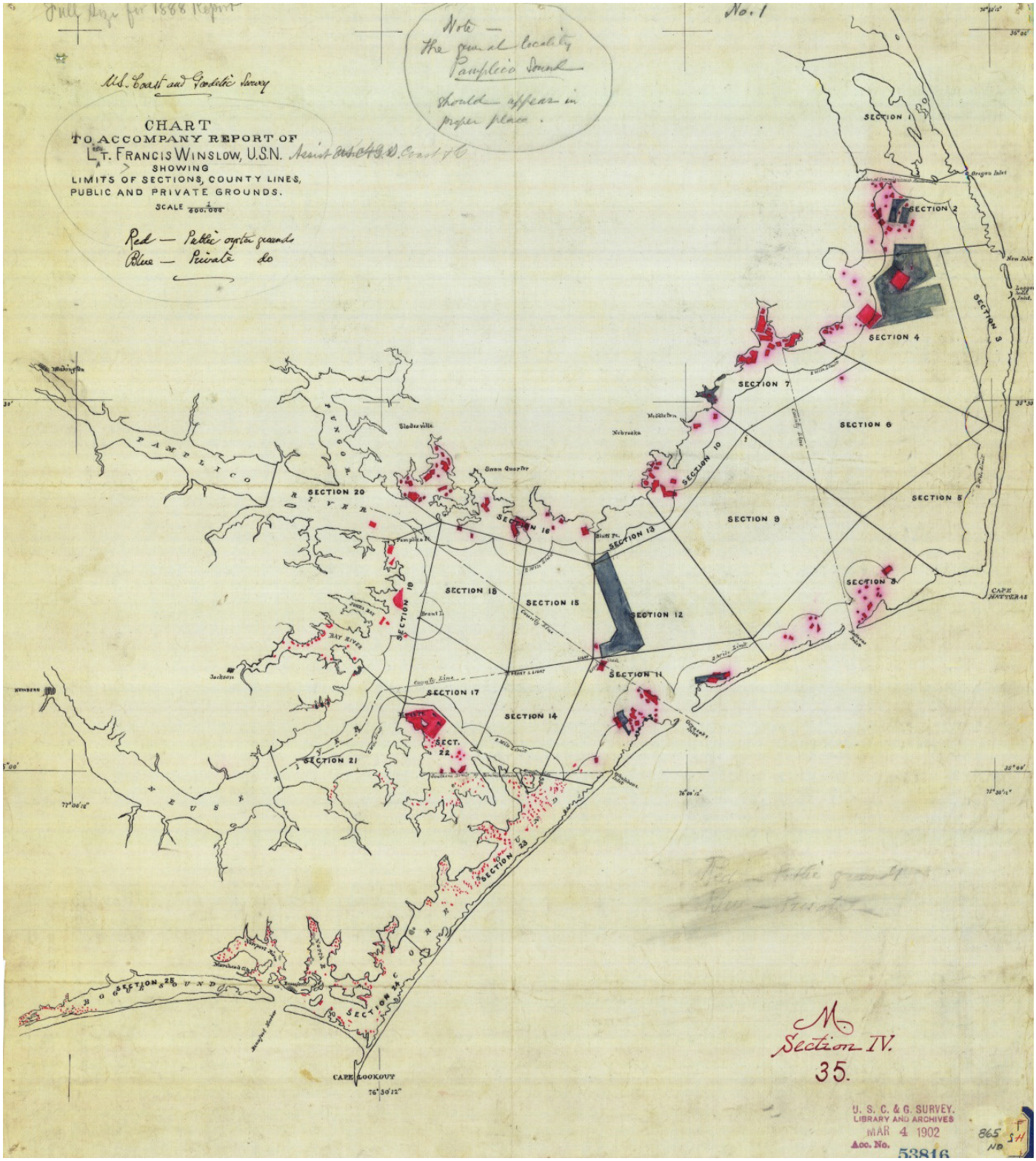

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Figure 29. U.S. Coast Survey Map of the Oyster Beds: The United States Department of Fisheries, working with U.S. Coast Survey veterans, mapped the extensive (and submerged) maritime cultural landscape of the Outer Banks' oyster beds in 1888.

War and Conflict, Defense and Fortification

National Archives

Figure 30. A Mid-Atlantic Convoy, World War II: Also known as a "bucket-brigade," these convoys were a common sight off North Carolina during World War II. This was the closest theater of war to the continental U.S.

Due to its position in the mid-Atlantic and the nature of adjacent major oceanic currents, The Outer Banks – especially given their role as a major ocean highway – have been a point of strategic vulnerability requiring defense. During various periods, vying Colonial powers contested the Banks, especially Spain and England, which led to coastal defenses such as Fort Raleigh. Colonial-period efforts to protect the approaches to North Carolina via the Banks and its inlets, as well as strategic rivers like the Cape Fear, led to fortifications, including more substantial forts built by the U.S. Army that survive to this day like Fort Macon and Fort Caswell. These forts protected key ports and trades that had clear military importance, notably the maritime stores trade of the Carolinas, with tar, live oak and turpentine being strategically vital products.

In the colonial period, coastal North Carolina was a haven for piratical activity, most notoriously for that of Edward Teach, the pirate known as Blackbeard. Teach used small coastal towns for refuge as well as for the distribution and sale of pirated goods. As well, the shallow nature of the sounds, the treacherous and constantly shifting inlets, and the lack of coastal patrols made these locales ideal bases for replenishment of supplies, rest, and the disposition of spoils. Two of his ships, including his flagship *Queen Anne's Revenge*, were lost near Beaufort Inlet, and thanks to archaeological rediscovery, and an ongoing excavation, *Queen Anne's Revenge* is now a precisely marked and better-understood element of the maritime cultural landscape. Blackbeard met his end in a legendary battle with Robert Maynard in the sound near Ocracoke Island. The result of the engagement left Teach headless and gave Ocracoke a celebrated historical event. Local businesses, marinas, and even college sports teams have borrowed themes from the lore of piracy in North Carolina to represent themselves.

Beginning with the Civil War, that vulnerability led the Union to focus its initial offensive operations on the Banks. Additionally, since the inlets were a maze known only to locals and therefore valuable to the blockaded Confederacy, temporary forts

Johnson's General History of the Pyrates

Figure 31. Blackbeard: Edward Teach or "Blackbeard" was one of the golden age of piracy's most notorious villains. Blackbeard was known to live in North Carolina for a time, and was famously killed at Ocracoke Island.

> It was not possible to prevent the landing, owing to the situation of the point chosen. The enemy landed on the banks, just above the neck of the Sound, thus interposing a small surface of water between them and the attacking force, or compelling such force to circle around the lower extreme of the Sound; either of which movements would have to be done under the fire of the whole fleet.
>
> - Fayetteville (North Carolina) Observer, January 26, 1865

were constructed on the Banks, especially at Oregon and Hatteras Inlets – forts which no longer stand but which may have left archaeological traces. At Cape Fear, the need to keep the river open for the Confederate blockade running trade led to the fortifications at the mouth of the river such as Fort Fisher, and upriver at Fort Anderson, as well as a gauntlet of obstructions and gun batteries to keep away would-be intruders. The maritime landscape retains the eroded remains of Fort Fisher at the Cape Fear as one reminder of the conflict, as well as visible and submerged remains of blockaders and blockade-runners.

Post-Civil War defense cuts notwithstanding, by the 20th century, the global conflicts and the arrival of German U-boat traffic in World Wars I and II again focused attention on this as a section of coast that was strategically important. With battles on the Outer Banks occurring only during the Civil War, other conflicts have included the protection of revenue by the Revenue Marine (later the Coast Guard), efforts to suppress piracy and the use of the Banks as a pirate haven, and the stationing of naval gunboats in the War of 1812. One of those gunboats, wrecked during the war, remains an archaeological element in the Outer Banks' maritime cultural landscape.

Major national and international conflicts touched the region as well. During the Revolutionary War and the War of 1812, the sounds and rivers of eastern North Carolina were avenues of transport. As noted, the remains of a Jeffersonian gunboat, Gunboat #146, uncovered by a winter storm in 1939, documented, reburied and subsequently

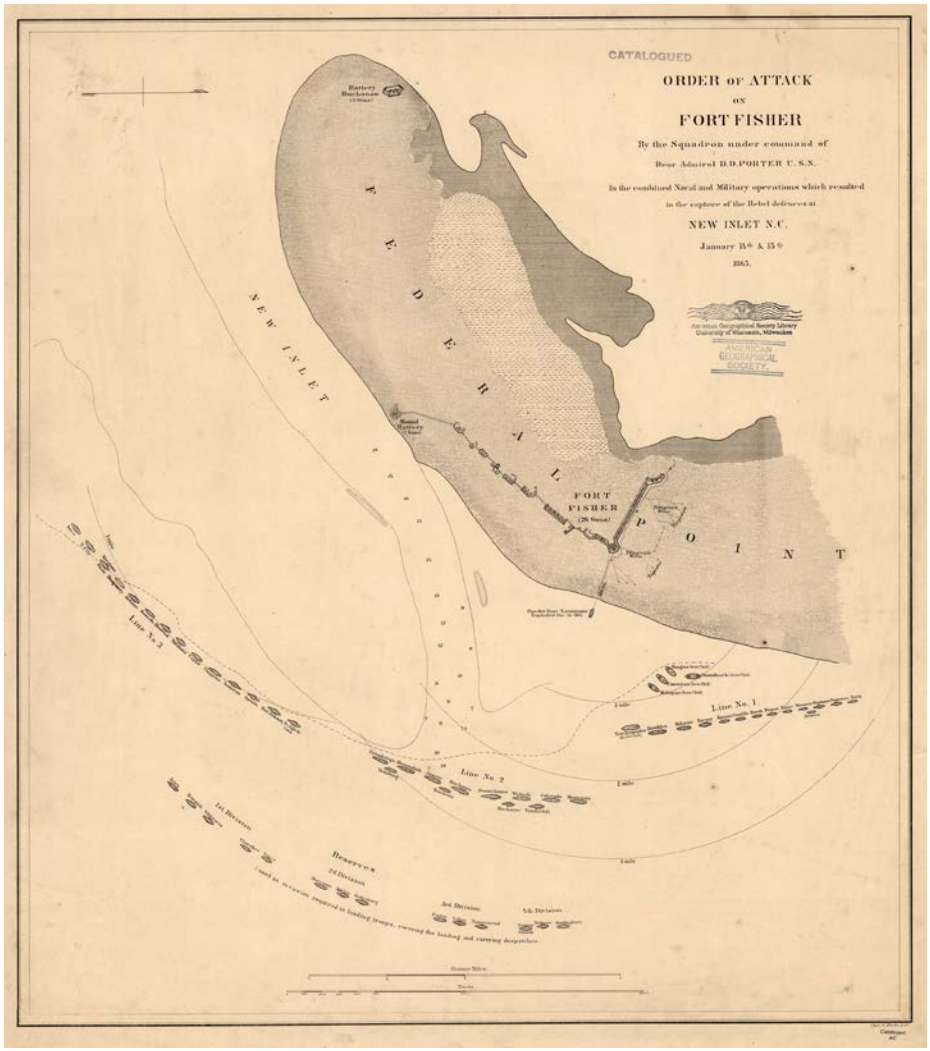

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Figure 32. Order of Attack: This U.S. Coast Survey chart shows the order of Union Navy ships attacking Fort Fisher.

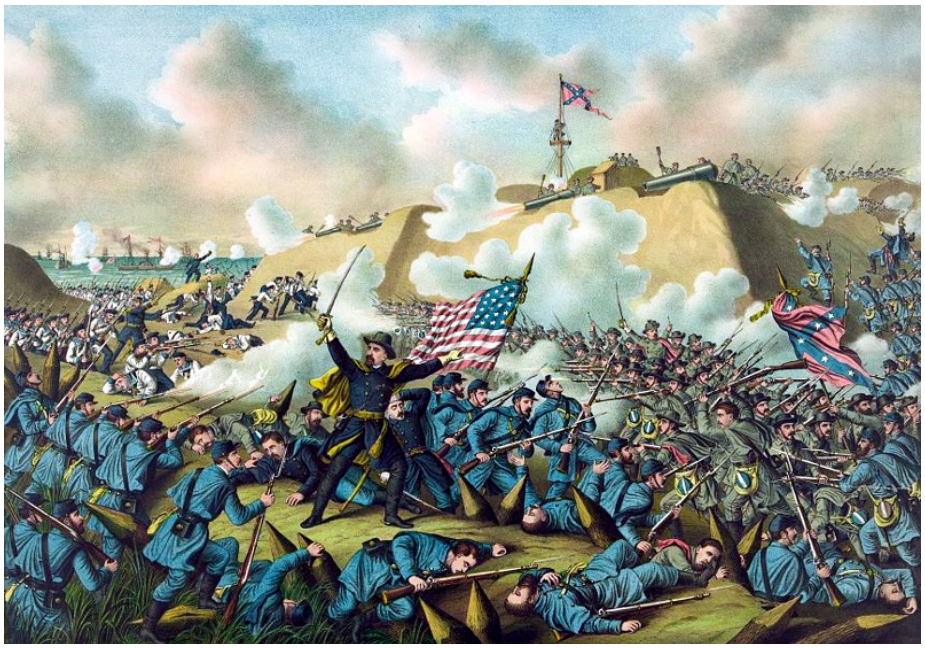

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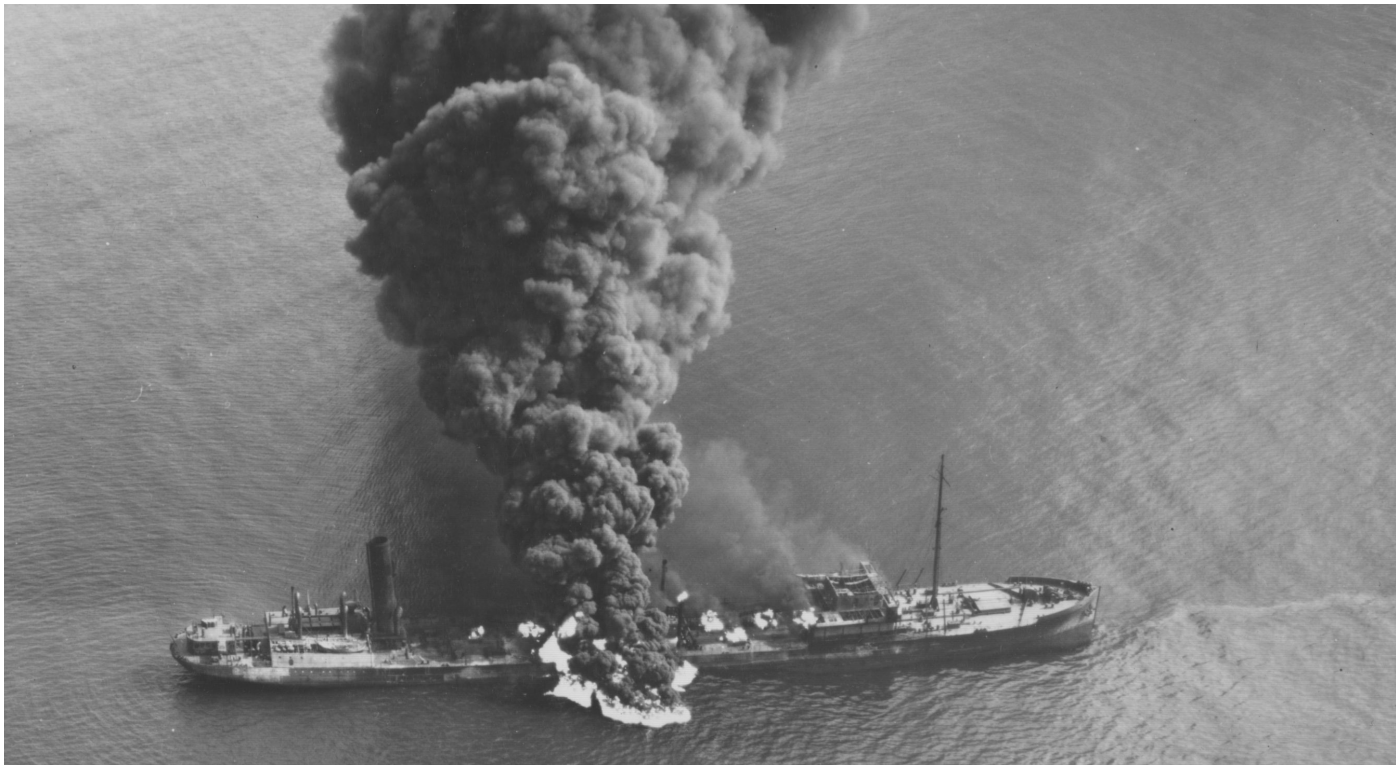
Figure 33. Fort Fisher Falls: The Confederate seacoast fortification guarding the entrance to the Cape Fear River and the port of Wilmington finally fell to the Union in 1865.

