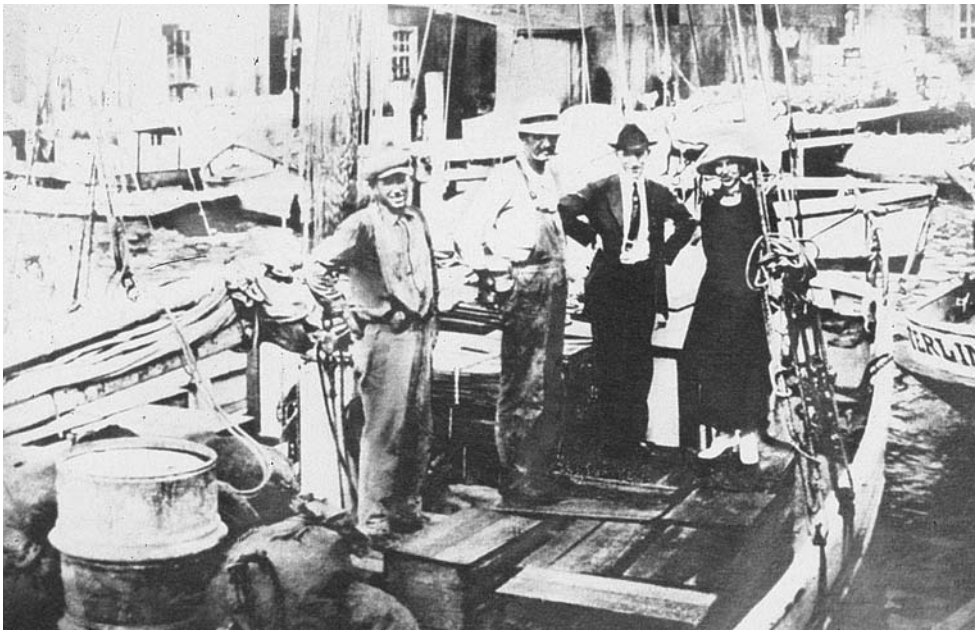
Research Report No. 14

EAST CAROLINA UNIVERSITY

The Castle Island Ships' Graveyard:
The History and Archaeology of Eleven Wrecked and Abandoned Watercraft

The 1998–2000 Castle Island Field Seasons

Pamlico River, NC • Phase II - *Predisturbance Underwater Archaeological Site Report*



Bradley A. Rodgers and Nathan Richards

with

Franklin H. Price, Brian Clayton, Drew Pietruszka, Heather White, and Steve Williams

Program in Maritime Studies
East Carolina University
Greenville, North Carolina

Primary Investigator: Bradley A. Rodgers

2006

Research Report No. 14

The Castle Island Ships' Graveyard:
The History and Archaeology of Eleven Wrecked and Abandoned Watercraft

The 1998–2000 Castle Island Field Seasons

Pamlico River, NC • Phase II - *Predisturbance Underwater Archaeological Site Report*

Bradley A. Rodgers and Nathan Richards

with:

Franklin H. Price, Brian Clayton, Drew Pietruszka, Heather White, and Steve Williams

© 2006 by the Program in Maritime Studies, East Carolina University, Admiral Ernest M. Eller House, Greenville, North Carolina 27858. Nathan Richards, series editor. Printed in the United States of America.

ISBN 0-9741937-5-5 (Volume 14)

Cover: Image of Washington waterfront, North Carolina c.1913 (Courtesy Mr. Hugh Sterling)

Preface

Starting in 1998, East Carolina University's Program in Maritime Studies began a series of archaeological field schools working out of Washington, North Carolina, analogous in this case to the program's own backyard. Washington is only 30 miles east of Greenville and its waterfront promised and delivered a plethora of local sunken working craft and wreck sites dating to the mid 19th century, a trove of material that could tantalize any historical or underwater archaeologist. In September 1999, after two field seasons and the recording and documentation of a dozen archaeological sites off Castle Island near the Washington waterfront, Hurricane Floyd devastated Eastern North Carolina with unprecedented rainfall. The Tar Pamlico River system swelled to many times its carrying capacity, eventually exceeding flood stage by some 24 ft. The river not only spilled to its once per century flood plane, but extended to the 500 year flood stage. The flood destroyed homes, apartments, buildings, small towns, and farms en masse, lives were lost and it changed the cultural landscape in many places, forever, by eliminating familiar landmarks. Amazingly the river did not change its course, as so often happens when this much energy is funneled through one drainage system. However, some islands within the river disappeared while others moved significantly. These waters exposed archaeological resources along the river bank, such as the plank road running between Washington and Greenville, and other large archaeological artifacts (at least two ferries or flats) were unearthed from their upstream resting places and re-deposited on the river bank. In some instances, the waters moved the sites to locations adjacent to the cypress trees and swamps, on the south side of the river near the town of Washington. However, in other instances the flooding seems to have destroyed many submerged archaeological sites altogether.

The carnage visited on the archaeological sites in the Tar Pamlico Basin by Hurricane Floyd cannot be overstated. During the last year of the survey (2000), when technicians and archaeologists attempted to return to the maritime archaeological sites of Castle Island documented in previous years, only two of the 11 wrecked or abandoned vessels could be re-located. The west, or upstream face of Castle Island, an area that in July of 1999 had a gently sloping beach and sand bottom had been undercut by the energy of the flood. The shallow vessels, once located in 3 to 8 ft. of water were apparently gone, and the water depth increased to 25 ft. only inches from the shore of the island. It seems obvious that the sand island will eventually slump to reform the sloping beach. When it does the island will be seen as moving eastward, since the upstream face will recede with the slump, while the sand removed from the island during the flood appears to have piled up in the flood lee behind the east side of the island. What became of the vessel sites on the west side of Castle Island is unknown. They may have washed out into the Pamlico Sound or may have become under-cut and buried in the river bottom. Alternatively, the immense current may have ripped them apart depositing pieces throughout the region.

In any case, this record may become the epitaph of these sites, the only archaeological documentation of their existence. With this realization comes a possible, hard won, site formation lesson concerning the fate of earlier 18th century vessels that must have, at one time, been located in the survey area. In essence, and to our disappointment, we can surmise that the Tar-Pamlico River, at least near its upstream islands, may periodically clean itself of most cultural material. The surveys of 1998 and 1999 could not have been timelier; our only regret is that they could not have been more comprehensive.

Contents

Illustrations

Abstract

The Maritime Studies Program at East Carolina University conducted three underwater archaeological field schools in Washington, North Carolina, between June 1998 and June 2000. During these projects, archaeologists and students of East Carolina's Program in Maritime Studies examined the bottom of the harbor of Washington, near Castle Island for submerged cultural resources and documented what was found using phase II pre-disturbance survey techniques. Nine sunken ships were discovered in this area in 1998 and 1999, though one assemblage turned out, on close examination, to be two individual vessels superimposed on one another. This made for ten vessels documented in this period. Personnel mapped and recorded these wrecked or abandoned vessels *in situ* as they lay with no mechanical excavation and no artifacts recovered. Diagnostic artifacts were drawn or photographed *in situ* or recovered, drawn and photographed, and replaced in their original location. The purpose of the 2000 field season was to assess the ten sites found in the previous two field seasons for damage caused by Hurricane Floyd, and to document one more site (Vessel Eleven) discovered half way between the island and the south shore across the river from the Washington waterfront. In total, ECU staff and students located and documented eleven vessels during the three field seasons.

Acknowledgements

We would like to thank a number of people for their assistance through the archaeological survey and preparation of this report. In particular, thanks to Director Blount Rumley and staff of the Washington Estuarium, for their donation of resources and facilities for the project as well as dock space for our research vessels. In addition, many graduate students in the Program in Maritime Studies at East Carolina University worked long hard hours under some difficult conditions to insure the accuracy of the documentation and fieldwork at Castle Island between 1998 and 2000. In alphabetical order, the 1998 field crew was composed of William C. Aycock, Cathy Fach, Doug Jones, Jason Lowris, Rod Linder, Sarah A. Milstead, Suzanna Pavelle, Larkin Post, Greg Purdy, John Rossi, Chris Southerly, Kathy Southerly, and Kim Williams. The 1999 field crew included Eric Bruning, Garry Byrd (Diving Safety Office), Tane Casserley, Jen Dorton, Kim Eslinger, Russ Green, Mike Hughes, Doug Jones, Matt Lawrence, Dede Marx, Sarah Milstead, Matt Muldorf, Mike Plakos, Larkin Post, and Steve Sellers (Diving Safety Officer). Finally, the 2000 field crew included, Sam Belcher, Heather Cain, Suzanne Finney, Russ Green, Stephen A. Hammack, M.J. Harris, Mike Hughes, Matthew Lawrence, David Miller, Marc Porter, Giovanni Wagemans, and Scott M. Whitesides.

Public outreach for this project included setting up an information tent along the waterfront with project drawings and diagrams manned by graduate students who explained to interested townsfolk how the survey was proceeding and what researchers had discovered to that point. The outreach segment was a great success that brought in more historical information from the town's longtime citizens, folks who knew the waterfront intimately. Special thanks, therefore, goes to the townspeople of Washington for their hospitality and interest in the survey. In this light, long time residents of Washington, Mr. and Mrs. Hugh Sterling were especially helpful with photographs and information concerning the waterfront. Other helpful informants include Mr. Whiting Toler and Ms. Bee Morton.