Library of Congress

Figure 34. A Tanker Burns "Only 3 Miles Out": Tankers engulfed in flames were common sight off the coast during World War II, and this wartime poster notes just how close some attacks were to the shore.



National Archives

Figure 35. SS *Byron D. Benson* Burns: The tanker burns following a torpedo attack from U-*552* off Nags Head, NC.

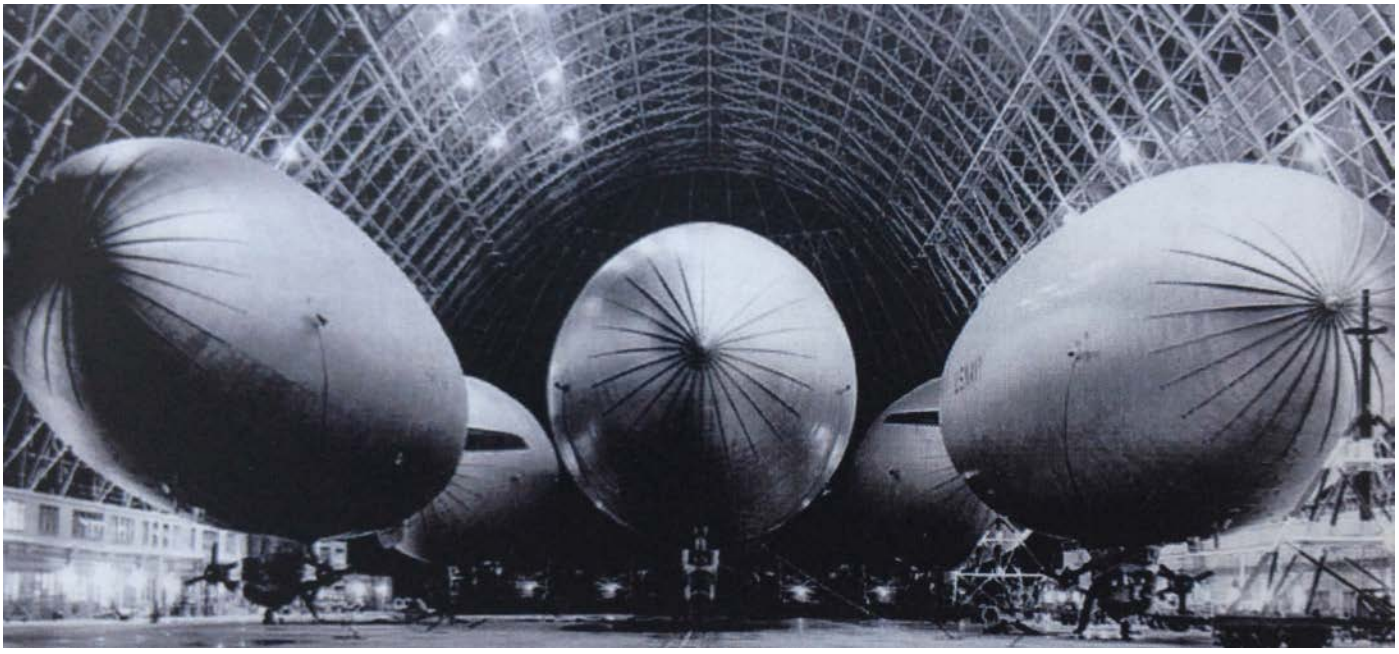


Figure 36. U.S. Navy Dirigibles at Weeksville Airfield: This airfield was constructed to house dirigibles for the U.S. Navy, which were essential for Antisubmarine Warfare during WWII. This massive structure still exists near Elizabeth City, NC and remains the tallest structure in eastern North Carolina.

uncovered by another storm in the 1950s and again reburied, still lies obscured under the dunes at Nags Head, NC.

During the Civil War, the Outer Banks were host to several important historical events including the loss of USS *Oriental* in 1862, the Battle of Hatteras Inlet, which saw the Union seizure of Forts Clark and Hatteras, the Burnside Expedition, the Battle of Roanoke Island, and the sinking of the famous Union ironclad warship USS *Monitor* off of Cape Hatteras during a violent storm. Additionally, the remains of a number of wrecked Civil War blockaders and blockade-runners, including the 1862 wreck of *Modern Greece*, whose wreck inaugurated maritime or underwater archaeology in North Carolina, lie off the Cape Fear and are listed as a multiple property collection of 21 sites on the National Register of Historic Places.

In the last century, two of the most influential global events in history occurred: World War I and World War II. These events shaped the world, yet the majority of the places that these events occurred were in foreign arenas. However, war on maritime commerce was the one arena that consistently brought these conflicts to the American doorstep. During World War I, German U-boats proved to be very effective at disrupting critical international supply chains. In 1918, several ships were lost off of the coast of North Carolina within sight of shore due to a German U-boat activity, including the rare loss of a U.S. government vessel to enemy attack on our shores, the *Diamond Shoals* Lightship LV-*71*.

These few losses represented a remarkable technological achievement for the time, but the scale of devastation would pale in comparison to the casualties experienced during World War II. The first six months of 1942 were strategically disastrous for the allies in U.S waters as the German U-boats attacked merchant vessels with impunity. North Carolina was of specific interest due to the natural landscape. The collision of oceanic currents and their consequent shipping lanes created a bottleneck near Cape Hatteras where U-boats could lie in wait. The bottom topography, water temperatures and long distances to deeper water ports all made the area off the Outer Banks to a prime U-boat operating area, resulting in the loss of over 50 vessels within a six month period. These shipwreck sites now serve as one of the few places in the continental U.S. where one can see the remnants of these historically important conflicts. The waters off the Outer Banks have the largest concentration of accessible WWII shipwreck remains in the United States.

Wartime events determined, in part, the course of American and world history. Conflict often generates the largest degree of historical source material and as such, illuminates centuries of the integral relationships between human activities and the natural landscape. Particularly regarding conflict, vessel types, strategies, troop movements, technology and human tragedy are all intrinsically linked to a dynamic natural landscape. That landscape is the setting that controls many of the parameters of humans operating within a natural system.

In addition to active conflict resources, there are also a great number of historical non-conflict military events within the landscape. Military testing, including current bombing ranges, have long been a part of North Carolina's cultural landscape. Massive airship bases developed for aerial support in World War II still exist as some of the tallest structures in eastern North Carolina. Like the U.S. Coast Guard Air Base Elizabeth City, these structures are also a distant but integral part of the maritime cultural landscape. Perhaps most significant are those associated with the post-World War I aerial bomb tests conducted on decommissioned battleships by Brigadier General Billy Mitchell, proving the utility of aircraft in sinking naval craft. This resulted in the deposition of the battleships USS *Virginia* and USS *New Jersey,* as well as some former German warships. Considerable world attention focused on the tests, which resulted in a collection of wrecks well off the coast.

Shipwrecks

Perhaps the most tangible reminders of our maritime heritage that dominate the landscape are the remains of the vessels that rest on or under the ocean floor. The shipwrecks that occurred off and on this coast in many ways dominate the maritime cultural landscape; lighthouses were built to warn them off, weather stations established to give mariners as well as those ashore advance warning, Life-Saving stations were built to rescue mariners in distress, and early settlers and later inhabitants sustained themselves from goods washed ashore, and built homes and other buildings from the timbers of wrecked ships. In modern times, the sunken hulks on the sea bed and the erosion-exposed remains of beached wrecks are tangible reminders and landmarks in their own right.

For nearly 500 years western maritime commerce and culture has existed off of the coast of North Carolina, and during that time countless ships have met their

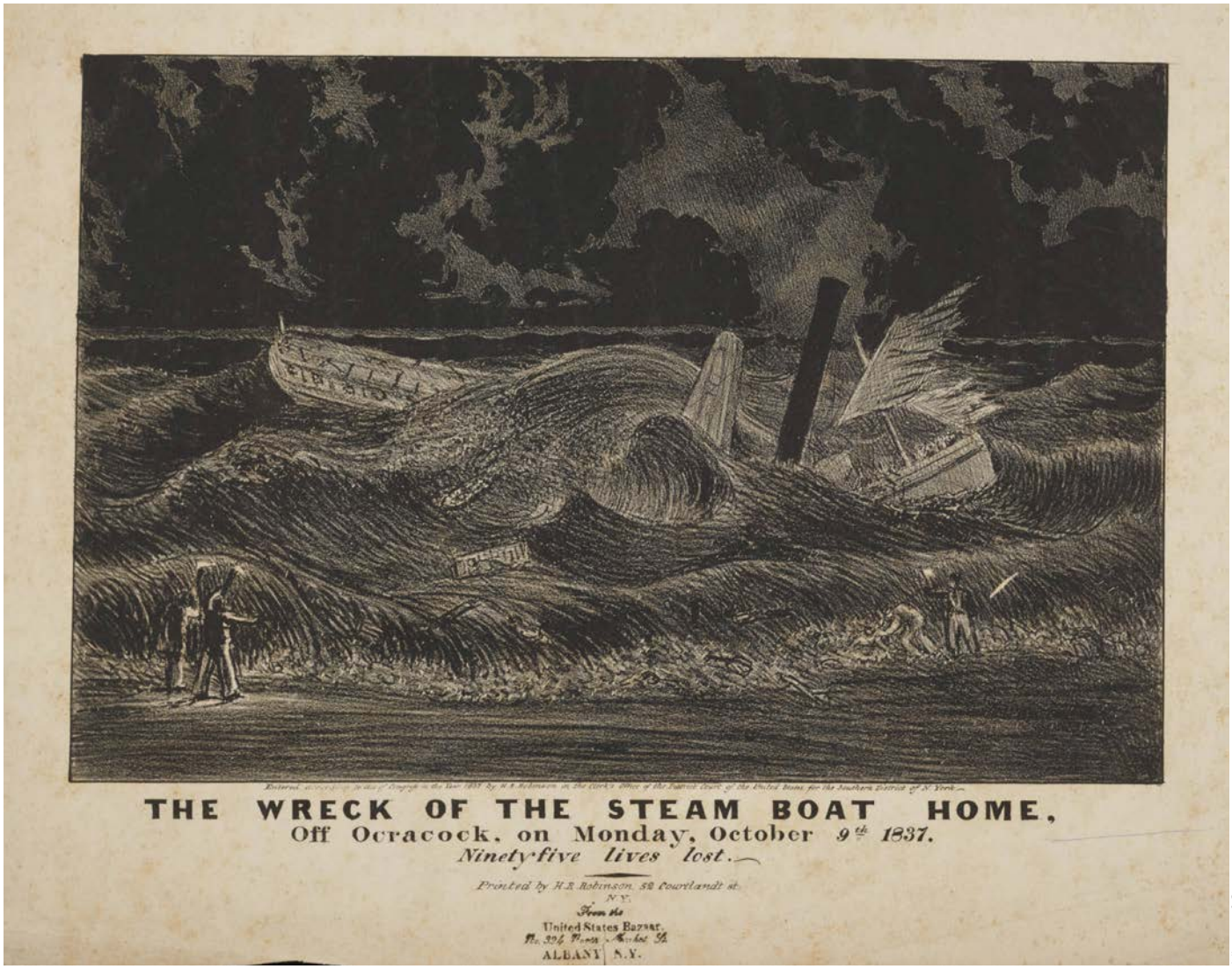


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Figure 37. The Wreck of Steam Boat *Home*: This wreck occurred on the shore of Ocracoke Island on October 9, 1837. Ninety-five lives were lost.

end in what is known as the Graveyard of the Atlantic. North Carolina's s maritime cultural landscape is also defined by the natural dynamics of oceanic currents interacting with the coastline. These ensured that this area would be a major thoroughfare for maritime commerce as it emerged as a prevalent shipping lane. These same natural features made the area exceptionally dangerous for seafarers, with shallow inlets, shifting shoals and harsh variable weather patterns. Of the thousands of wrecks known to be lost, some hold an especially important place in our collective history.

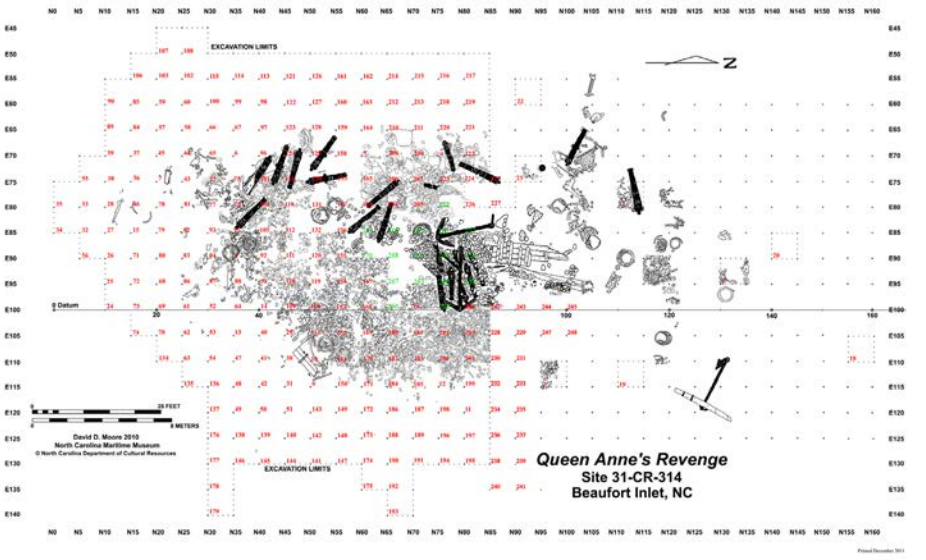
The first known wreck event in North Carolina was the *Tiger*, the Flagship of Sir Richard Grenville's fleet en route to Roanoke Island in 1585. The age of sail, which lasted through the first decades of the 20th century, saw the greatest number of vessel losses when storms and heavy seas rendered them powerless and either drove them down or onto the beaches. Steamships, ostensibly more capable of weathering a storm, also fell victim, though in lesser numbers. War sent a large number of ships to the bottom, many of them during the Civil War, and the two world wars. While modern technology has lessened the number of losses, even today, as shown by the recent loss of the replica tall-ship *Bounty* in 2012, this area continues to be treacherous.

Spanish Galleons

During the colonial period, Spanish Galleons made use of the Gulf Stream for their return trip to Europe. This took many ships right along the Outer Banks, and during one particular hurricane on 18 August 1750, several galleons experienced the region's full fury. Sailing under the command of Don Juan Manuel de Bonilla en route for Cadiz from the Caribbean, this flotilla was scattered in a storm. As a result, the *Nuestra Señora de Guadeloupe*, the *Nuestra Señora de la Soledad*, and the snow packet called *El Salvador* ran into serious trouble in the Graveyard of the Atlantic. Bonilla's flagship the *Guadeloupe* ran into Ocracoke inlet de-masted and without a rudder. The vessel had survived the storm but Bonilla was beleaguered near Ocracoke for over a month dealing with a mutinous crew, raids by the local 'Bankers' and engaging in awkward politics with the colonial

National Gallery of Art

Figure 38. Spanish Galleons: These vessels once frequented the waters off North Carolina en route to Europe from the Spanish Main carrying cargoes of gold, silver and gems, as well as spices, dyes, wood, fur and other exotic items from the New World. Some would meet their fate on the shoals of the Outer Banks.



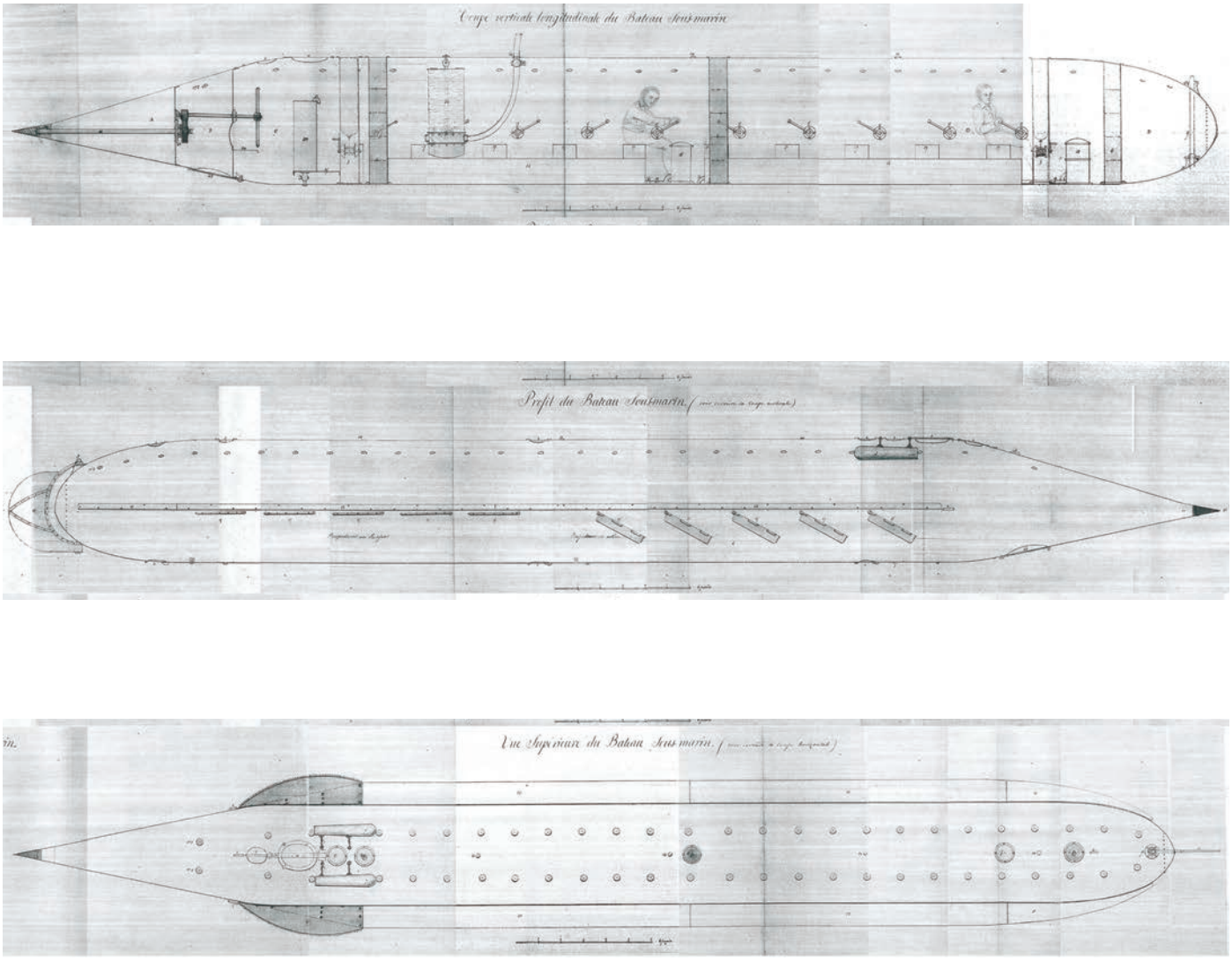
North Carolina Division of Archives and History

Figure 39. Archaeological Site Plan, *Queen Anne's Revenge*: The remains of the wreck of Blackbeard's flagship are located off Beaufort, NC, continuing to yield an incredible amount of historic information.

governance. The ship was eventually sold at auction, renamed *Nympha* and put back into service. *El Salvador* and *Soledad* were not as lucky. *El Salvador* ran hard aground and split open near modern-day Beaufort Inlet and lost all but three of her crew. The ship lay wrecked in the surf for some days and anything that could be salvaged was removed before it was lost beneath the waves. Soledad was sunk off Drum Inlet; however, the entire crew survived and managed to save the entire cargo of 14 boxes of silver. These vessels also carried exotic new world goods that found a market in Europe such as, hides, sugar, indigo and cochineal, a red dye made from insects. Sometimes cargoes were salvaged – sometimes not every commodity was salvaged.

Queen Anne's Revenge

In 1996 the remains of a colonial period site were discovered in shallow water near Beaufort Inlet, NC. The remains of this site are believed to be the wreckage of *Queen Anne's Revenge*. This English-built ship initially named *Concord* was captured by the French and converted to a slave ship known as *La Concorde de Nantes*. While



US Navy

Figure 40. Schematics of USS *Alligator*: The U.S. Navy's first submarine as designed by Brutus de Villeroi, 1863.

sailing in the Caribbean, she was captured by a piratical Captain Benjamin Hornigold who subsequently relegated command to one of his underlings, Edward Teach -- "Blackbeard." Blackbeard renamed the vessel *Queen Anne's Revenge* and used it as his flagship until it ran aground near Beaufort Inlet in 1718. The remains of this site have been the focus of an ongoing state-run archaeological project focusing on recovery, interpretation and display of the historical materials, remains, and story. This is to date the only pirate ship systematically and scientifically excavated. Blackbeard's link with this region of North Carolina did not stop with the loss of his ship. He resided in Bath, NC for a period of time and ultimately lost his head in an engagement with the Royal Navy at Ocracoke, NC.

USS *Alligator*

The U.S. Navy's first submarine was also among the many vessels lost due to the treacherous seas encountered off of the Carolina capes. Launched in 1862, *Alligator* was built by Neafie & Levy based on designs from Brutus de Villeroi. The little sub was a 30- foot long tube with nearly an 8-foot diameter. It was constructed from steel and originally powered by hand-cranked oars before upgrading to a propeller. The bow conning tower was fitted with a glass view port. For ventilation, *Alligator* had floating air tubes that would pump fresh air into the sub. Using the muscle of the crew, the vessel could make nearly four knots. Much like USS *Monitor*, the Navy was seeking new ways to counter the threat of Confederate ironclads. In its original oar-powered form it was considered inadequate and underwent retrofitting and trials at the Washington Navy Yard where it was visited by Abraham Lincoln. In March of 1863, Rear Admiral Samuel Dupont ordered *Alligator* south to participate in the capture of Charleston. Being impractical for the *Alligator* to transit under her own power, the USS *Sumpter* was enlisted to tow the vessel from the Washington Navy Yard southward. On April 2, 1863 while in the heart of the Graveyard of the Atlantic, USS *Sumpter* and *Alligator* were caught in a dangerous storm, which necessitated the *Alligator* being cut loose to prevent hazard to its tow vessel. Thus *Alligator* was lost and remains so to this day.

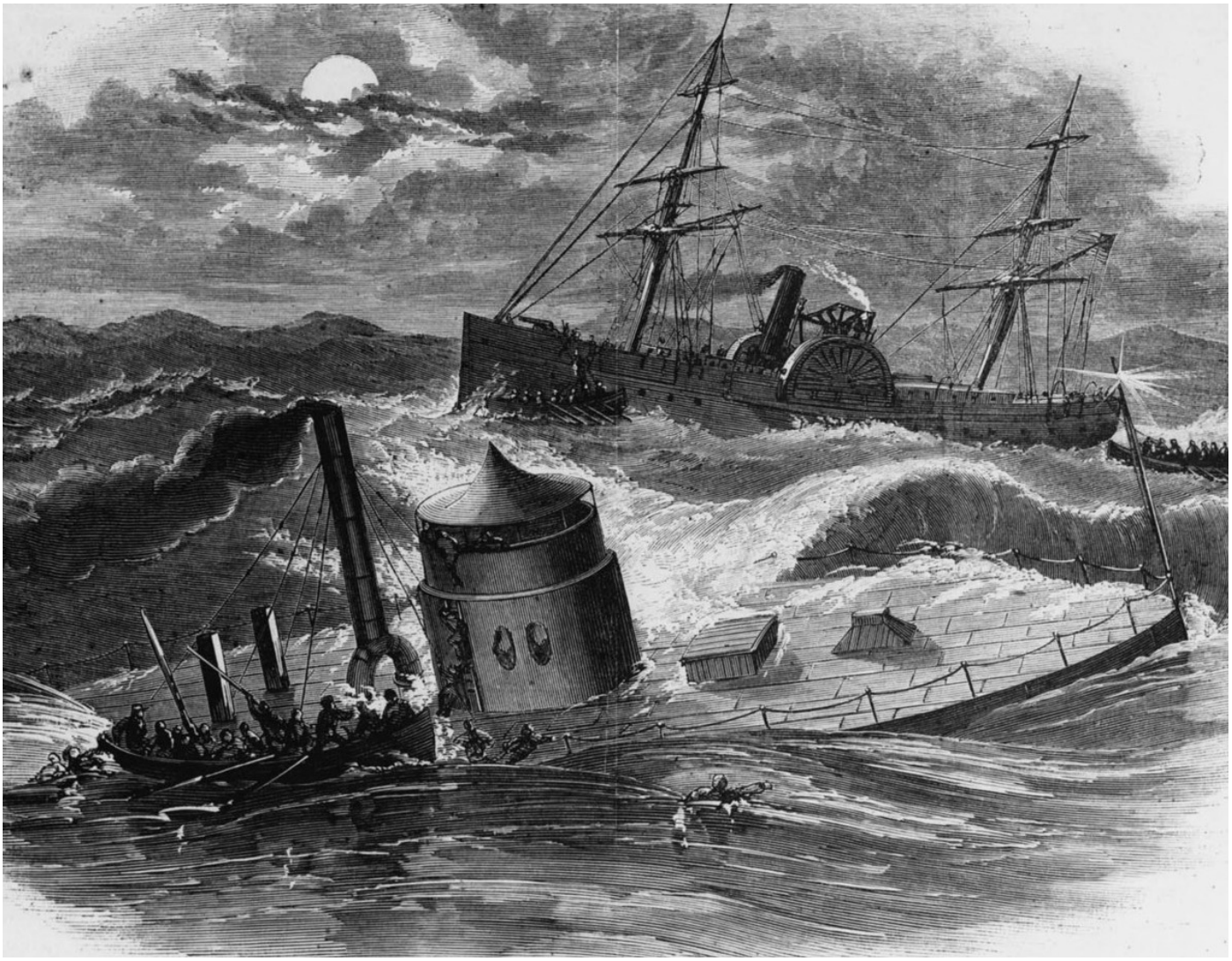


Figure 41. USS *Monitor* Sinks: In the early morning hours of New Year's Eve 1862, the famous ironclad USS *Monitor* was lost off of Cape Hatteras while under tow by the USS *Rhode Island*. Sixteen men lost their lives and secured a place in history forever.

USS *Monitor*

On March 8-9, 1862 naval warfare changed forever as the ironclads USS *Monitor* and CSS *Virginia* battled at Hampton Roads, VA, ushering in a new era of modern naval power. On March 8th, the Confederate Navy let loose their best weapon against the blockading union ships in Hampton Roads. The newly constructed ironclad CSS *Virginia* had been built on the remains of the hull of a captured union ship, the USS *Merrimac*. Union forces were aware of the ironclad threat that Virginia posed, and as such they scrambled to construct a countermeasure, USS *Monitor*. Famed Swedish inventor and engineer, John Ericsson designed a vessel that was a complete departure from warships of the day. Many doubted that it would even float. The most significant feature of this design was a rotating gun turret which would, for the first time, allow the guns to be trained on the enemy independent of the orientation of the vessel.

When CSS *Virginia* began her attack on other Union naval vessels, the *Monitor* had not yet arrived. As a result, the *Virginia* had an opportunity to display her might, destroying USS *Congress* and USS *Cumberland* and the union feared the loss of USS *Minnesota* as well, which had run aground. The next day, CSS *Virginia* would surely return to finish the job. However, that night *Monitor* had arrived in Hampton Roads and would be standing guard over *Minnesota* the next day. When *Virginia* steamed out on the morning of March 9th, the two ironclad titans engaged at close range for hours doing little damage to one another. Finally, the pilothouse on *Monitor* was damage and she temporarily retreated. USS *Minnesota* had been successfully protected and the age of ironclads was assured.

USS *Monitor* participated in some additional operations in the James River and was eventually needed in southern ports to engage with Wilmington and ultimately Charleston, SC. As such, on Christmas Eve 1862 *Monitor* was ordered to rendezvous with USS *Pasaic* in Beaufort, NC. This would require *Monitor* to round Cape Hatteras in winter. Designed for harbor defense, *Monitor* was not built for the open ocean, requiring a tow-ship USS *Rhode Island*. On New Year's Eve,

NC Division of Archives and History

Figure 42. *Modern Greece* Ashore: The blockade runner *Modern Greece* hard aground off Cape Fear. Residents of Wilmington attempt to salvage as much of the precious cargo as possible. This was a common sight in southern ports during the Civil War.