Thanks also to the staff and faculty of the Maritime Studies Program for their support and good advice, including Dr. Larry Babits, Dr. Tim Runyan, Dr. Annalies Corbin and especially Frank Cantelas for his logistical and technical help on the project and his bravery in operating the research vessels. Final thanks to Mr. Chris McCabe, dedicated graduate student and the researcher who acquired information on vessels *Alma* and *Sophie Wood*.

1

Introduction

In the late 1990s to the turn of the decade three East Carolina University archaeological summer field schools (1998, 1999, and 2000) documented submerged watercraft near Castle Island in Washington, North Carolina. *History 5530, Summer Field School in Nautical Archaeology* is part of the curriculum of the Program in Maritime Studies. Over these three years Dr. Bradley A. Rodgers, the Principle Investigator for the Castle Island study taught archaeology and site documentation in the murky waters of the Tar River. Professor William Still first suggested that submerged cultural resources may be located near Castle Island in 1985, while Director of the Program in Maritime History and Underwater Archaeology (PMHUA). Dr. Still conducted a walking survey of the island in the early 1980s and identified the remains of at least two near shore vessels. He also noted that he could see the remains of two centerboard schooners at low water, an estimated 200 yards (182.88 m) west of a point between the island and an unidentified south shore pier ruin. These vessel remnants were assigned North Carolina State site numbers 0014PMR and 0015PMR and are not included in the 1998 - 2000 survey. Later investigation by Rodgers determined that these vessels were but two among dozens of abandoned wooden vessels that lay mostly submerged in the area surrounding Castle Island and the south shore of the Pamlico River near Washington.

During the 1998 and 1999 field seasons, ECU documented ten vessels. The damaging effects caused by flooding after Hurricane Floyd in 1999 led to a third field season in 2000. The 2000 investigation of the dynamic underwater environment sought to determine what changes, if any, had occurred to the archaeological sites during hurricane related flooding. After preliminary reconnaissance and diving, the primary investigator determined that divers could not conduct data recovery at the ten sites located near or adjacent to Castle Island. This was for two reasons; researchers could only relocate two of the sites, and the water depth had changed dramatically from the gently sloping sand beach of the island in June 1998 – 1999, to 25 ft. of depth with a new hard pan sand bottom, no silt and very little loose sand. Clearly, the raging current of Hurricane Floyd had undercut the upstream or north side of the island. Since the island appears to be composed of sand, major cave in and sloughing of the face of the island made for an ever-present danger to any divers working in the area. In all, the island had become a very unwholesome place to dive. Of the ten vessels located from the previous year only one could be relocated underwater, and another above water. Researchers felt Vessel Seven's entire submerged 60 foot bulk eerily rocking back and forth in the current on the bottom, teetering on an unseen fulcrum, creating an even more dangerous and unnerving situation in the zero visibility water. Notwithstanding their possible loss, archaeologists assigned individual North Carolina State site numbers to the

vessels located in the two previous years for the completion of the research.

The overall goal of the three year survey was to complete a Phase II pre-disturbance reconnaissance of the vessels in the Castle Island Ships' Graveyard. The object of a Phase II survey is a detailed site map, photographic imaging and interpretation of the site, as well as an examination of individual artifacts for diagnostic purposes. Although project investigators permitted divers to hand fan sediment and sweep away some debris and sand from areas that needed close examination, participants attempted to neither excavate the site, nor permanently remove artifacts from the area. If researchers chose to examine small diagnostic artifacts, they recorded them *in situ*, or alternatively removed, photographed, sketched, and replaced objects. In all very little artifact material remained on these vessels, indicating quite clearly that they represented, for the most part, abandoned watercraft rather than shipwrecks. In addition, with few exceptions, river conditions had fully exposed the vessels on the bottom, and they contained very little silt and sand. In most cases, construction details became obvious with a small amount of hand fanning.

Investigation of each vessel was an extension of previous work, and generated documentation sufficient to preserve and confirm the construction and architectural record associated with the surviving hull structures. Personnel also conducted additional historical research in museums, archives, and libraries to identify primary and secondary source material associated with the eleven vessels, and the maritime history of Washington. Researchers also undertook an environmental study to investigate the various geological processes underway within the vicinity of Castle Island. However, the greatest lesson in this area was that visited on it by Hurricane Floyd. The combination of archaeological and historical documentation preserves construction and design data at each site that may now be lost, and has somewhat mitigated the disastrous affects of Hurricane Floyd in the Castle Island area.

The sites at Castle Island are a diverse and significant cross-section of the river-craft, coastal vessels and working boats of North Carolina. Such vessels played a significant role in the development of commerce in both the region, and the state. They range from flats such as oyster shell barges for the island's lime kilns, to sailing vessels of the coastal fisheries, and even include a stern wheel steam vessel, no doubt employed in upriver commerce and trade. The beauty of the Castle Island Ship's Graveyard is that it represented a plethora of vessel types all in one spot, where the archaeologist could record and document the activities of the cultural landscape through the remains left behind. Many of these vessels represent the ability of the local population to adapt to changing conditions and convert or adaptively reuse past technologies and equipment to work in new economic settings and circumstances. The diversity of the vessels located at Castle Island gives archaeological testament to the community's broad economic base, that ranged from the transportation of agricultural commodities and people on the Tar River to the use of local fisheries, and even the broader picture of ocean borne trade and commerce via what may be, large, local built sailing schooners. These abandonment surveys are part of a growing international trend in underwater archaeology to invest time and effort in the documentation of local working craft,

the type of vessel that invariably made or broke the economic fortunes of an individual community. Researchers see these craft for the important historic characters that they were, as well as being able to fill gaps in knowledge concerning working ships and their relationship to an area's cultural landscape (see Richards, 1997, 1998, 1999, 2002, 2003, 2004).

The horrendous loss and destruction of the Castle Island Ship's Graveyard during the flood of 1999 is a lasting tragedy. Though this report was originally intended as a survey and listing of archaeological resources available for further in depth study, it has become, by necessity, the end all and be all of archaeological work that can be conducted on the west face of Castle Island. Most of the watercraft documented in 1998 and 1999 can no longer be located, and ECU research suggests that Hurricane Floyd may have permanently removed them from the archaeological record. Fortunately, it seems that the other abandoned vessels and wreck sites located on the south shore of the Tar River mouth have escaped the destruction of Floyd, and await documentation in further ECU projects in the years to come.

All work conducted during the archaeological survey documented in this report was done under North Carolina State Permit Number 00PMR608.

2

Project Location and Environment

ECU researchers investigated eleven watercraft sites near Castle Island on the Pamlico River in Washington, North Carolina (Figure 1) during field schools conducted by the Program in Maritime Studies between 1998 and 2000. Ten of the vessels were located in a cluster slightly north and northwest of Castle Island across from the Washington waterfront. During the 1998 investigation, the sites were located in an average of approximately 5 ft. (1.52 m) of water. Following Hurricane Floyd, divers found that the only site that remained underwater (Vessel Seven) to be in 20 ft. (6.09 m) of water. Vessel Eight, the only other vessel near the island that survived the flood, is located on shore northwest of the project's primary datum point in the same location it was before the hurricane. Vessel Eleven also survived and is located underwater northwest of Castle Island (Figure 2), and appears unharmed.

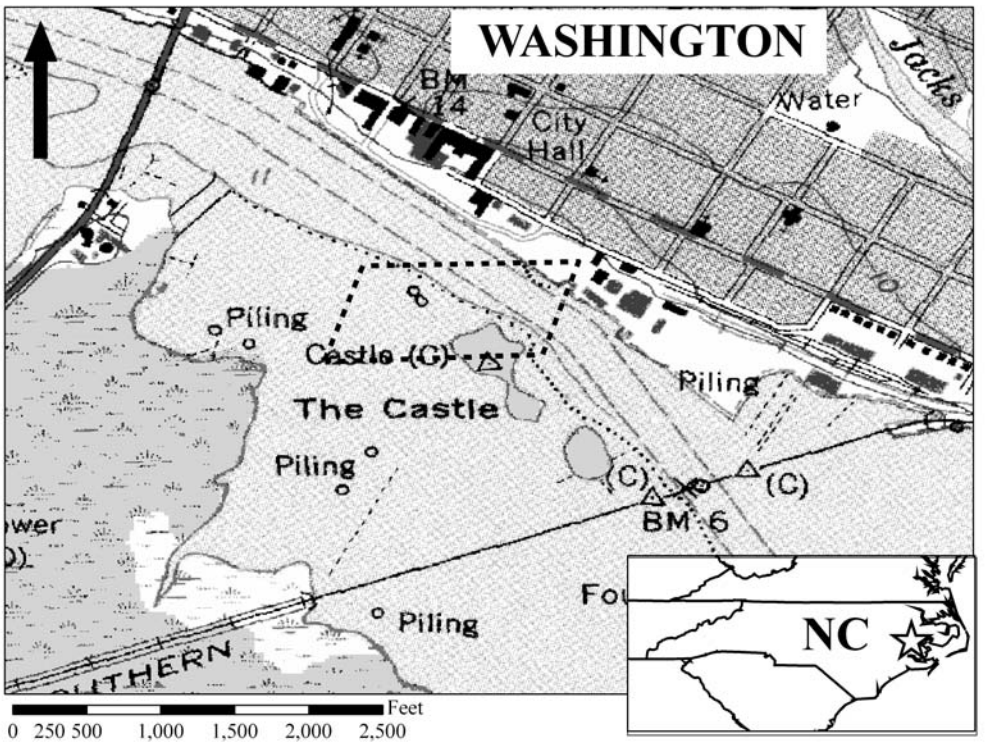


Figure 1. Map of Washington, North Carolina showing the Washington waterfront, the location of Castle Island, and the area of study (adapted from USGS topographic map).