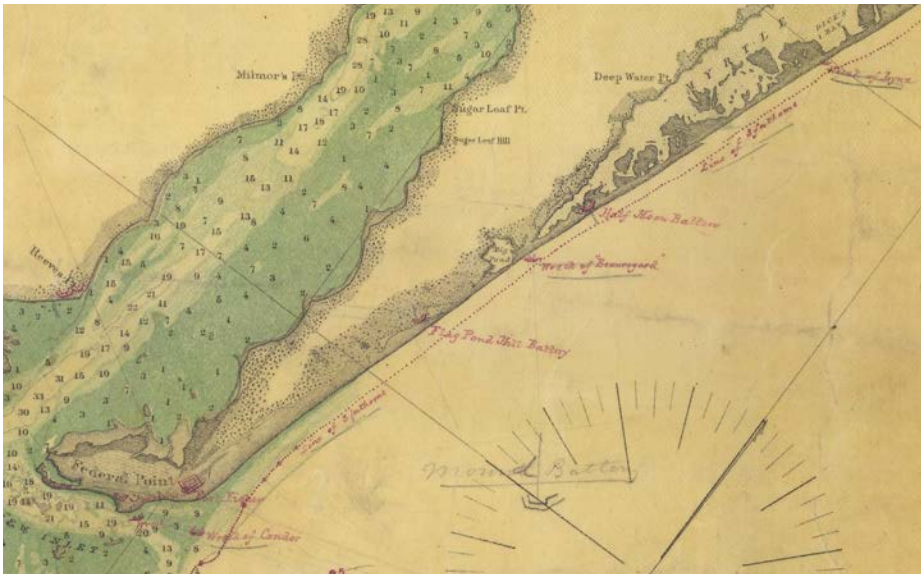
Monitor was off of Cape Hatteras and being battered by heavy seas which washed over the low freeboard and began to overrun the pumps. The *Rhode Island* was forced to cut the towlines and attempted to rescue as many men from *Monitor* as possible via their small boat. While the rescue crew worked valiantly rescuing many, in the end *Monitor* was lost with 16 of her crew. One of the ironclad's officers, William Keeler, said this of the event:

"The *Monitor* is no more… What the fire of the enemy failed to do, the elements have accomplished"

Thus, *Monitor* was lost in the depths of the "Graveyard of the Atlantic" before being discovered more than 100 years later. The story of the *Monitor* continues to be a significant part of our collective maritime heritage.

Blockade Runners

During the Civil War, part of the Union strategy known as the "Anaconda Plan" was to choke off resources to southern ports. Blockading squadrons were placed at important southern ports to prevent the influx of much needed goods. This blockade often crippled port cities such as Wilmington, NC. In order to mitigate the effect of the blockade the Confederacy turned to the risky enterprise of blockade running. Small swift vessels would break through the blockade in an attempt to deliver materials, often ending up stranded aground. During this period at least 31 steam-powered and 22 sail- powered blockade runners were lost in the Cape Fear region off of Wilmington. Additionally, several Union and Confederate military vessels were lost as a result of this activity. In 1985, following the archaeological investigation of the blockade runner *Modern Greece*, the State of North Carolina designated the area off Cape Fear as a Civil War wreck district with the National Register of Historic Places. The district includes multiple wreck sites: *Sophia*, *Arabian*, *Elizabeth*, *Beauregard*, *Modern Greece*, *Bendigo*, *Phantom*, *Hebe*, *Duoro*, *Wild Dayrell*, *Ranger*, *Venus*, *Lynx*, *Condor*, *Stormy Petrel*, *Ella*, USS *Iron Age*, USS *Peterhoff*, USS *Aster*, USS *Louisiana*, and CSS *Raleigh*.

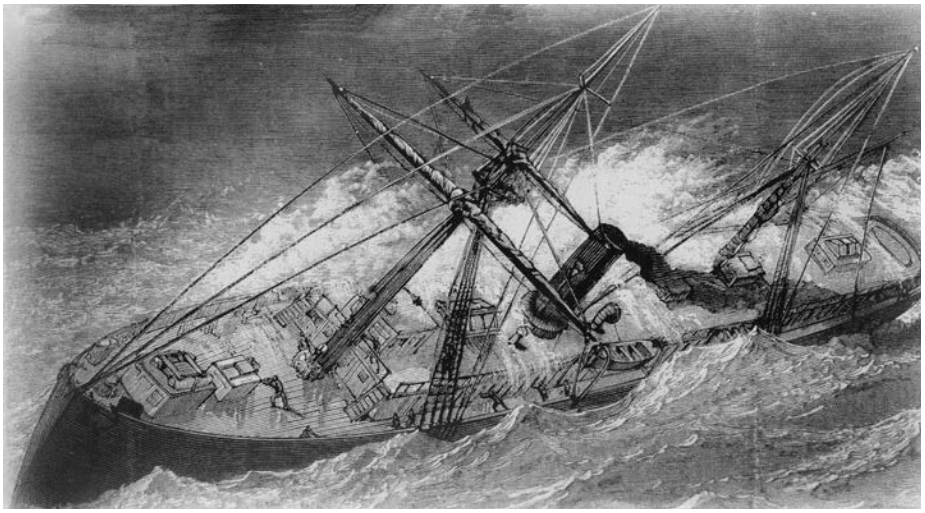


NOAA Central Library

Figure 43. U.S. Coast Survey Chart of Blockade Runner Wrecks: This chart depicts the approaches to the Cape Fear River with handwritten notations of Confederate defenses and the wrecks of blockade runners, 1864.

USS *Huron* and *Metropolis*

The winter of 1877-1878 was a harsh one for ships plying the notorious waters off of the Outer Banks. Two particularly tragic shipwrecks occurred during this time that would have a lasting effect on the future of the U.S. Life-Saving Service. On November 24, 1877, the iron hulled gunboat USS *Huron* was en route from Norfolk, Va., to Havana, Cuba, when a course error in heavy seas caused the vessel to run aground off the beach in Nags Head, NC. Despite the fact the shore was a mere 200 yards distant, the chaos and the weather conspired to take the lives of 98 men. This tragedy was hard to swallow given that it was so close to the beach and could have been managed by contemporary life-saving techniques. Inadequate funding for the Life-Saving Service was cited as a cause for the high casualties. Compounding matters, just two months later the steamer *Metropolis* met a similar fate on January 31, 1878. *Metropolis* was underway from Philadelphia to Brazil with general freight, railroad building supplies and 215 passengers when she ran hard aground off Corolla, NC. The all-too familiar scene of crashing waves and a breaking ship was once again visited on these shores with the loss of 102 lives. This tragedy, on the heels of the loss of USS *Huron*, compelled Congress to increase funding and expand the United States Life-Saving Service.



Harpers Weekly

Figure 44. Wreck of SS *Metropolis*: Engraving of the wreck of the *Metropolis* off Nags Head in 1878. This catastrophe took place just a few short months after losing USS *Huron* and saw the loss of 102 lives.

Harper's Weekly: From the Collection of Macculloch Hall Historical Museum, Morristown, NJ. Image by Stan Freeny

Figure 45. Thomas Nast Cartoon on the Wreck of USS *Huron*: This cartoon depicts the public outrage following the loss of USS *Huron* in 1877. This tragedy spurred Congress to begin discussions on bolstering the U.S. Life-Saving Service and led to the construction of a number of stations on the North Carolina coast.

National Park Service

Figure 46. The Remains of a War of 1812 Gunboat: In 1939, beach erosion exposed these remains near Nags Head, NC.

A large number of wrecks in the Graveyard of the Atlantic did not sink in deeper waters, but were driven ashore by strong winds and heavy seas. The maritime cultural landscape, as seen from the beaches, was dominated by the visible remains of many ships in the 19th and 20th centuries. Now, however, "the sun-bleached bones of hapless schooners and steamers…are today, few and far between. Unseen are… the unmarked graves of vessels buried along every mile of shore…Most of this ghost fleet's consorts lie below the restless swells and shifting shoals, while others that were grounded on the beaches have been buried by wind-blown sand. Still, if you know where to look, the evidence is there, often in surprising places" (Duffus 2007: 30-31).

Visible remains off Cape Fear included Civil War blockade runners, and on the Outer Banks, the machinery of two Civil War transports, USS *Oriental* and what may be the steamer *Pocahontas* (or SS *Richmond*) rise above the surf on the opposite ends of Pea Island. On Ocracoke, the timbers of the four-masted schooner *Anna R. Heidritter*, lost ashore on March 3, 1942, is the last sailing vessel to wreck on the Outer Banks. The remains of the schooner appear after storms on the beach 1.8 miles from the Hatteras Inlet Ferry dock off Highway 12. The five-masted schooner *Carroll A. Deering*, stranded on the beach of Hatteras Island on January 31, 1921, was visible for years, including its anchor windlass, which is now displayed at the Graveyard of the Atlantic Museum. The four-masted schooner *G.A. Kohler* wrecked on the beach of Hatteras Island when driven ashore by a hurricane on August 23, 1933. Its remains lie 4.6 miles south of Salvo, exposed by erosion from time to time. Storms exposed the largely intact schooner *Altoona*, lost near Cape Hatteras when driven ashore on October 22, 1878. The hull, eroding from the beach, was substantially intact when exposed in the 1960s; it gradually eroded out and disintegrated, but it is claimed that a portion of its bow remains on the beach near Ramp 43 at Cape Point.

On the beach at Pea Island, three miles north of Rodanthe, the overturned remains of the four-masted schooner *Margaret A. Spencer*, lost on May 18, 1925, are occasionally exposed by beach erosion. Another prominent beached landmark that attracted considerable tourist interest is the four-masted schooner *Laura A. Barnes*, which wrecked on Bodie Island's beach on June 1, 1921, blown ashore and embedded into the sand. Stripped of fittings and a number of its timbers used for construction, the lower hull of *Barnes* eroded from the beach and was marked by the National Park Service as a rare opportunity to see the bones of a victim of the Graveyard of the Atlantic.

Additional unidentified wrecks, and occasionally isolated sections of hulls and individual timbers, are exposed throughout the Banks by storms. Some are wrecks whose remains were dragged higher on shore by the Civilian Conservation Corps in the 1930s and used to anchor sand dunes; others are firmly set into place where they wrecked and bedded down. Some wrecks move over time, and gradually disintegrate, as was the case with *Altoona*. In the 1980s, a detailed survey of the beaches of Cape Hatteras and Cape Lookout National Seashores documented a number of these beached wrecks and wreck remains; the State of North Carolina Underwater Archaeology Branch and East Carolina University's Program in Maritime Studies have documented a number of these and new finds (including USS *Oriental* and the presumed *Pocahontas*), and in 2006, Kevin Duffus documented fourteen beached wreck remains and plotted their locations in the maritime cultural landscape (Duffus 2007).

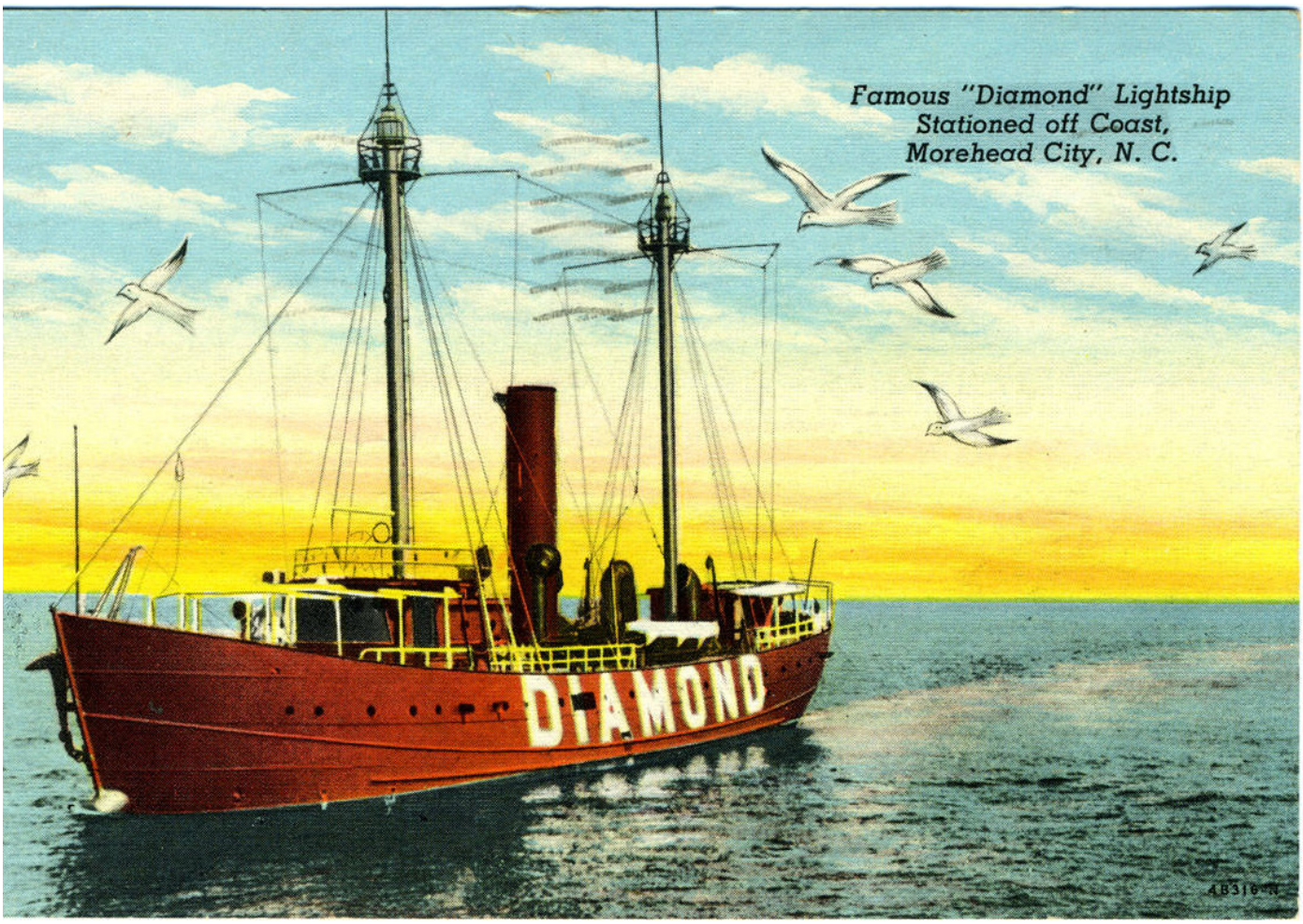


Figure 47. *Diamond Shoals* Lightship: The historic lightship was replaced more than once. Perhaps the most famous was LV-*71* sunk by U-*140* in 1918; this is its replacement.

Diamond Shoals Lightship

A prominent submerged feature of the maritime cultural landscape directly relates to the themes of navigation, aids to navigation, and war and defense. Named for the prominent landmark feature, the Diamond Shoals, this is the wreck of the Lightship LV-*71*, "*Diamond Shoals*." During World War I, a small contingent of German U-boats operated along the east coast of the United States sinking merchant vessels, a tactical approach which would return en force during WWII. On August 6, 1918, LV-*71* was on station when it heard a distress call from the nearby *Merak*. *Merak* had been attacked and sunk by a U-boat, so the LV-71 assisted in the recovery of survivors and radioed a warning to other vessels in the area. Subsequently, to silence this broadcast, U-*140* returned and sunk the little lightship with surface gunfire. The remains lie today on the ocean floor near Diamond Shoals.

Steamer *Mirlo*

Shortly after the loss of *Merak* and the *Diamond Shoals* Lightship, another U-boat, U-*117* was hunting off of North Carolina. In order to disrupt shipping, U-*117* had placed a series of mines along the coast. On August 16, 1918 the British steamer *Mirlo* collided with one of these mines off Rodanthe, NC and a devastating explosion took place. *Mirlo* was only about 10 miles from shore when the incident occurred and the men at the Chicamacomico Life-Saving Station could see the smoke and flames. Captain John Allen Midgett ordered the boats launched and headed for the flames. The scene was surreal with oil and flames covering the surface of the water and men clinging to lifeboats. The lifesavers steered right into the flames putting themselves in grave danger. For the men that were saved that day and for the valor of the Life-Saving Service crew, they were awarded Gold Life-Saving Medals of Honor from the U.S., and Victory Medals from Great Britain. This story of tragedy and heroism has lent the eponym of *Mirlo* Beach to the community, which still refers to it as such today.

The Battle of the Atlantic

During World War II, a silent war was being waged off of the east coast of the United States, with North Carolina, Cape Hatteras in particular, at the epicenter of this activity. Natural features in the landscape, particularly the confluence of oceanic currents and the resultant shipping lanes, created a bottleneck for merchant vessels. Additionally, the proximity of deep water off of the continental shelf helped U-boats operate by providing them an easy place to evade attack while still in close proximity to shipping lanes. As a result, in the first six months of 1942 the eastern seaboard became a battleground. This was the closest and most persistent theater of war to the continental U.S. Ships were seen blazing just off the beaches while shipwreck de-

U.S. Coast Guard

Figure 48. The British Cemetery at Ocracoke: This cemetery is a small but significant part of the Outer Banks' maritime cultural landscape.

bris as well as bodies of sailors routinely washed ashore. During this time, just off North Carolina alone, more than 50 merchant vessels were sunk, as well as several German, American and British Naval assets. These sites now serve as monuments to this almost forgotten aspect of history and speak volumes to the heritage of the adjacent coastal communities. Many of these sites have been listed on the National Register of Historic Places.

German U-boats

During the course of WWII, four German U-boats were sunk in the waters off North Carolina. The first, U-*85*, was destroyed by the USS *Roper* on April 14, 1942 off of Oregon Inlet and now rests in about 100 feet of water. U-*352* was sunk a month later by the USCG Cutter *Icarus* off of Cape Lookout, resulting in the first U-boat POWs taken in the United States. Then that July, U-*701* was sunk by aerial depth charges dropped from a U.S. Army Air Force aircraft out of Cherry Point, NC. All three of these U-boats now serve as the centerpiece of North Carolina shipwreck diving, and are important reminders of this critical period in world history. A fourth U-boat, U-*576*, is known to have been lost off of Cape Hatteras in a dramatic convoy battle, however the exact location of the remains is unknown.

Tanker *E.M. Clark*

Resting in 260 feet of water, *Clark* is considered one of the premier destinations for recreational technical divers. The vessel was sunk on March 18, 1942 by a torpedo fired from the U-*124*. Because of its depth, the *Clark* remains intact and was never altered for navigational purposes. As a result, this site sits on the seabed much as it did when it sank, heeled over on her port side with gaping torpedo holes in the bottom of the hull. This shipwreck is an extraordinary monument to the heroism and sacrifice of the Merchant Marine during WWII.

HMT *Bedfordshire*

One Battle of the Atlantic shipwreck contributes to the maritime cultural landscape in two ways; the first is the wreck itself, and the second is the grave plot and memorial to the bodies of its crew who washed ashore on Ocracoke Island. The British armed trawler *Bedfordshire* was sent to the United States at the onset of the war in the U.S. to assist and train the U.S. to respond to the U-boat threat. *Bedfordshire* was sunk by U-*558* just before midnight on May 11, 1942, with the loss of the entire crew of 36 men. Within a few days, four bodies, two of them identifiable as *Bedfordshire* crew, washed ashore on Ocracoke. They were buried on the island in a plot donated by a local family. A perpetual lease for the Ocracoke British Cemetery was granted to the British government by the North Carolina State Property Office in 1976; the cemetery is maintained by the U.S. Coast Guard. The wreck itself lies in 105 feet of water 25 miles offshore of Beaufort Inlet (Farb 1985:163-165).

NOAA

Figure 49. Photomosaic of U-*352*: On the seabed off Cape Lookout, NC.

Life-Saving Stations and U.S. Coast Guard Bases

The Surfmans' Motto: "The books say you have to go out. It don't say nothing about coming back!" This is a remark attributed to Surfman Patrick Etheridge of the Cape Hatteras Life-Saving Station. These sentiments were held among the men that patrolled the beaches daily, ready to lend aid to those distressed at sea. The motto was proven time and again with countless stories of heroic rescues along the beach of the Outer Banks. Other than charting, forts and lighthouses, these were the greatest physical and financial commitment of the U.S. Government in the Banks prior to WWI. At its height between Bogue Inlet Life-Saving Station on the southern end and Wash Woods Life-Saving Station to the north, there were 26 stations positioned along North Carolina's coast.

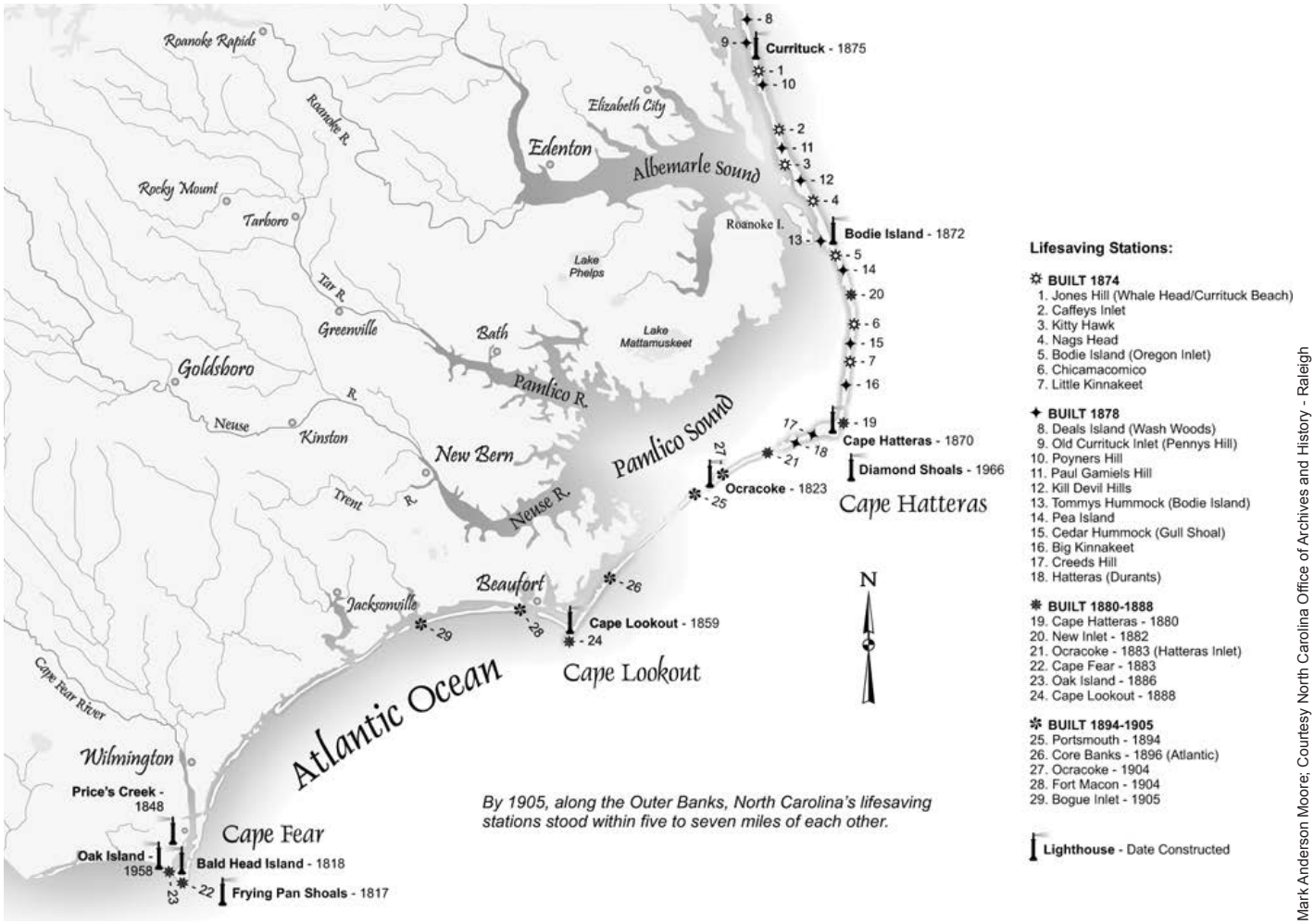
One of the most evident and accessible reminders of the relationship between shipwrecks and the Outer Banks is the long network of Life-Saving Service Stations situated along the coast. The Outer Banks are both remote and prone to shipwrecks, which necessitated the development of a life-saving service. Several catastrophic shipwrecks, such as the losses of *Metropolis* and *Huron*, demonstrated to Congress a need for a more robust network of life-saving facilities, which would eventually be absorbed into what is now the U.S. Coast Guard. These early life-saving stations were often manned by volunteers, risking their lives to save others that wrecked along their coast.

The stories associated with these stations are vast and varied. Perhaps one of the more unique stories was the nation's first all-black life-saving crew at the Pea Island station. Richard Etheridge, an ex-slave who fought for the Union in the Civ-

> "Well, we just seen 'em out there and went and brung 'em in."
>
> ***- Ocracoke Life-Saving Station Keeper James Henry Garrish***

North Carolina State University-Chapel Hill Library

Figure 50. Chicamacomico Life-Saving Station: A site rich with heritage and one of the Outer Banks' premier historic sites.



Mark Anderson Moore; Courtesy North Carolina Office of Archives and History - Raleigh

Figure 51. Life-Saving Stations on the North Carolina Coast: Chart of the locations from Currituck Beach to Cape Fear.

il War at Roanoke Island, became the first black keeper, being considered one of the best surfmen in North Carolina. Etheridge and his crew were posthumously awarded the Gold Life-Saving Medal by the U.S. Guard for the rescue of the crew of the three-masted schooner *E.S. Newman* under harrowing circumstances in 1896.

The Pea Island station's physical history perfectly illustrates the changing nature of the maritime cultural landscape. The original station, built in 1880, was destroyed by arson and rebuilt. It stood at its site with its associated structures until a new site was selected and the station was moved in 1930. The station remained in use until it was "disestablished" in March 1947. The site and buildings were turned over to the U.S. Fish and Wildlife Service for the newly established Pea Island Migratory Waterfowl Refuge in 1949; by that time the Pea Island boathouse had been moved by a local contractor across the water to the newly established Oregon Inlet Station. In 1966, the Fish and Wildlife Service no longer required the site and remaining buildings. They were sold at auction by the General Services Administration. As noted by the U.S. Coast Guard Historian's Office, "The cookhouse of the second station was moved to Collins Park in Manteo, NC, in 2006 from Rodanthe, where it had been relocated from its original location on an unspecified date." The landscape elements relating to Pea Island, therefore, include two sites, one where the heroic events of the 1896 rescue occurred, the second site, and relocated structures (Stover 2008).

The life-saving stations served an important role in the Outer Banks and remain powerful elements in the landscape. They provided work for local residents and further developed regional identity. Their infrastructure made them a setting for more than a single building, growing in time into complexes of interrelated structures. Many of these stations still exist today as tangible reminders of this heritage. Some of these sites have become well-developed museums such as the Chicamacomico Station, while others have been converted to local residences, or serve as unique venues as restaurants or other small businesses.

The United States Life-Saving Service integrated with other agencies to become the United States Coast Guard. The Coast Guard assumed operation of the life-saving stations, and beginning in the 1930s, as Coast Guard stations, these landmarks adapted to changing technologies in search and rescue, including motorized boats and helicopters, as well as an evolving role in coastal patrols for law enforcement. Prominent modern elements of the maritime cultural landscape in the Outer Banks, sounds and the Cape Fear region, the Coast Guard stations at Oregon Inlet,

U.S. Coast Guard Historian's Office

Figure 52. Pea Island Life-Saving Station: As it appeared in 1916.

Ocracoke, Oak Island, Cape Hatteras, Cape Lookout, and Bogue City, for example, include station buildings, security fences, and docking facilities as part of their infrastructure and as maritime cultural landscape elements.

Also part of the extended maritime cultural landscape is the station at Elizabeth City, North Carolina, which includes an extensive air base. Commissioned in 1940, the station is intimately linked to the coast and its waters, both in location and mission. As the United States Coast Guard notes in its website for the base and station:

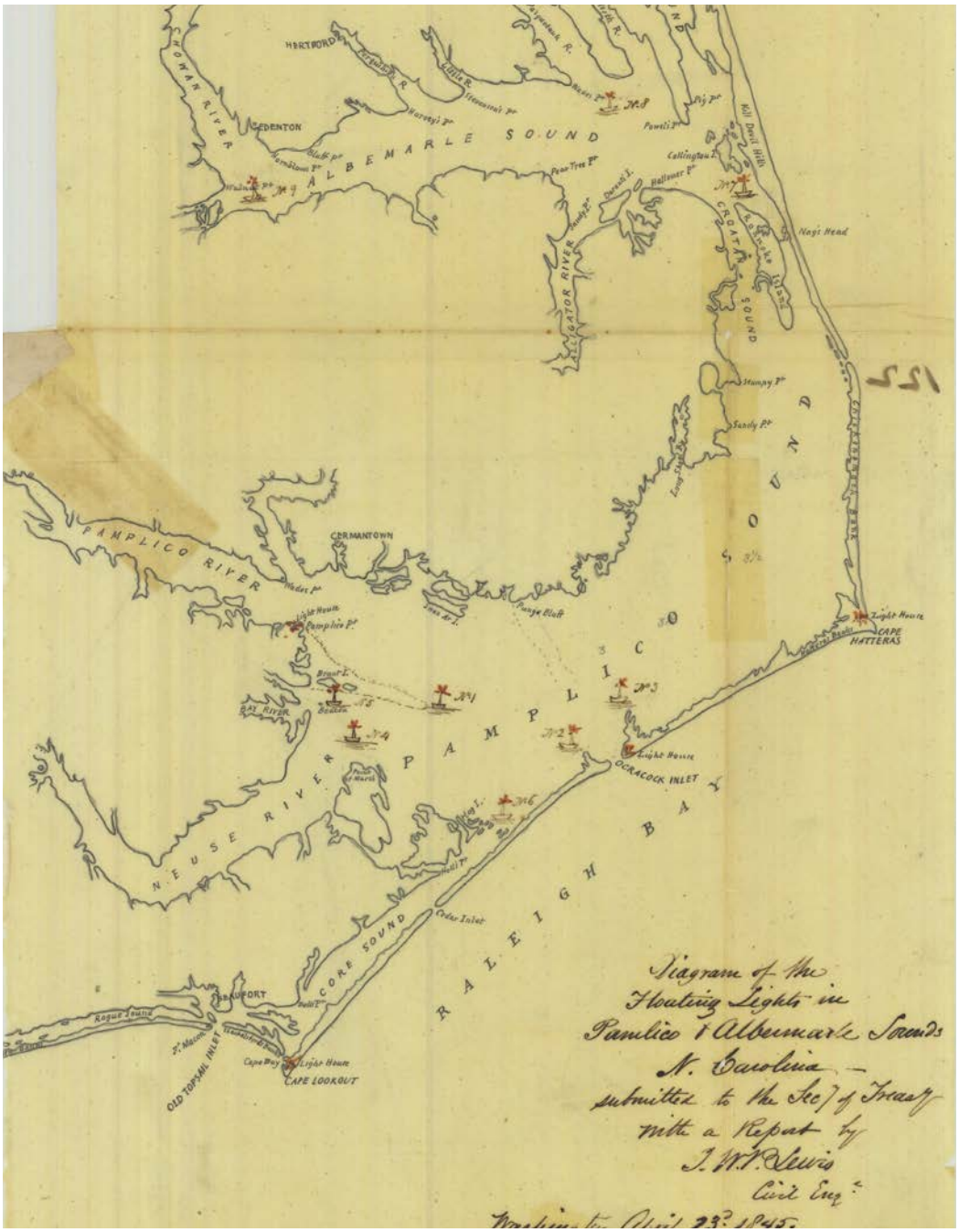
During World War II, the Air Station was under U.S. Navy control conducting Search and Rescue (SAR), anti-submarine and training missions. Since then the Air Station's missions and assigned aircraft have shifted and grown with changing national priorities and technologies. In 1966 Air Station Elizabeth City expanded after absorbing the Air Stations in Bermuda and Argentina. In addition to the Air Station, Elizabeth City's Coast Guard complex includes the Aircraft Repair and Supply Center (AR&SC), Aviation Technical Training Center (ATTC), Support Center, and Boat Station Elizabeth City (http://www.uscg.mil/d5/airstaElizabethCity/).