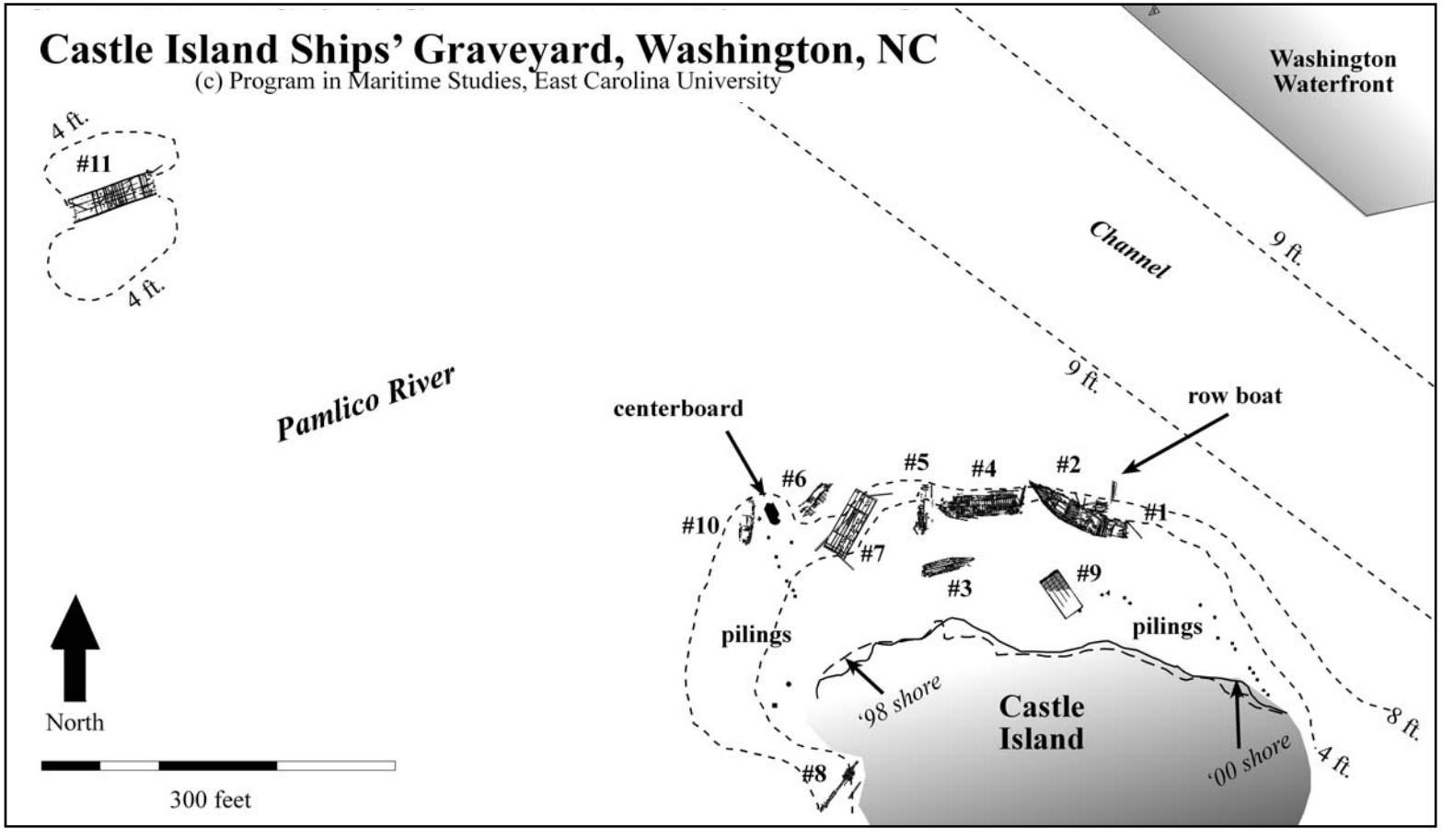


Figure 2. Master plan of the watercraft studies during the ECU Maritime Studies field schools, 1998 to 2000 (Maritime Studies Program, East Carolina University © 2005).

Castle Island is located in the Tar-Pamlico River Basin across from the waterfront of the town of Washington, North Carolina. The Tar-Pamlico River Basin originates in the Piedmont of North Carolina near the city of Roxboro. The Pamlico River section of the basin starts in Washington. The Tar-Pamlico River Basin is 167 miles in length (268 km) and covers a relief of 590 ft. (180 m). Two miles upstream from Greenville, North Carolina, the gradient of the basin and its water velocities decrease significantly. The total area of drainage is 3,050 square miles (7900 square km) (Fournet 1990:1).

The Pamlico River Estuary is a shallow-water oligohaline, nanotidal estuary with an average mid-river depth of 10 to 16 ft. (3-5 m) in the upper estuary near Washington (Fournet 1990:1). The pH of the river varies from 6 to 8. Three major factors cause the change in pH: acidic fresh water fluvial discharge during high precipitation, alkaline seawater encroachment from the Pamlico Sound during the dry season, and biologic activities related to algal photosynthesis (Hartness 1977:5). The algal blooms that affect the pH are a recurring destructive problem. The predominant algae are dinoflagellates, occurring in late winter or early spring and in the summer. Nitrogen runoff from farming in the region is the main cause of these blooms.

Geology

The Tar River changes from a swiftly flowing stream in the upper basin to a protected sound in the lower portions. The U.S. Army Corps of Engineers maintains a navigational channel 200 ft. (60.96 m) wide and 12 ft. (3.65 m) deep from Washington, east to the mouth of the Pamlico, and 100 ft. (30.48 m) wide and 12 ft. (3.65 m) deep from Washington west to Hardee Creek, a tributary of the Tar River. The annual outflow of the Tar-Pamlico River basin is 5400 cubic ft. (152.9 cubic m) per second with the greatest outflow occurring during the winter months (Giese et al. 1979:111-112). The upper 98 miles (158 km) of the basin drains saprolite and weathered crystalline rock of the Piedmont. The lower 80 miles of the basin lies in the Coastal Plain, and is mostly quaternary and tertiary in age with local outcrops of Cretaceous sediments (Fournet 1990:1). The average annual sediment yield of the entire Tar-Pamlico River Basin is 208,000 tons (Giese et al. 1979:122).

Hydrology

Wind dominates the hydrology of the basin, with little effect by lunar tides or freshwater inflow on water level or currents. The tidal ranges in Washington do not normally exceed 1 foot (0.3 m) (North Carolina Division of Resource Planning and Education [NCDRPE] 1974:11). Winds from the east-southeast blowing perpendicular to the channel axis have the maximum effect on the basin causing higher water levels. Alternatively, winds from the west-northwest have a reductive effect on water levels. Hurricane winds provide the greatest tidal change, which may reach up to 8 ft. (2.4 m). In 1955 Hurricane Hazel alone produced surges 7 ft. (2.1 m) above the low water mark at Washington, while in 1960 Hurricane Donna surged 6.5 ft. (2 m). June and July are the months of minimal wind influence (Giese et al. 1979:112).

Salinity

The salinity of the Tar-Pamlico River Basin increases in a downstream fashion with an average 0.5 parts per trillion near Washington (Fournet 1990:1). Horizontal stratification of salinity in the basin is fairly stable yearlong. Significant salt-water intrusion (2000 mg/L chloride or more) is present at Washington 23 percent of the year. Severe drought followed by a severe hurricane is the cause of greatest horizontal intrusion. This combination of events occurred in 1954 with Hurricane Hazel, producing 5800 mg/L of chloride as far upstream as Grimesland. Researchers believe that this rare occurrence only happens once every hundred years. Vertical salinity stratification is less stable than the horizontal stratification. Most of the year vertical stratification remains evenly mixed, but at certain times, bottom salinity can be up to 50 percent greater. Vertical stratification occurs most frequently during the summer when the flow of the river is at its lowest. When vertical salinity stratification is present, summer die offs of all or nearly all bottom dwelling organisms are common. The decomposition of dead organisms on the river bottom may utilize all available oxygen, leading to the death of fish, snails, marine worms, clams, and other bivalves. Research suggests that salinity is greater on the northern bank due to the corriolis effect caused by the acceleration of the Earth's rotation. Hydrologists have noted this effect in many rivers in North Carolina, although the Tar-Pamlico River Basin exhibits this greatest (Giese et al. 1979:113,122-128).

Climate

The climate of the basin is temperate, with warm summers and mild winters. The average temperature in January over the basin is 45°F (7.2°C) and the average temperature in July is 79° F (26.1°C). The average annual temperature over the entire basin is 62°F (16.6°C). Subfreezing temperatures are infrequent and short-lived, allowing for a freeze-free growing season of 200-235 days long (NCDRPE 1974:1). The average water temperature for the winter is 35.4° F (1.9°C) while the average water temperature for the summer is 93.2°F (34°C) (Hartness 1977:5).

Precipitation

Precipitation in the Tar-Pamlico River Basin occurs most frequently as rainfall with the amount varying with the distance from the coast. Washington, North Carolina receives an average annual rainfall of 52 in. (132.1 cm). During the winter, light snow occurs infrequently, with an annual average of 4 to 7.5 in. (10.5 to 19.1 cm). Precipitation over the basin is well distributed throughout the year with the greatest amount occurring during the summer and early fall. Runoff amounts to about 30 percent of the annual rainfall. Due to the change in gradient from the headwaters to the mouth of the basin below Rocky Mount, North Carolina, the Tar River becomes a slow flowing coastal stream with flat terrain surrounding it. The broad flood plain and low banks of the river allow the slow moving floodwaters to inundate extensive acreage in the basin (NCDRPE 1974:2).

Weather Events

Thunderstorms, northeasters, and hurricanes are the three major storm types that affect the Tar-Pamlico River Basin. The movement of warm, moist air into surrounding air of a lower temperature causes thunderstorms that produce intense precipitation in the summer months, raising water levels and increasing currents for a period of up to two weeks. Northeasters are similar to thunderstorms in origin except they begin as offshore disturbances and are usually associated with brisk winds and moderate to heavy precipitation. Prevailing heavy winds associated with these storms can sometimes blow water into the river from the sound, or almost drain it in a matter of hours. Hurricanes are tropical in origin and are the most severe of the three types of storms that affect the area. These intense storms occur in the late summer or early autumn and generate large amounts of precipitation and heavy winds. Hurricanes are responsible for the most severe flooding in the area (NCDRPE 1974:2). Historical sources suggest that Washington has experienced strong storms and hurricanes in 1769, 1842, 1845, 1884, 1889, 1954, 1955 (three times), 1960, 1970, 1984, 1986, 1996, 1999, and 2003 (Worthy 1976c: 500-504; Hill 1984: 13).

3

Historical Background

Exploration and European Settlement

Pre-Columbian natives inhabited eastern North Carolina for thousands of years before the discovery and colonization of the region by Europeans. It is certain that these natives used the resources and transportation offered by the rivers and sounds, but our knowledge of their activities is incomplete and will grow only as more prehistoric archaeology is completed. For the purposes of this report, it is sufficient to note that European settlement in the North Carolina region began in 1585. In this year, Sir Richard Grenville sponsored exploration of the land near the present day border of Beaufort and Craven counties (Hill 1984: 2). During this same exploratory phase, Thomas Harriott of the expedition would make the first recorded document of the Washington area. In *A Briefe and True Report of the New Found Land of Virginia* (1590), Harriott named the area in honor of Queen Elizabeth. His report of the land identified foods found in the region, such as grapes, corn, beans, peas, and tobacco. He also discussed the abundant supply of naval stores: pitch, tar, resin, and turpentine. Naval stores and lumber would much later serve Washington and the surrounding counties very well (Hodges 1976:9).

More expeditions were to follow. In 1622 John Pory, the secretary of Virginia, explored the interior of North Carolina. He investigated an area on the Chowan River and reported favorably on the land. By 1622, the area became 'Carolina,' in honor of King Charles of Britain. In 1663, Charles II gave the Lord Proprietors all the land between the Pacific and Atlantic from the 31 to the 36 parallels for distribution and exploitation. This area covered a large portion of land not yet settled by Europeans, and constituted almost the entire breadth of the present-day United States (Hodges 1976:10).

In 1663, 4,000 colonists occupied the Carolinas, and by the fall of 1669, a congregation of representatives that constituted the first governing Assembly created laws for North Carolina colonists. In that same year, John Locke penned the Fundamental Constitutions for the state of North Carolina (Hodges 1976:10).

As time passed more European settlers began to populate the eastern portion of North Carolina moving in from Virginia, and in 1696, people began to settle the areas south of the Albemarle Sound. To represent the new settlers Bath County was incorporated into the state, and by 1705, three precincts comprised Bath County: Wickham, Archdale, and Pamptecough. In 1712, these precincts would change their names to Hyde, Craven, and Beaufort (Hodges 1976:10; Paschal 1976: 1; Hill 1984: 2).

On March 5, 1697, Captain Thomas Blount gained the first land grant in Beaufort County. The prospect of becoming a colonist to the New World was not

popular in England. The costs of the voyage, as well as the land in the New World itself were expensive. In order to attract more settlers, the English government concluded that land should be provided for them, so colonizing agencies were established. Large portions of land were set aside for this purpose. Through this system, Thomas Blount received 266 acres in Beaufort County (Hodges 1976:10).

The next prominent explorer to the area was John Lawson. He began an expedition through the Carolinas on February 23, 1701, reportedly traveling from Charleston to an English settlement of the 'Pamticough.' His travels took him across 1,000 difficult miles through swamps, and across rivers, and creeks (Figure 3). Eventually he arrived at the plantation house of Richard Smith located on the Pamlico River, where the town of Washington is currently located. In 1709, he documented his discoveries in *A New Voyage to Carolina*, a work characterized by its enthusiastic description of the abundant resources that would be pivotal for the growth of Washington in the future (Hodges 1976:10-11).

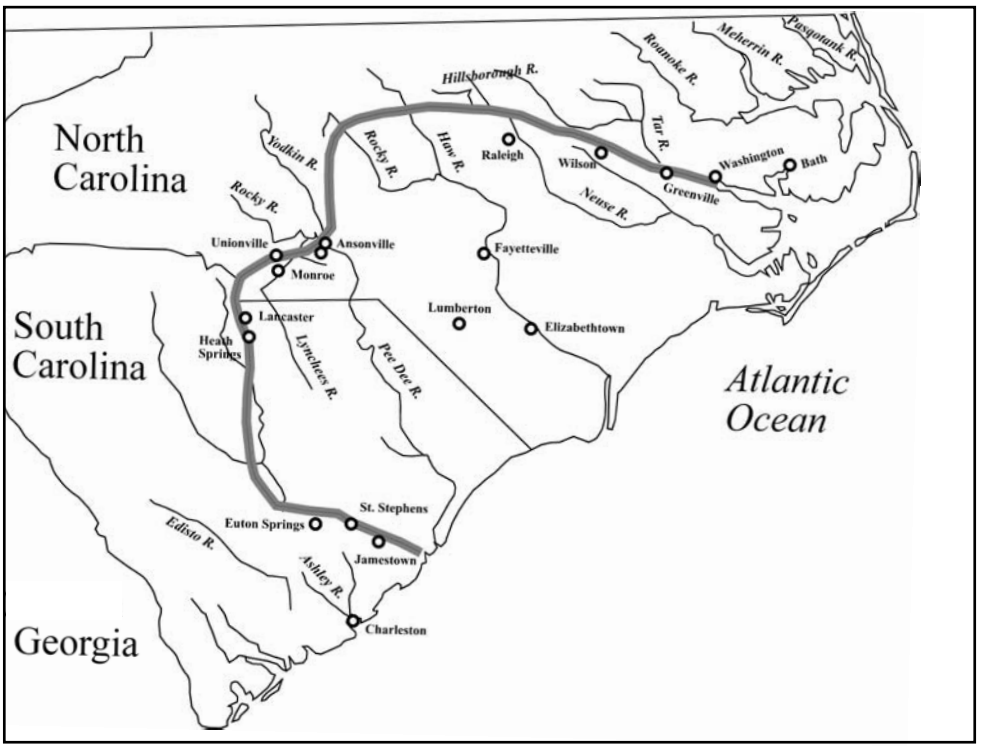


Figure 3. Illustration of John Lawson's travels through the Carolinas (By N. Richards, adapted from Hodges 1976:11).

By the early 18th century, settlers began a gradual migration towards Beaufort County. In 1706, a town had formed in Bath that was composed of ten houses and a public library. The Tuscarora wars in 1713 slowed the progress of migration to the area, but by 1714, colonial militia defeated the Indian Confederation and settlers began to return. Soon settlers were moving inland towards the Pamlico. In 1726, local resident Christopher Dudley was the recipient

of a 337-acre land grant. Eventually Dudley transferred the land to Edward Salter, who the following year sold it to John Worley. Worley would establish a short-lived plantation before selling to Thomas Bonner who constructed a house one mile (1.6 km) north of present day Washington at Bonner Hill. This area was first known as Bonner or 'Forks in the Tar.' Upon Thomas Bonner's death in 1748, and the transfer of property to his sons James and Thomas Jr., the settlement became known as "Pea-Town." Ten years later, James Bonner sold a large portion of river-front property to an Edgecombe County merchant, Aquila Sugg who would build wharves, warehouses and other buildings adjacent to the river and in 1761, Jacob Blount and Richard Blackredge would purchase one of these as a store. By 1769, the settlement had developed the industrial sophistication to build a brig of 70 tons, the *Acorn* (Paschal 1976:1-2; Hill 1984: 2-3).