An important aspect to be considered, and one that is highlighted by the Air Station at Elizabeth City, is that important elements of a maritime cultural landscape are not confined to its immediate context, either on or in the water. Air Stations, from which wide-ranging coastal patrols, search and rescue, and defense take place, are also key elements in the maritime cultural landscape.

U.S. Coast Guard photo 821201-A-5555A-009

Figure 53. U.S. Coast Guard Air Station Elizabeth City: As it appeared in 1999.

Charting and Lighting the Coast



NOAA Central Library

Figure 54. U.S. Coast Survey Chart of Floating Lights and Lightships: Lightships and light buoys on the sounds illuminate the maritime highway from the coast to the interior in this 1845 chart.

Beginning with the first voyages of exploration, and then colonization, the navigators who visited the Outer Banks and Cape Fear regions, and penetrated past them into the sounds and rivers, expended time, energy and capital, at times with great risk, to chart, map and understand the landscape and to ensure their safe passage. Part of that process was also placing names on each landmark – or seamark – that they encountered. The naming at times attempted to utilize an indigenous, or native, place name, some of which persist, transliterated by non-native speakers and by writing down a language that may be only spoken. Other names reflect the different nationalities and political allegiances of the explorers, with some names not only blatant acknowledgements of Royal or private sponsors, but also reflecting religious beliefs and figures. Naturally, these were different if named by Spanish, French or English explorers and colonial entrepreneurs, with the result that certain landmarks can and do have "more than one name," which is itself part of the intangible maritime cultural landscape.

The earliest known hand-drawn chart to depict this section of coast dates to the 16th century voyage of Verrazano; other charts, notably

those of the English explorers and settlers, include the 1590 charts of John White and Theodore DeBry. Throughout the Colonial Era, maps of the coast were made and published; what remained difficult and often unpublished were charts that depicted not only the observable landscape above water, but also attempted to depict the unseen, submerged landscape, a landscape delineated by soundings that marked the locations of channels, bars and shoals. The dynamic nature of the region includes processes such as storms altering the sea bed and the Banks, shifting shoals, carving new inlets, filling in formerly deep channels and coves, as well as coastline erosion, accretion and sea level change.

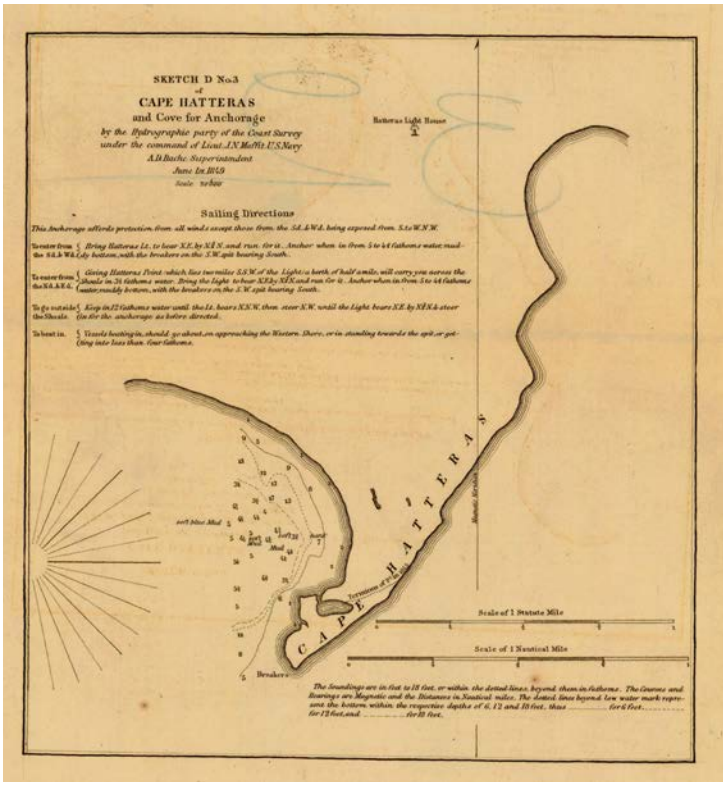
> "Several inlets once connected the ocean to the 40-mile-long lagoon made up of Currituck Sound…The last of these inlets, New Currituck, was closed by natural sedimentation in 1828. Within 50 years, over 100 square miles of brackish water and salt marsh were converted to freshwater lagoon and marsh. This change was termed "one of the most important geological changes which has taken place along the Atlantic Coast in recent times by G.R. Weiland, who described the effect of the inlet closing…in 1897."
>
> ***- Dirk Frankenberg, The Nature of the Outer Banks (1995), p. 4***

The United States' First Science Agency and Charting

To better navigate the coast, the federal government sent out the U.S. Coast Survey to accurately chart it. This group, established in 1807, was the nation's first scientific government agency and predecessor to NOAA. From 1838 through the 1870s, their surveys resulted in detailed base maps, known as "T-sheets," which in turn were processed into published charts for navigation. T-sheets contain detailed knowledge not noted on published charts; NOAA has archival copies of this data, as well as various versions of charts published in response to changes on the coast.

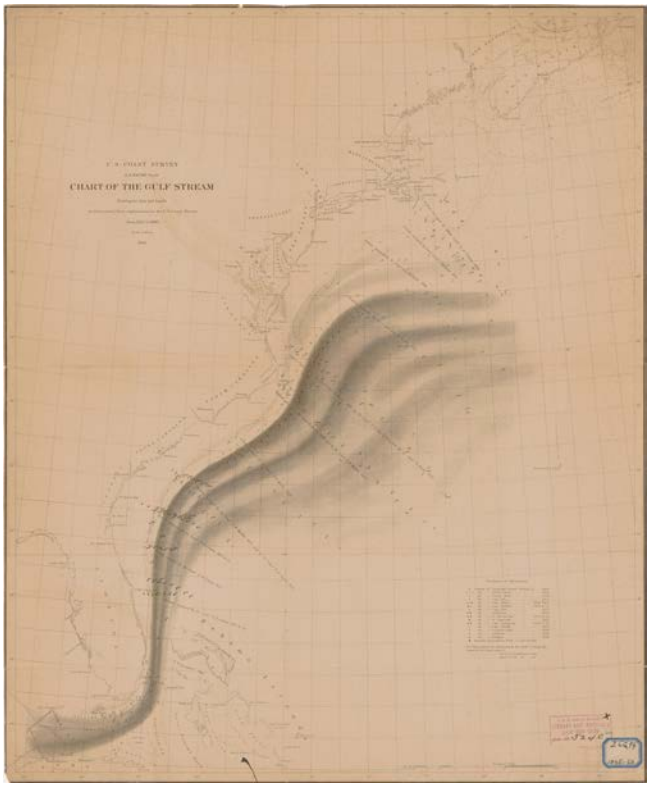
This process of surveying and charting was ongoing and demanding; it included extensive work in small boats, sounding with lead-lines, as well as mathematically precise observations that plotted shorelines. Events like the storms of 1846, which created Hatteras and Oregon Inlets, demanded resurveys as quickly as they could be accomplished, especially when an inlet such as Hatteras generated a response vital to the local and national economy -- as Hatteras began to prosper as a port with connections not only around sounds, but to and from the West Indies (MacNeill 1958).

In addition to charting the Banks and sounds, the Coast Survey beginning in the 1840s conducted the first systematic surveys of the Gulf Stream at the urging of its then Superintendent, Alexander Dallas Bache. Oceanographic, hydrographic and geological work, including deep-sea trawls, marked their work and gradually delineated the vast undersea stream and its confluence with the Labrador Current off Cape Hatteras. These two currents, like the Banks themselves, are the largest discrete elements of this region's maritime cultural landscape.



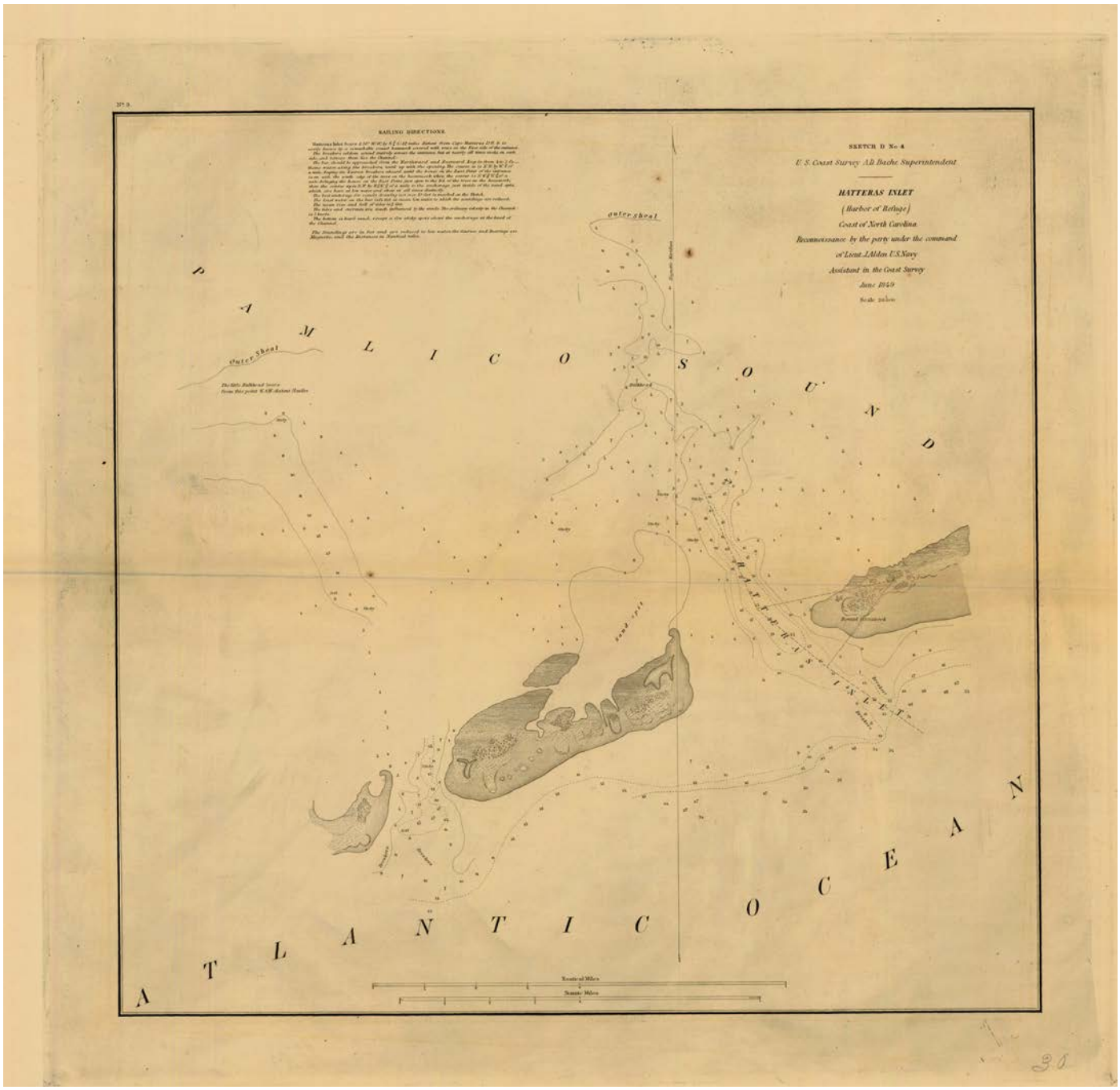
NOAA Central Library

Figure 55. U.S. Coast Survey Chart of Cape Hatteras: This is one of the earliest of these charts of Cape Hatteras, NC.



NOAA Central Library

Figure 56. U.S. Coast Survey Chart of the Gulf Stream: This depiction was created in1860.



NOAA Central Library

Figure 57. U.S. Coast Survey Chart of Oregon Inlet: This chart of the inlet was created in 1862.

The other aspect of the maritime cultural landscape that the charts capture is that they exist in an environment which is in flux, not only culturally, but physically. Since the concept of maritime cultural landscapes addresses the questions of an environment's influence on human culture, and humans' influences on the environment, understanding that these charts reflect both aspects is key.

The federal government also responded to the dangerous nature of this part of the coast by erecting lighthouses with adjacent fog signals as aids to navigation. These became icons, and the keepers and their families became important members of the community.

Vanished and Shifting Lights

Increased commerce on the east coast led the newly formed Republic to create the United States Lighthouse Establishment (USLHE) in 1789 under the Department of the Treasury. The first lighthouse commissioned and built by the USLHE was at Cape Henry, VA in 1792, and just two years later in 1794 construction began on the first lighthouse in North Carolina at Shell Castle Island, just inside Ocracoke Inlet. The lighthouse itself was a wooden pyramidal-shaped structure adjacent to a small keeper's house. While the structure is long gone, the site remains a significant element of the maritime cultural landscape. The Shell Island Lighthouse's "disappearance" highlights

Eric Blevins/North Carolina Museum of History

Figures 58 & 59. North Carolina's First Lighthouse at Shell Island Castle: The only known image that exists of the lighthouse is on this piece of pottery depicting Shell Castle Island inside Ocracoke Inlet. The lighthouse, along with every other structure on the island, no longer exists.