The Naming of Washington

In 1771, Bonner, realizing the value of his property due to its location at the confluence of the Tar and Pamlico Rivers, began to sell parcels of property to create the town later known as Washington (Paschal 1976: 2; Hill 1984: 3). The first known reference to the town under its present name appears in the journal of the Council of Safety which met at Halifax on October 21, 1776. The reference reads, "Resolved that Captain John Foster, commander of the armed brig, the *general Washington*, now lying at Washington, do proceed with all possible dispatch to Ocracock Bar and there protect the trading vessels" (Paschal 1976:2; Litchfield 1976: 229). Just over two months later, on December 23, 1776, the name would appear for the first time in the settlement's Register of Deeds (Hodges 1976:14). It was not until 1782, that the General Assembly in Hillsboro formally incorporated Washington into a town. In 1785, the county seat of Beaufort County moved from Bath to Washington (Paschal 1976:3; Worthy 1976b: 8; Hill 1984: 1, 3). Nevertheless, based upon these brief entries, the town Washington, North Carolina, can claim to be the first town named for General George Washington.

Shipbuilding at Washington during the Revolution and the War of 1812

In the late 18th century, Washington was a small but prosperous town. During the Revolution, it was a center for privateering. American ships, outfitted in Washington, preyed on British shipping in the Atlantic. Additionally, local men served in the Continental Army under General George Washington. The town of Washington also served as an operational base for furnishing the Continental Army with supplies and arms (Pashal 1976: 2; Worthy 1976a: 6, 1976b: 8). Historian Michael Hill suggests that Washington was named in honor of George Washington because the town was a critical supply center for the Continental Army. The port cities of Wilmington, Savannah, and Charleston came under British control later in the war, cutting off supplies to the Continental Army. The port in Washington, North Carolina, was one of the few southern ports to remain open during the entire Revolutionary War.

The Blount brothers, John and Thomas, took advantage of the war time situation and built warehouses on Washington's waterfront, and on Castle Island. The Continental Army used the warehouses to store supplies throughout the war. Many vessels, including schooners and Brigs entered the port of Washington, bringing in these vital supplies. Historian Michael Hill reported that so many vessels called on the port of Washington during the war, that the town's meager docking facilities were vastly overburdened. Crowded shore facilities forced ships to moor at the wharves or in the channel (Hill 1984: 3-4).

After the war, Washington continued to grow though the 1780s. In 1783, Joseph Schosf would note that the town was comprised of around thirty houses and that the building of cheap pine watercraft that "rot easily" was the main industry of the settlement (Pashal 1976:3; Hill 1984:4). Within two years a courthouse, prison, pillory and stocks were added (Worthy 1976b:9), and in 1786 an Englishman named Robert Hunter summarized the town:

> At present the whole town does not contain above two or three hundred inhabitants but they are building very fast. House rent is extremely dear here … Ships of four hundred hogsheads sail from hence…They load them with flats that carry sixty to seventy hogsheads each; the tobacco comes from the upper country…They are now building here a ship of six hundred hogsheads, rather too large, I fancy, for the navigation of this river…Their chief exports are chiefly tobacco, which they send to Europe. Tar, turpentine, naval stores, lumber, and pork, which they send to the West Indies (Hunter 1786 as quoted in Hill 1984:4).

William Attmore had similar comments regarding the town of Washington in 1787. The population at that time was approximately 60 families. He also commented that "The Merchants export from this Town, Tar, Pitch, Turpentine, Rozin, Indian Corn, Boards, Scantling, Staves, Shingles, Furs, Tobacco, Pork, Lard, Tallow, Beeswax, Myrtlewax, Pease [sic], and some other articles…"(Attmore 1922: 28-29). Michael Hill, citing Attmore also notes that "The town in 1787 carried on a heavy trade, exporting tar, pitch, turpentine, corn, staves, furs, tobacco, and pork. Naval stores would remain central to the local economy through the antebellum period" (Hill 1984:4-5). The one other notable addition to the town in this year was the building of a rum distillery (Pashal 1976: 3-4; Worthy 1976a: 3-4; Hill 1984: 4).

By 1790, the Federal government acknowledged Washington as an official port. In addition, they authorized $10,000 dollars for building ten revenue cutters in the state of North Carolina (Figure 4). Only one was built in Washington, the *Diligence*, completed in 1791 (Hill 1984: 4-5). The town's waterfront had ten wharves by 1794 (Hill 1984:4).

During the 1790s, the town of Washington would continue to contribute greatly to the North Carolina shipbuilding industry. John Blount's company was one of Washington's largest firms in the 18th century. His firm was contracted or authorized to build several vessels under their master shipwright, Henry Tully. Other firms and shipbuilders such as Hull Anderson in the Washington area also

contributed to the shipbuilding industry, an industry which continued to flourish through the early 19th century. Shipbuilders constructed five vessels in Washington during this period: the *Young Eagle*, a 100-ton schooner completed in 1810; two brigs, the *George Washington* and the *Edwin*, completed in 1811; and the *Industry*, completed in 1812. For the War of 1812, local shipbuilders also completed the vessel *Hawk* (Hill 1984:5).

At this time, Washington became a center for commerce on the Tar River. As Lucy Wheelock Warren Myers (1937: 35) reminisced, "In those days too, there was only one small steamboat plying on the upper river, but great quantities of products from the rich counties of Pitt, Edgecombe and Nash were freighted down on flatboats consigned to middlemen here, called commission merchants, to be shipped away on seagoing vessels. Those merchants found this business very lucrative, and were among the wealthiest and most prominent men of the town." Myers also noted that this transshipment of goods was undertaken by boats "… propelled by manpower, they were poled along by negroes [sic] who walked along the plank footway along the side of the boat."

The first known reference to Castle Island appeared in 1818, when the New England émigrés, Josiah and Luke Fowle started a shipbuilding company in Washington (Worthy 1976b:11; May 1976: 339). Their office was located, "on the

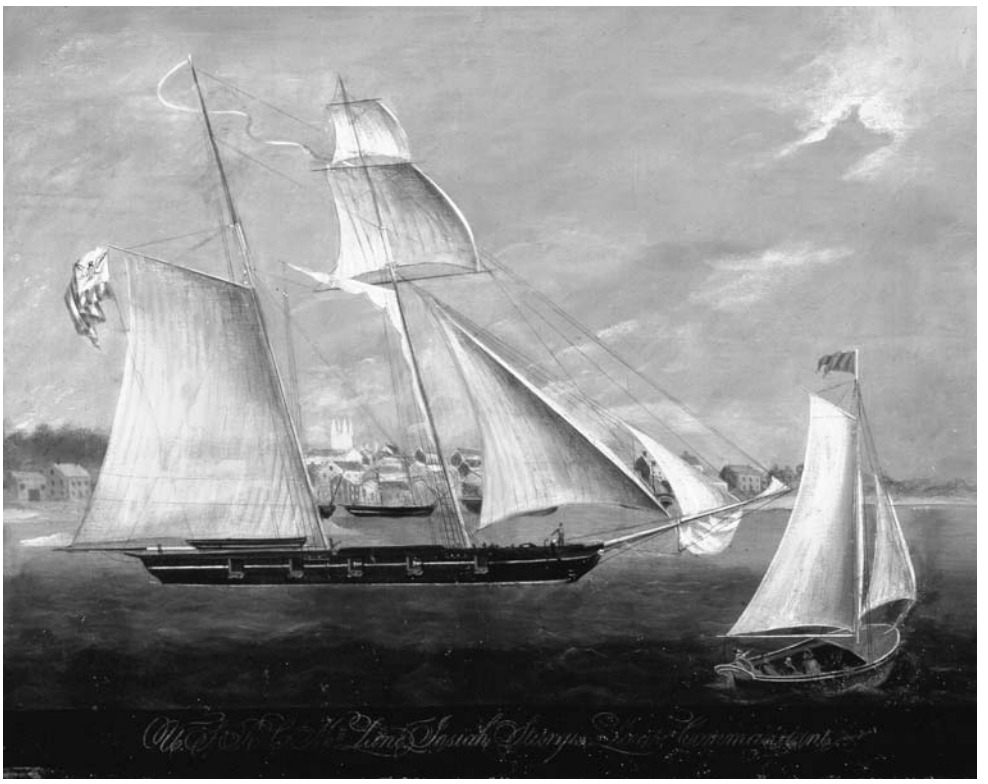


Figure 4. Oil Painting of the Revenue Cutter *McLane*, United States, by James Guy Evans (Oil painting reproduced with the permission of the Mariner's Museum, Newport News, Virginia).

island called 'The Castle' in front of the Daniel Marsh home" (Hodges 1976:19). The island derived its name from the stacks of chimneys attached to the limekilns built upon it early in the 19th century that resembled the turrets on a castle. The kilns converted oyster shells, refuse of the shell fish industry, to quick lime for the production of cement (Hill 1984: 5).

The Antebellum Period

Shipbuilding subsided between the years 1815 to 1830. On average, local shipbuilders constructed two to three schooners each year. During this slow period, however, two men, Jonathan Havens and A. P. Neale, became the major builders in the area. After 1830, others including Captain Hezekia Farrow and his son Joseph, and Burton Shipp, William Tannahill, and Hull Anderson joined in the now growing trade of shipbuilding. An African-American shipbuilder, Anderson operated a shipyard on West Main Street from 1830 until 1841 (Litchfield 1976:230, Hill 1984:6). By 1845, Washington had established its place as a major shipbuilding center in the southeast (Hill 1984:5-6).

In 1847, the first locally operated steamship, the *Oregon,* arrived in Washington from yards in Baltimore (Lawrence 2003), and by 1849, John Myers and Sons were building steamships in the port. The company completed two steamships that year, the *Amidas* and the *Governor Morehead*. The following year Washington ranked as the number one shipbuilding center in North Carolina. A census completed in 1850 documented 23 shipbuilders living in Beaufort County. These builders constructed large tonnage ships including: the *G.R. Dixon*, a 209-ton schooner; *Queen of the South*, a 305-ton schooner; and the *Pathfinder*, a 428-ton schooner (Hill 1984:6-7).

The most productive years for Washington shipbuilders were between 1855 and 1856. The recession of 1857 slowed the industry but did not stop the building of ships completely (Hill 1984:7). This was fortuitous, as the economic slow down of 1857 had disastrous effects on the shipping industry in other areas of the country. Indeed, this recession may have been the first sign of the decline of the U.S. merchant fleet which peaked in 1861, virtually equaling Britain as the worlds largest, but declining sharply during and after the Civil War (Labaree et al. 1998: 312, 358). In fact, Washington growth appears to slow very little until the Civil War. By 1860 a two storey sawmill, over 80 ft. long, processed lumber on Castle Island (May 1976:331), and no doubt supplied scantlings for the vessels then under construction at the nearby yards.

The Civil War and After

The American Civil War (1861 to 1865) was a turbulent time for the shipbuilding industry in Washington. As noted by David Cecelski (2001: 157):

> After the Union victory at Roanoke Island, Burnside's forces rapidly captured the coastal towns on the interior of the Outer Banks. The Carolina coast between Currituck Sound and Beaufort Inlet

would remain in Union hands for the final three years of the war. With one swift blow, Burnside's fleet had captured the Pamlico and Albemarle Sounds, including the ports of Washington, Plymouth, New Bern, and, finally Beaufort. The campaign opened a strategic back door to the Confederate capital at Richmond, eliminated a base for privateers, and deprived the Confederacy of much of North Carolina's agricultural wealth.

Washington would also become a major location for the movement of slave runaways to Union ships, many of them poling themselves on flats up the sound from places as far away as Beaufort, and often from within the heart of Confederate territory (Cecelski 2001: 157-158).

The occupation of the town of Washington by Union forces in March of 1862 interrupted an initial Confederate Navy plan for Washington shipbuilders to construct three warships. The Union forces barracked themselves in Washington, setting up fortifications to the east and west sides of town, as well as on Castle Island, located south of the city (Figure 5). This island was vital because it prevented Confederate vessels from entering the Pamlico River to shell Union troops.

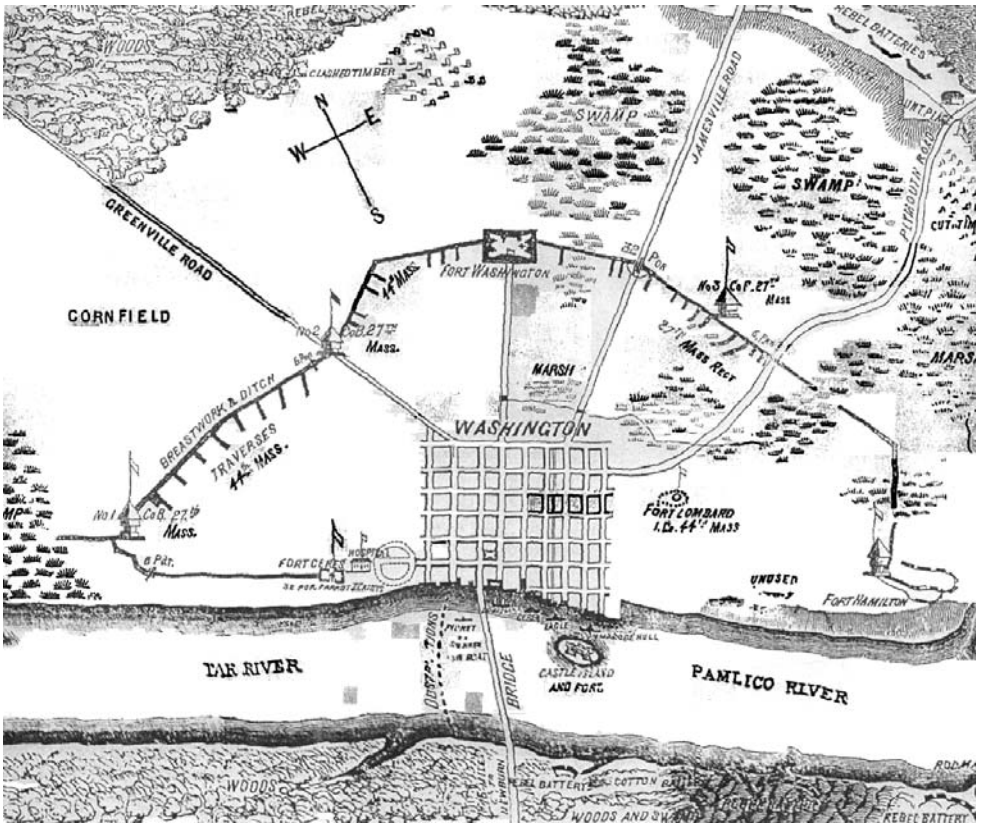


Figure 5. Map of Washington, North Carolina Showing the Confederate Batteries and Federal Defenses, 12 April 1863 (Frank Leslie's *Illustrated Newspaper*, 16 May 1863).

Artillery barrages became commonplace. In April 1864, the Confederate Army was able to recapture Washington through continual bombardment of Union fortifications. Before vacating Washington the Union Army set fire to the city and destroyed one-half of the town (Hill, 1984:7).

The shipbuilding industry in Washington went into sharp decline following the cessation of the Civil War until the end of the 19th century, when it again began to prosper again. Between 1865 and 1875, Washington produced no vessels at all. Only Joseph Farrow's shipyard remained in operation during this period. Farrow's shipyard completed only two small ships between 1875 and 1885. Yet between 1885 and 1900, there were "20 motorized vessels, 24 barges, and 7 sailing vessels being built even as wooden shipbuilding continued to decline elsewhere in the United States" (Hill 1984:8). There were two reasons for this dramatic turnaround. The first was the railroad system that made Washington a regional hub serving different areas of the state. The second was the dredging of the harbor and channel leading to Washington from the Pamlico Sound (Hill 1984:8).

The Army Corps of Engineers surveyed the area in 1875 and dredged the harbor to 9 ft. deep (2.74 m) and 100 ft. wide (30.48 m). In 1890, about 27 vessels moored at Washington, seven of them steamers. The rise in traffic brought about by dredging increased the annual revenue for the port of Washington from $500,000 to $4.8 million between 1876 and 1891. Washington now served as a major center for trade in eastern North Carolina that included cotton, naval stores, lumber, rice, vegetables, oysters, and fish. A majority of the vessels entering Washington were shallow draft barges from the Albemarle and Chesapeake Canal with a draft of seven ft. (2.13 m). Larger vessels entered through Ocracoke Inlet with a draft of 9 ft. (2.74 m) (Hill 1984:8-10).

Industries continued on Castle Island, with the Branning family sawmill remaining operational until 1887 (May 1976:341).

Into the Twentieth Century

In the year of 1911, it is estimated that between 60 and 75 barges reached Washington. They brought coal, fertilizer, general merchandise, salt, cement and hardware, and carried out lumber, shingles, cotton and agricultural products (Hill 1984:11). Washington reached an approximate population of 10,000 people. The waterfront area (Figure 6) continued to be a major source of income. In 1911, there were 27 wharves on the waterfront and by 1918 the number had grown to 50 in Washington and one on Castle Island, with two more on the opposite shore of the river across from the town. Rail directly connected many of the wharves to each other. In 1918, however, the Army Corps of Engineers reported two problems associated with the port of Washington, the waterfront could not expand beyond its present size, and therefore was "badly congested." The Corp would nevertheless cut the channel 100 ft. wide and 10 ft. deep (Hill 1984:11-12).

At the turn of the 20th century, shipbuilding in Washington was again in decline, adversely affected by the transition from iron to steel, and the dissolution of the long-standing commercial relationship between North Carolina and the West Indies in the 19th century. The major factor for the decline of Washington's

profitability as a center for trade and shipbuilding, however, was due to the transportation industry. This included the competition emerging from the development of roads for cars and trucks, but was mostly attributable to the emergence of railways to transport goods over long distances (Hill 1984:12). Railroad and truck transportation greatly diminished the waterborne commerce, from what had been one of the states busiest ports (*Washington Daily News* 1951). Today, very little river commerce continues in the tradition of the 19th century and contributes little to Washington's economy, with the exception of barge traffic carrying fertilizer and phosphate to Washington from Aurora. Because of the decline in riverine transportation, the Coast Guard shut down its station in 1960 and transferred the buoy tender stationed in Washington. Washington is now home to a renovated waterfront attracting visitors and pleasure boaters. Marinas and power boat manufacturers, such as the Fountain Boat Co. (1980), have replaced the commercial transportation industry as the town's new commercial highlight and carry on its water born tradition.