National Park Service

Figure 60. Ocracoke Light: This historic lighthouse is 75 feet tall and was built in 1823.

the fact that standing structures alone do not constitute key aspects of the maritime cultural landscape.

Other notable examples within the Outer Banks/Cape Fear maritime cultural landscape include Cape Hatteras Light, whose location has shifted twice. The first light, built in 1802, was destroyed during the Civil War. The second light, built in 1870, was endangered by ongoing coastal erosion. In 1999, the National Park Service moved the 1870 lighthouse 2,870 feet inland. All three sites, including the original 1802 site (now in the sea), and the 1870 site, close to the shore's edge and delineated by a ring of granite foundation stones, are important elements of the maritime cultural landscape.


U.S. Coast Guard

Figure 61. "Old Baldy" Lighthouse: This is the oldest standing lighthouse in North Carolina. First lit in 1817 this site remains a historic attraction for visitors to Bald Head Island.

Bald Head Island Lighthouse

Built in 1817, the lighthouse built on Bald Head Island near Cape Fear was North Carolina's first permanent lighthouse, and still stands today as the oldest in the state. This structure is 110 feet tall and constructed from brick covered in mottled stucco. The light was originally outfitted with 15 separate lamps and reflectors, but in 1855 was fitted with a state-of-the-art 3rd order Fresnel lens. The lighthouse today is a historic tourism attraction.

Iconic American Lighthouses

North Carolina is home to some of the most iconic American lighthouses. Cape Hatteras Light, which was considered to be the most important light on the east coast, was originally built in 1802 and was notoriously insufficient. After decades of urging from the Navy and Merchant Mariners, Congress approved construction of a new tower which was first lit in 1870 and remains at 198 feet the tallest brick lighthouse in the world and the tallest light in the United States. This light is one of the most recognizable lighthouses in the world and is a powerful symbol of the region's significant maritime heritage. The lights at Currituck, Bodie Island, Ocracoke and Cape Lookout served similarly critical roles in maritime navigation, and continue to remind all residents and visitors of the area's heritage.

Like the historic life-saving stations, and other modern maritime complexes, it is important to note that the maritime cultural landscape elements that comprise historic lights are not confined to the towers alone. These stations included keeper's quarters, storehouses, oil rooms, fences, and access roads, which were part of each lighthouse complex, and a number of them survive at the various historic lighthouses on the coast. Notable examples include the intact complex at Currituck Light in Corolla, and the relocated structures at Cape Hatteras.

Lightships and Light Towers

The natural landscape of the oceanic environment off North Carolina was such that shore-based lighthouses were often insufficient. Each of the notorious capes have dangerous shoals which jut far out to sea and can suddenly put a ship aground miles from the shore. For these reasons, the area of Diamond Shoals is considered to be one of the most dangerous spots on the coast. The first attempt at keeping a lightship at this location began in 1824. The vessels were routinely broken from anchorage, and over the decades several ships served in this capacity, as well as periodically being replaced by buoys. Following the WWI loss of LV-*71*, a lighted buoy was placed on station. In the 20th century, when not in wartime, a series of six different lightships served this area. By 1966, a permanent "Texas Tower" style lighthouse was erected here and at other similarly dangerous locations, such as Frying Pan Shoals near Cape Fear. The Frying Pan Shoals was first lit by a lightship in 1854. The station remained active until 1964, when the Texas Tower replaced it. While these stations are now in disrepair and decommissioned, they still stand as silent monuments to the dangers of these shoals. Modern lighted buoys now take the place of the old structures continuing to warn mariners of ever present danger.


National Park Service

Figure 62. Lighthouse Icons: North Carolina is home to some of the nation's most iconic lighthouses. Perhaps the most recognizable is Cape Hatteras Light, which is the tallest in North America. These lighthouses served as important safety and navigational aids and continue to serve as reminders of our connection to the sea. (Left to Right: Bodie Island Light, Cape Hatteras Light, Currituck Light and Cape Lookout Light)

U.S. Coast Guard

Figure 63. *Frying Pan Shoals* Lightship and Texas Tower: Such tower platforms as this replaced older lightships as more prominent aspects of the maritime cultural landscape of the coast; here the *Frying Pan Shoals* Lightship departs its station after being replaced.

Protection, Tourism and Recreation

One of the most intriguing aspects of a cultural landscape is that it is constantly evolving. Over time, a place and its past continue to shape how humans interact with the landscape. As such, the rich maritime heritage of landscape in North Carolina has continued to influence many of the important uses of the region today. While traditional uses still persist in some cases, new uses now serve as the foundation for burgeoning eco- and heritage tourism industries, while others have inspired new generations of scientists and historians to use this unique landscape as a living laboratory where we can learn more about ourselves, our past, and the world we live in.

The maritime landscape of the Outer Banks made it a mecca for marine-related tourism, beginning with 19th century "resorts" and salt-water bathing as well as beach-strolling and picnics beginning in the 1830s. Prior to the construction of the bridges to the mainland, and the later (1963) construction of the Bonner Bridge over Oregon Inlet, all access was by sound boat and ferry, with sound-side landings serving as the focal points for access. Now gone, the sites and archaeologically surviving remnants of those docks, dolphins and landings were part of the maritime cultural landscape.

Tourism has also included visits to beached wrecks. Modern tourism now includes sport fishing, boating, parasailing, scuba diving (including a well-developed wreck-diving industry), and the rise of extensive modern resort communities as well as private homes, many of them seasonal rental properties in communities such as Currituck, Duck, Nags Head, Mirlo Beach, Avon, Rodanthe and others.

University of North Carolina-Chapel Hill Library

Figure 64. "Taking a Dip in the Atlantic, Nags Head - Kitty Hawk, N.C.": The long chain of barrier islands that make up the Outer Banks are recognized as having some of the most spectacular beaches in the country. Recreation and tourism on the beaches during the summer months has long been a mainstay of Outer Banks life.

Museums and Parks

In addition to state beaches and parks, multiple museums and historic sites also cover the coastline. The winds on the dunes of Kitty Hawk enabled the first manned flight, and a National Park Service monument commemorates this site. Coastal fortifications Fort Macon and Fort Fisher are well maintained state historic sites with interpretive centers. The North Carolina aquarium system showcases both the natural wonders of the state's ocean resources as well as its maritime history. North Carolina also has an excellent network of state-run maritime museums: Graveyard of the Atlantic in Hatteras, Southport near Wilmington, and Beaufort Maritime Museum in Beaufort, NC. All of these sites serve as places for residents and visitors to experience the breadth of natural and cultural resources available in coastal North Carolina.

National Seashores

In recognition of its unique natural and cultural resources, Congress designated the Cape Hatteras National Seashore Recreation Area in 1953. In addition to the Seashore, the northern Outer Banks is also home to the Pea Island National Wildlife Refuge (established in 1938), and the Wright Brothers Memorial in Kitty Hawk, which commemorates the world's first successful air flight in 1903. In 1966, an additional section of the Banks was designated as the Cape Lookout National Seashore. Together these areas protect over a 100-mile stretch of shoreline, and provide access to countless recreational activities.

Beach-Going in North Carolina

One of the most accessible activities of the maritime culture of the Outer Banks is the simple timeless act of beach-going. North Carolina's chain of barrier islands provides a world-renowned stretch of hundreds of miles of sandy beaches. Some of these are secluded and remote with wild horses, while others are vibrant vacation meccas with boardwalks, piers, shops and restaurants. Each year, the spectacular beaches of North Carolina lure millions of visitors to these unique shores.

Sport Fishing

North Carolina sport fishing has a long and continued heritage on the Outer Banks and in the sounds. Beach fishing draws thousands each year to catch fish that migrate along the shores. The offshore sportfishing industry brings in additional visitors to experience the rich catch that can be had in these waters, and fills marinas with colorful 'Hatteras-style' fishing boats, providing local watermen with employment.

U.S. Coast Guard

Figure 65. Lifeboat Drill Reenactment at the Chicamacomico Life-Saving Station: Coast Guard personnel reenact the drill at a life-saving station that is now a museum in Avon.

National Park Service

Figure 67. Cape Lookout National Seashore Sign: The majority of the Outer Banks shoreline is recognized as unique and has been federally managed by the National Park Service to ensure its continued beauty for future generations.

Outerbanks.org

Figure 66. Shore Fishing: Whether in the sound, on the beach or offshore, this is a major draw for tourism and recreation along the Outer Banks. Sportsmen from all over the world come to this area to experience one of the region's most persistent pastimes.

North Carolina State University Libraries

Figure 68. Oregon Inlet Fishing Center: Images such as this one taken in 1951 reflect changes in vessels and infrastructure, historical ecology of an area, and types and sizes of catches.

Library of Congress

Figure 69. Hatteras Harbor: The fishing fleet at Cape Hatteras, ca. 1950.

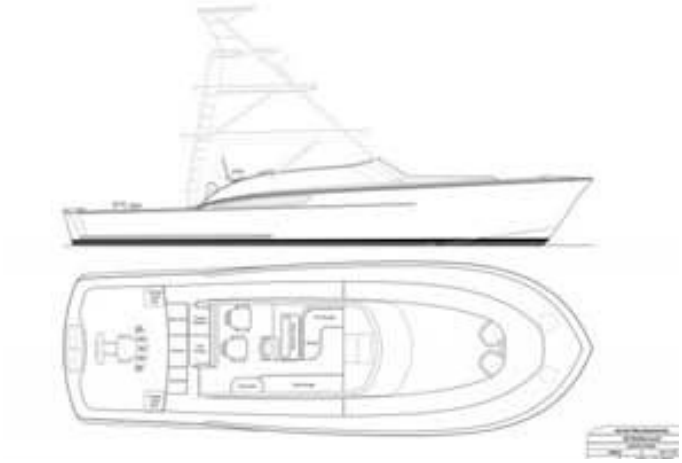
Library of Congress

Figure 70. A Fishing Boat Takes Shape: This image was taken on the Outer Banks, ca. 1938.

Among the landscape elements that relate to this aspect of the coast are the modern marinas and boat harbors. A recent website lists twelve marinas in the northern Outer Banks/Sounds alone, such as the Oregon Inlet Fishing Center, the Hatteras Harbor Marina, Teach's Lair Marina, the Ocracoke Fishing Center/Anchorage Marina, Oden's Dock, the Hatteras Landing Marina, the Broad Creek Fishing Center, and the Dock of the Bay (Outer Banks Fishing n.d.). These new facilities and their infrastructure are a reminder that ongoing activities like fishing, as they evolve over time, inspire change not only in craft but also in the infrastructure that becomes part of the changing maritime cultural landscape. The rise of recreational boating has expanded the need for docks, piers, marinas and haul-outs.

Watercraft

North Carolina's rugged seascape has necessitated sound craftsmanship for seagoing vessels. As such, there is a rich tradition and vibrant industry in building boats in the region, anywhere from skiffs for the sounds, to large luxury motor yachts. Some of the industry's most recognized names, including v, Regulator, Fountain, Parker, Jarret Bay, Hatteras and many more, make their home in North Carolina and continue this rich tradition, while creating jobs and supporting recreational use of ocean resources. Local watercraft more recently introduced to the maritime landscape include kayaks, as kayaking the sounds has grown in popularity.



Jarrett Bay Boatworks

Jarrett Bay Boatworks

Flickr/Mike+Tiffy

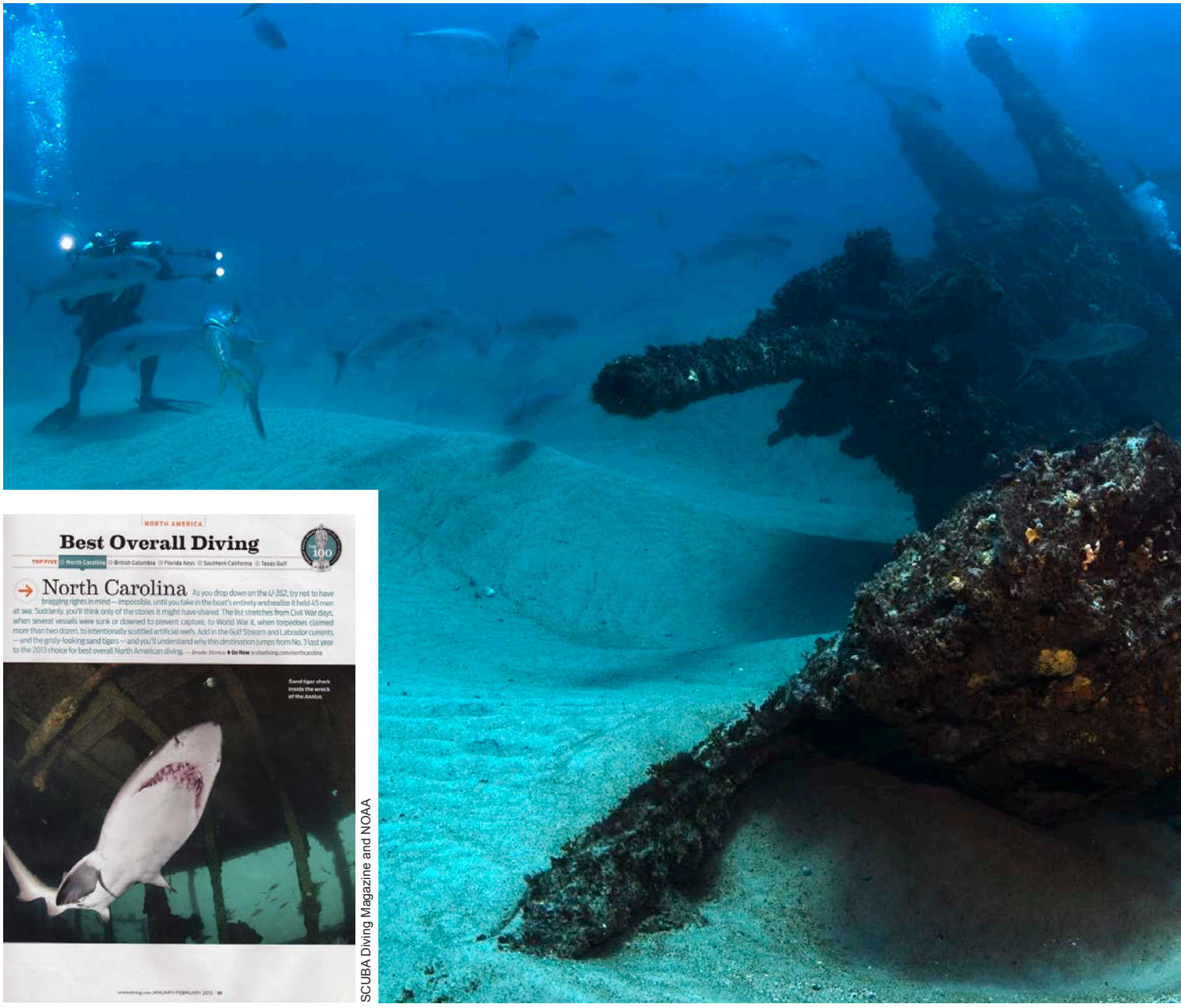
Figure 71. Construction of a Carolina-style Yacht: North Carolina has a long tradition of building quality watercraft thanks to the tough conditions these boats face. Coastal North Carolina is home to several well-established and nationally known boat builders.