Surprisingly, from 1943 until the end of the Second World War, shipbuilding appeared once more in Washington with the construction of 170 ft. by 34 ft. Douglas Fir fuel barges and a number of shrimping boats launched in 1946 (Worthy 1976: 220-221; Hill 1984: 12). The prosperity of the shipping industry, however, would not return for long. Afterward, Washington, and many surrounding areas of Beaufort County underwent a major economic transition. The old port would become home to the beverage truck body manufacturers Hackney & Sons, the apparel industry competitors Washington Garment Company, and beverage producers Coca Cola and Dr. Pepper while it continue to be involved in the lumber industry with the Moss Planing Mill (Morgan and Abeyounis 1976: 510). In the 1950s, industry increasingly focused on manufacturing with the establishment of the Samson Manufacturing Company, National Spinning Company, Washington Packing Company, and many furniture plants in the county (Morgan and Abeyounis 1976: 510). In 1951-1952, the town would also go through further physical changes with the creation of a new $100,000 breakwater along the waterfront by the U.S. Army Corp of Engineers (Hill 1984: 14). In the 1960s the focus would

Figure 6. Aerial photo of Washington waterfront in the 1970s (Picture By Bill Hamilton, From Loy and Worthy 1976: n.p.).

shift to phosphate exploration, especially in nearby Aurora with the activities of the Texasgulf Company and N.C. Phosphate, as well as a number of manufacturing companies moving into the area such as Hatteras Industrial Company (Rubber), Scovill Manufacturing, Flander Filters, Seacrest Marine and Atwood-Morrill (industrial valves) (Morgan and Abeyounis 1976: 511).

Today's Washington economy has dedicated use of the Tar-Pamlico waterway for recreational purposes, promoting fishing, boating, and a water sports. In 1974, the State of North Carolina contributed to this effort by purchasing land and creating the nearby Goose Creak Park area (Morgan and Abeyounis 1976: 512). Throughout its early history, Washington was an important trading center and played an important role in the economic development of eastern North Carolina. Washington's location as a port at the confluence of the Tar and Pamlico Rivers made it a prosperous center of trade. However, when the railroads advanced through the state, and the agricultural commerce on the river declined, the importance of water borne commercial traffic disappeared. In addition, as commercial vessels grew larger and ship building materials changed to the use of iron and steel toward the end of the 19th century, shipwrights abandoned Washington, for all practical purposes, as a center for their business activities. It could not accommodate the ever larger deep draft vessels or the complexities and cost of steel ship construction. Shipbuilding, therefore, moved to both Wilmington and Morehead City, ports endowed with deeper harbors. Yet the town continues to thrive into the 21st century. Its once impressive late 19th century business district continues to change, metamorphosing from large business, banking, and commercial concerns to restaurants and businesses that cater to visitors and tourists enamored of the recreational opportunities afforded by the waterfront community and the beauty and ambiance of the small port town.

4

Archaeological Investigations and Description of Findings

Investigation of the Castle Island Ships' Graveyard was initiated in 1998 as part of East Carolina University's Program in Maritime Studies Summer Field School (HIST 5530). Since researchers could see the vessels in the area at low water, the Research Design called for a diver survey followed by Phase II pre-disturbance documentation of any located sites. The Archaeological Research Design uses specific principles stepped in phases to allow optimal data recovery while guarding as much as possible against the bias or partiality of the Principle Investigator. Phase II documentation in Archaeological Research Design calls for a plan view map of the area with sites and anomalies plotted within the broader context of the archaeological site and nearby land formations. Following this, researchers can establish relationships between the sites that are located on the foreshore of the island and the waterfront of Washington. Phase II is a non-disturbance archaeological study which calls for no permanent artifact retrieval. Instead, divers opt to documented artifacts *in situ*, and no excavation occurs beyond hand fanning or sweeping debris from the site. At the time, researchers identified nine vessels (later found to be ten) close to Castle Island, between the island and the northern shore of the Washington waterfront. As per the Research Design, the wreck sites, or abandoned vessels, were documented in plan view and plotted within the context of the Washington maritime district or waterfront. Since this was a pre-disturbance assessment, the sites would remain intact for closer inspection, and possible excavation for Phase III work would only occur if research questions warranted it in the future.

The 1998 field season documented Vessels Three, Five, Six, Seven, Nine, and Ten. Investigations continued during the 1999 field season with an examination of Vessel One and Two. The 2000 field season reexamined previous watercraft to determine what disturbances Hurricane Floyd may have caused in the fall of 1999. Project investigators hypothesized that significant flooding may have relocated some, if not all of the vessels. Divers verified this hypothesis, locating only two of the previously documented sites and recording a bathymetric change in the area of as much as 20 ft. This drastic change in the river bottom near a sand island made further work in the area too dangerous because of the danger of bank cave in. An additional site (Vessel Eleven) was located southwest of the island during the 2000 investigation and drawn, using Phase II procedures, in plan view.

Methodology

Methodology followed standard practice for Phase II data recovery. A surveying team fixed a datum point to coordinate all mapping on the Washington waterfront. A transit and electronic distance measuring (EDM) device was set up on the Datum Point, and the instrumentation logged all shoreline data and measurements of the archaeological site baseline as angles and distances from the datum. The zero degree and zero minutes line was set up to magnetic north. The site baseline (steel cable) stretched from point to point or site to site. Diver's buoyed the ends and each corner of the zigzagging baseline, which the surveying team then measured from the transit and EDM at the datum. Students later plotted these points on a large scale map, and all of the individual sites were then fixed on a master plan. Accuracy to a minute of a degree could be established by the transit, but could only be plotted to within 10 minutes of a degree on the overall site map (Figure 2). Surveyors recorded distances of up to 0.5 mile (0.93 km) with the EDM to an accuracy of 0.1 foot (0.03 m). Overall accuracy of the plotted map versus the actual archaeological site is estimated to be within 4 in. (10.2 cm) to 6 in. (15.2 cm) of true.

The eleven individual sites were sketched to scale underwater by divers on site using mylar, pencils, and tape measures. Each underwater map was plotted as an individual site map in relation to the baseline that passed whenever possible over the centerline of each vessel before passing to the next. Prominent points on each vessel were triangulated from the baseline to orient each individual map. Each vessel, therefore, is hand drawn and plotted according to its relationship to the baseline, then reproduced in scale on the large scale map set up showing waterfront and islands.

Diving operations were conducted from a variety of research vessels including pontoon boats and v-hull Privateer watercraft of 24 foot (7.3 m) lengths. Visibility underwater at Castle Island ranged from a few inches during times of turbulent water to as much as a few feet. Loose sand, silt, and fine white/gray clay made up the composition of the river bottom. Water depth ranged from 8 in. (20.32 cm) to 12 ft. (3.7 m) in 1998 and 1999, and was as deep as 25 ft. (7.62 m) in 2000. Water temperatures were warm in the mid 70 degree range, and the river carried minimal current and salinity during the projects.

1998 Field Season

The on-site investigation began with a reconnaissance underwater survey of the north face of Castle Island. Parameters were set up for mapping, and divers discovered previously unknown sites. The area contained considerable timber debris as well as clearly defined vessels. In total, river inspection identified seven vessels within the northwest portion of the island. Divers placed buoys on the bow, stern, and keelsons of the vessels. In the case of barges, they were placed on the four corners. After the surveying team recorded the location of these buoys, baselines were added to each site. As with the previous season, surveyors took measurements along the shoreline and the sites using a transit. Datums were set

along the Washington waterfront with the original datum set on a manhole cover along the waterfront. The southwest corner of the Chamber of Commerce and Visitor Center building across the road became a 0 degree setting for the datum starting point.

The first week of the field season saw the investigation of Vessel Three. Data recovery determined that the vessel was a skipjack or sharpie known as a North Carolina sharpie schooner or a "terrapin smack" (Fleetwood 1995: 148). The vessel possessed a centerboard trunk and a clearly defined mast step. Divers discovered an iron pipefitting and other pieces of iron rigging scattered around the vessel, as well as other potentially modern remains scattered within it.

The next vessel documented was Vessel Eight, located on the west side of the island on shore. At initial examination, the vessel appeared to be a small wooden craft. Data recovery revealed that the ship was likely an early 20th century motorized fishing vessel.

During the second week, archaeologists investigated Vessel Ten. The site appeared to be a centerboard schooner of the log canoe variety, perhaps a bugeye, perryauger, or brogan. Problems working this site included river grass and loose pieces of the vessel, both of which made viewing the vessel difficult.

Work on Vessel Seven ran concurrently with work on Vessel Ten. Vessel Seven was determined to be a flat. Investigation began in 10 foot (3.05 m) sections with data recovery concluding that the vessel was likely a large oyster barge, or perhaps a ferry.

An examination of Vessel Four occupied the remainder of the field season. Investigation determined that the vessel was a North Carolina working sloop. Floating debris surrounding the vessel hindered documentation. Divers found no significant artifacts associated with the vessel's remains.