Recreational Activities

One of the most immediate and intimate ways to experience the maritime heritage of North Carolina is to participate in many of the recreational activities along the shore. Recreational fishing, whether from the beach or offshore, is internationally recognized as a wonderfully enjoyable activity. The beaches of the Outer Banks are also renowned for surfing and other watersports. Kiteboarding in particular has become a staple in North Carolina, with the Banks serving as a windbreak, providing smooth waters and high winds in the sound. Additionally, Wildlife Refuges such as that on Pea Island are known as excellent places for bird-watching and experiencing the area's unique natural environment. North Carolina's coast is also home to world-class scuba diving. North Carolina is consistently ranked as one of the world's top destinations for diving due to the incredibly rich range of shipwrecks and the large diverse marine life found here. Landscape elements that relate to these activities also include smaller focused areas such as the wind-surfing spot off Canadian Hole on Hatteras Island, the island's Mountain to Sea Trail, dive shops, kayak rental facilities in the various communities, and kayak launching sites into the sounds.

Discovery of USS *Monitor* and Designation of the Nation's First National Marine Sanctuary

In 1973, researchers Dr. John Newton and Gordon Watts set out for an expedition armed with a new technology, side-scan sonar, with the intent of locating one of the nation's most iconic shipwrecks, USS *Monitor*. Located in 1973,



NORTH AMERICA

Best Overall Diving

TOP FIVE: North Carolina | British Columbia | Florida Keys | Southern California | Texas Gulf

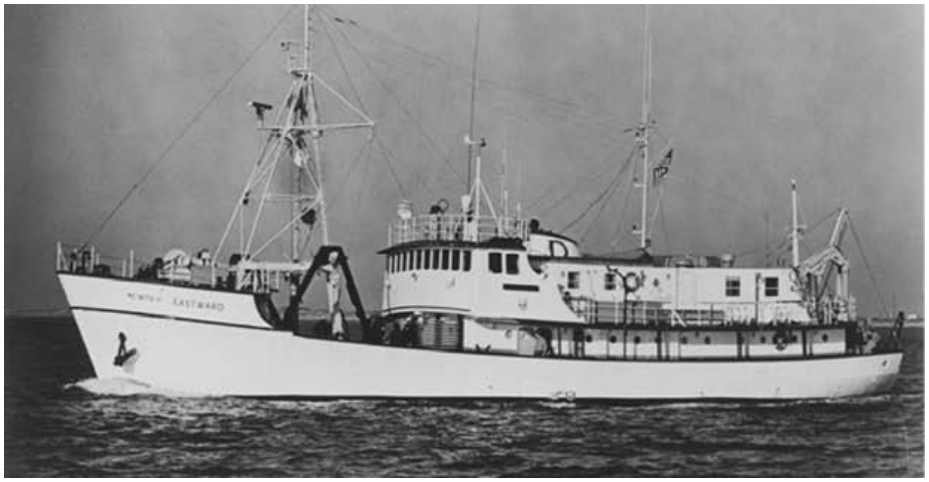
North Carolina As you drop down on the *U-352*, try not to have bragging rights in mind — impossible, until you take in the boat's entirety and realize it held 45 men at sea. Suddenly, you'll think only of the stories it might have shared. The list stretches from Civil War days, when several vessels were sunk or downed to prevent capture, to World War II, when torpedoes claimed more than two dozen, to intentionally scuttled artificial reefs. Add in the Gulf Stream and Labrador currents — and the grisly-looking sand tigers — and you'll understand why this destination jumps from No. 3 last year to the 2013 choice for best overall North American diving. — Brooke Morton ▶ Go Now scubadiving.com/northcarolina

Sand tiger shark inside the wreck of the Aeolus.

SCUBA Diving Magazine and NOAA

Figure 72. Scuba Diving Advertisement: Shipwrecks, maritime heritage and a unique ecosystem rank North Carolina as one of the world's premier diving destinations (bottom left).
Figure 73. The Wreck of U-*701*: A NOAA Diver documents the conning tower from a World War II era German U-boat, U-*701*, lost off the coast of North Carolina.

the site was positively identified in 1974. The country recognized the significance of the site and utilized new protectionist and management legislation, the National Marine Sanctuaries Act, and then designated the site as the nation's first national marine sanctuary in 1975. The wreck subsequently was also designated a National Historic Landmark. The National Marine Sanctuary System has since grown to 14 sites to protect, manage and interpret hundreds of thousands of square miles of U.S. ocean and coastal waters and their accompanying uses and resources.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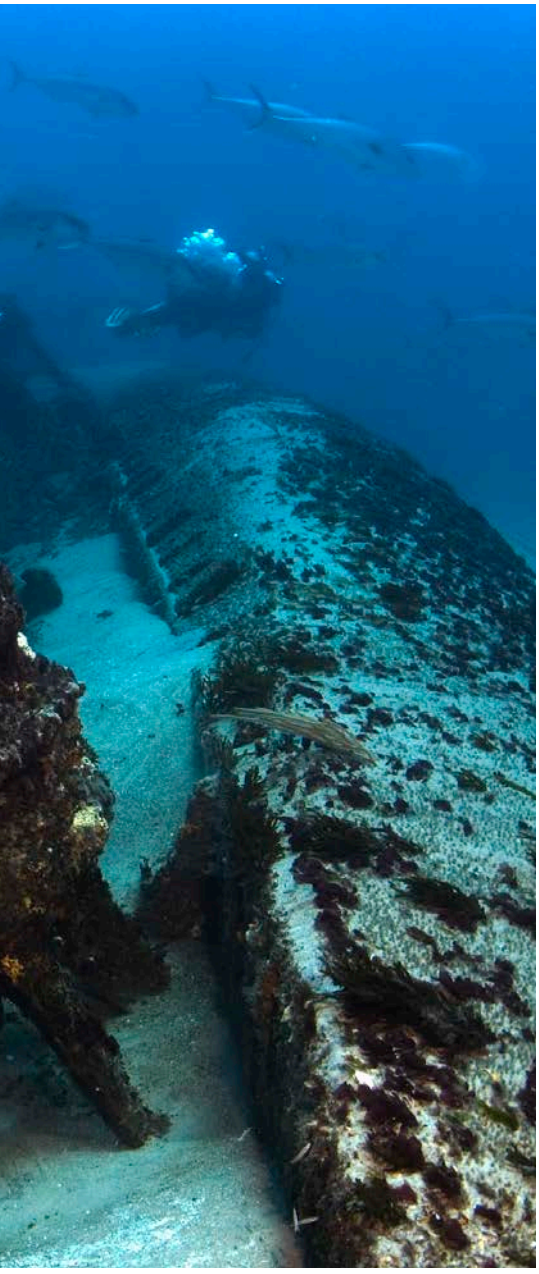
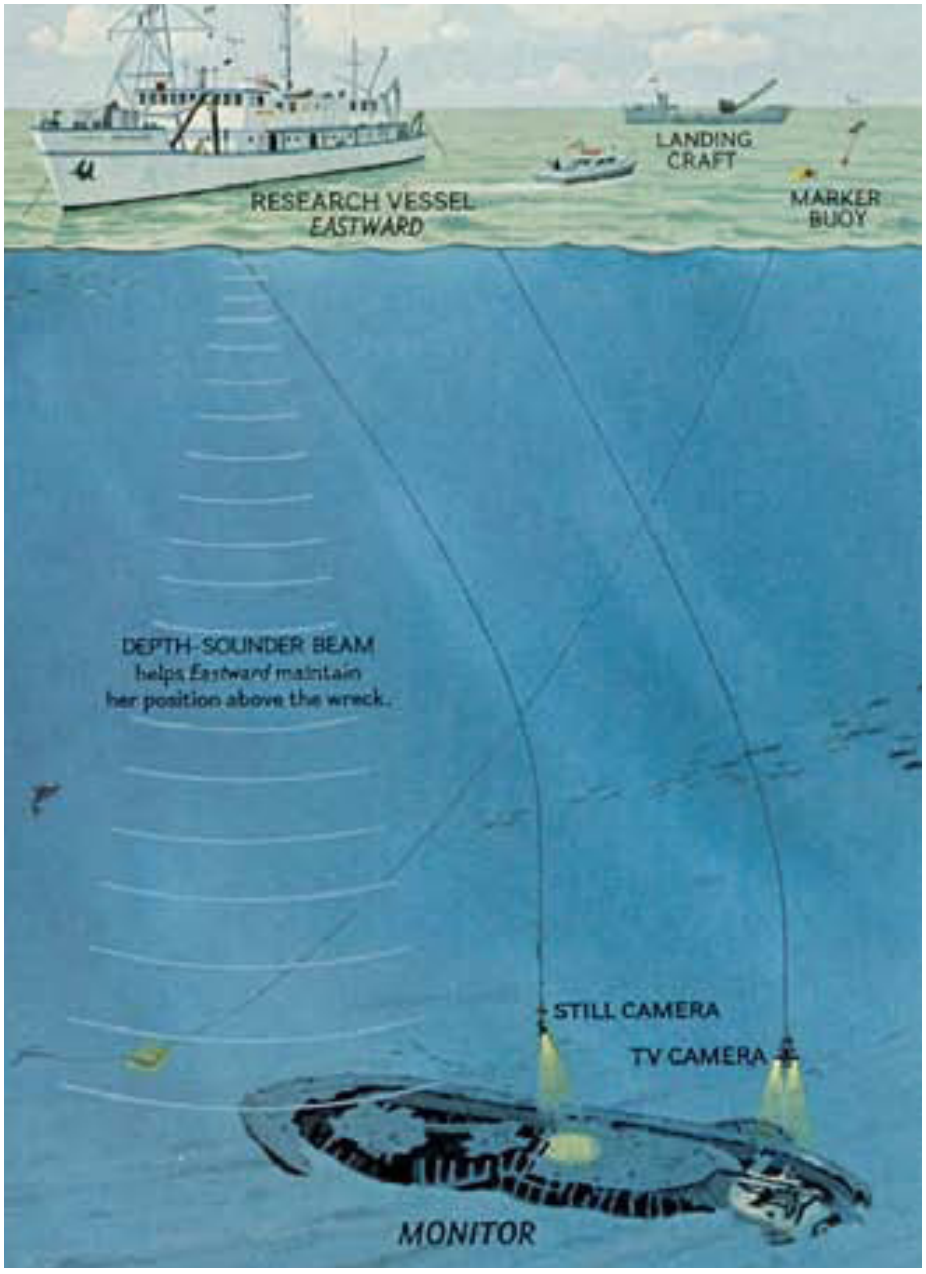

Steve Sellers/NOAA



National Geographic Society

Figure 74. Discovery of USS *Monitor*: Duke University research vessel *Eastward* was used to find the *Monitor*. This discovery and subsequent investigations of the wreck site represented the pinnacle of oceanic research at the time.

Conclusions

This document serves as an introduction to the diversity, uniqueness and significance of humanity's ongoing relationship with North Carolina's coastal environment. In this overview of the maritime cultural landscape of this region, what is obvious is not only how much the marine environment influences human activity and culture, but also how, in time, people affect the environment. Storms, changing sea levels, and beach erosion and accretion are one part of this story. Another part of this story is how highways, urban development, and increased population have had an impact all their own. No one part of the story is significant alone, but rather the entire story is significant when considered collectively.

Therefore, studying and more comprehensively characterizing this maritime cultural landscape is the recommended next step. However, this effort should not be accomplished only by a small group of government historians, archaeologists and historical ecologists, but as a collaborative process in conjunction with regional and local experts and residents. This process must be open, transparent and inclusive, and give voice to the myriad perspectives and cultures represented. It should not be an exercise to determine what element is or is not significant. Instead, the process should reflect all that has happened here and determine how this highly dynamic environment has played a role.

Acknowledgements

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ONMS Maritime Heritage Program

NOAA's National Marine Sanctuaries

National marine sanctuaries are living classrooms where people can see, touch and learn about our nation's maritime heritage treasures. The mission of NOAA's Office of National Marine Sanctuaries Maritime Heritage Program is to protect, promote and explore our national maritime heritage resources as part of our evolving coastal, marine and Great Lakes stewardship.

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- The maritime heritage program documents, inventories and protects over 300 known shipwrecks and prehistoric sites in our sanctuaries.
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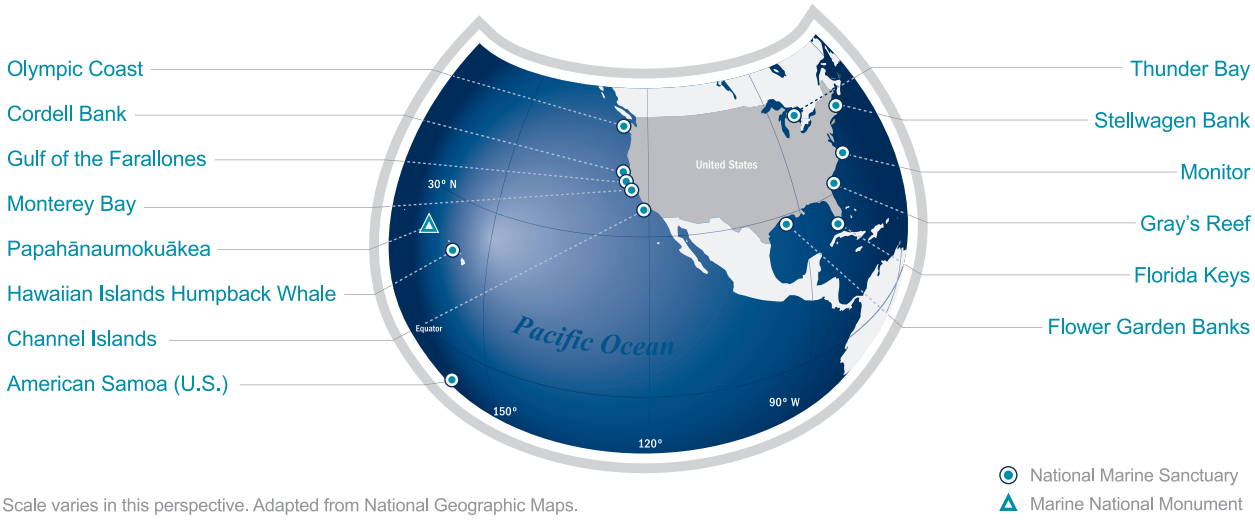
The Office of National Marine Sanctuaries, part of the National Oceanic and Atmospheric Administration, serves as the trustee for a system of 14 marine protected areas encompassing more than 170,000 square miles of ocean and Great Lakes waters. The 13 national marine sanctuaries and one marine national monument within the National Marine Sanctuary System represent areas of America's ocean and Great Lakes environment that are of special national significance. Within their waters, giant humpback whales breed and calve their young, coral colonies flourish, and shipwrecks tell stories of our maritime history. Habitats include beautiful coral reefs, lush kelp forests, whale migrations corridors, spectacular deep-sea canyons, and underwater archaeological sites. These special places also provide homes to thousands of unique or endangered species and are important to America's cultural heritage. Sites range in size from one square mile to almost 140,000 square miles and serve as natural classrooms, cherished recreational spots, and are home to valuable commercial industries.



Scale varies in this perspective. Adapted from National Geographic Maps.

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