As the students completed final mapping, staff archaeologist Frank Cantelas conducted preliminary investigations on Vessel Nine. The vessel was determined to be an oyster flat.

1999 Field Season

June 7, 1999 found the ECU Maritime Studies Program back in Washington for summer field school. The first day was spent doing reconnaissance and site orientation. The focuses of this season's work were Vessels One and Two, a flat or barge (Vessel Two) overlying the stern of a large coasting-type schooner (Vessel One). The survey datum from 1998 was reestablished in order to orient the field operation.

On Vessel One, rose-head fasteners examined during debris sweeping suggest an early 19th century vessel. Miscellaneous piles of brick found near the centerline of the ship were of various sizes and likely used as ballast. Another specific brick grouping towards the port side were all of similar sized brick, 2 by 6 by 9 in. (5.08 by 15.24 by 22.86 cm), and appear to mark the possible location of the galley.

Evidence of burning was identified on the planking, frame ends, iron pins, and brass fittings especially near the turn of the bilge. Two bilge keelsons or thick

ceiling planks were located at the turn of the bilge inside the vessel. However, no mast steps or centerboard could be located. This was because the starboard side of the vessel is missing along with most of the keelson perhaps due to dredging, or ship breaking operations. Caulking between planks was still *in situ*. Early conclusions suggest the vessel was originally a centerboard coasting schooner of the first half of the 19th century. The 15 ft. centerboard lying near Vessel Seven is of approximately the correct size for a vessel of the dimensions of Vessel One. The ship appears to have later been converted to a barge, perhaps to carry lime from Castle Island kilns. It has no sheathing as it lies, but the brass fasteners suggest that at one time it was sheathed in copper alloy below the waterline, making it a likely candidate for an oceanic transport ship. After conversion to a barge and the removal of any sheathing, it appears to have burned, perhaps later in the 19th century.

Early confusion over planking orientation in the stern of the vessel was solved when it was realized that a separate ship (Vessel Two) was lying on top of the aft end of the schooner. Confusion was complicated in the black water by the destruction and disarticulation of planks and scantlings from Vessel One just aft of the amidships area. Further aft this wreckage seemingly becomes articulated once again, but actually indicates a flat barge some 12 by 15 ft. (3.66 by 4.57 m) that had come to rest directly on top of the aft end of the schooner.

2000 Field Season

Prior to the East Carolina University's 2000 field season ten sites had been documented in the area surrounding Castle Island. The focus of the 2000 investigation was to determine the extent of damage and site shift caused by Hurricane Floyd. It was suspected that the placement of the watercraft might have shifted from the power and velocity of the Hurricane Floyd related flood. The 2000 project illustrated firsthand how dynamic an underwater site in a coastal tidal plain can be. Few of the previously identified vessels were relocated, Vessels One, Two, Three, and Five were definitely missing on visual (tactile) inspection, and only Vessels Seven and Eight could be readily identified. The missing vessels were either now completely buried or moved because of the violent force of Hurricane Floyd. Additionally, a large portion of the upstream face of the island was worn away and undercut. Vessels that once were in shallow to 5 ft. (1.52 m) of water, could not be located, and the water depth had changed to somewhere between 20 ft. (6.09 m) to 25 ft. (7.62 m).

Relocating the sites in this dynamically changed environment proved a challenge. The previous locations were established using a transit and EDM. Buoys were placed on these locations. Once this was completed, divers assessed whether vessels were present. Only Vessel Seven was positively relocated in this fashion. Other sites appeared sprinkled with intermittent timbers, but were not articulated as they should have been, leading to the conclusion that they are either buried or destroyed. The hard compacted sand that was now scoured clean on the bottom of the river did not seem a likely candidate for concealing wreck material. In all likelihood, the sites have been swept away down river, or into the sound.

Vessel Seven was the only vessel positively relocated underwater at this

time. Vessel Eight was also relocated exposed on the island itself, or lying in very shallow water. Vessel Seven is a flat barge, originally lying evenly on a relatively smooth bottom. Hurricane effects had shifted the bottom sediment from under the vessel so that the island side of the barge was found in 5 ft. (1.52 m) of water while the other end slopes down to 16 ft. (4.88 m). The barge was unstable at the time it was relocated with the two ends moving slowly in a teeter-totter fashion up and down in the current.

Continued work directly off the face of Castle Island was deemed unsafe. It was also hypothesized that as the undercut face of the island sloughed, that large underwater sand slides were likely. The effects of a sand slide on a diver were unknown, but the possibility of injury seemed too great to continue work.

Efforts shifted from the island to a flat located some 250 yards (228.6 m) northwest of the island. The flat was located earlier that year through remote sensing sweeps in an area identified by public informants as containing its remains. Once the site was located, the barge was designated Vessel Eleven. The newly discovered site became the focus of the remaining 2000 field season, and was determined to be the flat or ferry.

After all three summer field school investigations were completed a final site map was constructed for each individual site within the context of an overall site map constructed around Castle Island. The 2000 season concluded with the transfer of individual site maps onto this overall base map. Table 1 shows the final list of vessel designations with approximate dimensions, salient features and tentative dates of construction.

ECU No.	State Designation	Type	Salient Features	Approx. Dimensions	Tentative Date of Construction
1	None	Flat	Chine log construction	W: 15'	Late 19th C
2	0014PMR	Schooner	Midships wrecked no centerboard	L: 95'	Early-mid 19th C
3	0054PMR	Sharpie Schooner/Terrapin Smack	Chine log construction	L: 35' B: 8'	Last quarter 19th C
4	0055PMR	River Steamboat *Alma*?	Western River design	L: 43' B: 15' D: 3'	Turn of 20th C
5	0056PMR	Oyster Sloop	No extant centerboard	L: 30' B: 10'	Last quarter 19th C
6	0057PMR	Oyster Sloop	Centerboard offset to port	L: 30'	Last quarter 19th C
7	0058PMR	Flat	No chine log	L: 50' B: 15'	Last quarter 19th C
8	0059PMR	Motor Boat *Sophie Wood?*	Engine mount saddle	L: 53' (keelson)	Turn of 20th C
9	0060PMR	Flat	No chine log	L: 38' B: 17'	Last quarter 19th C
10	0015PMR	Sailing Log Canoe	Centerboard and cabin combing	L: 40' B: 12'	3rd quarter of 19th C
11	0061PMR	Flat	Chine log construction	L: 75' B: 30'	Turn of 20th C

Table 1. List of individual submerged sites near Castle Island.

Vessels One and Two

The site originally designated Vessel One was later determined to be two separate watercraft, a coasting type schooner (Vessel Two) with a flat or barge (Vessel One) lying on top of the aft section of the schooner (Figure 7). Examination of the site confirmed that only the port side of the schooner remained intact. The rest of the hull, including its centerline (keel, keelson), appears to have been destroyed or pulled apart. It is impossible to determine the draft or depth of hold of the vessel due to its condition. Its size, however, is consistent with a coasting schooner configuration that would likely have contained a centerboard for stability, and added sailing ability on a shallow draft.

The vessel is approximately 95 ft. (28.96 m) in length with an approximate beam of up to 30 ft. (9.1 m). The starboard side of the vessel is completely gone, potentially separated during channel dredging or breaking operations. The vessel was large enough to have participated in ocean-going trade at 300 to 350 tons and contained brass fasteners, indicating that a copper alloy had once sheathed it below the waterline as an anti-fouling measure, a sure indication of ocean trade capacity. Rosehead fasteners used throughout the site date it to within the first half of the 19th-century. The vessel had double framing and butt scarfs, suggesting the vessel may be a post-colonial or Federal period vessel (approximately 1790 to 1830). If a centerboard was originally present on the craft, salvagers may have removed it around time they destroyed the starboard portion of the vessel. Interestingly, divers mapped a 15 foot (4.6 m) centerboard between Vessels Six and Ten (Figure 8). The size appeared to be consistent with that of the centerboard that may have originally been present in Vessel Two.

Confusion regarding the orientation of planking in the stern of the ship, originally thought to be from the ship's transom, was eventually determined to be caused by part of another vessel, a flat (Vessel One), lying on top of the schooner. Low visibility conditions never allowed researchers to see the superimposed vessels; they only discovered them in the drafting stage. The plotted view gave researchers a metaphorical bird's eye view of the subjects. Tell-tale signs for the archaeological team included the fact that planking from Vessel One ran counter to the planking on the schooner.

Standard iron fasteners suggest that the construction of the flat, Vessel One, dates from the later part of the 19th and early 20th centuries. Two chine logs were present on either side of the vessel at the 90 degree turn of the bilge, indicating standard scow-type construction, rectangular with a flat bottom and slab sides. An inclined apron on Vessel One is a further indicator of this utilitarian vessel type.

Sources suggest that schooners like Vessel Two typically replaced earlier 18th-century vessel types such as sloops (Olsberg 1973: 189-299; Swanson 1991: 57-58; Southerly 2003: 53). These coastal schooners normally had two mast steps compared to the one found on sea going sloops. Smaller schooner sails were more manageable since they were on two masts, a characteristic that made it possible to build 19th-century schooner rigged vessels of a much larger tonnage than the 18th-century sloops (Alford 1990: 33). Though larger in tonnage, ship-builders often

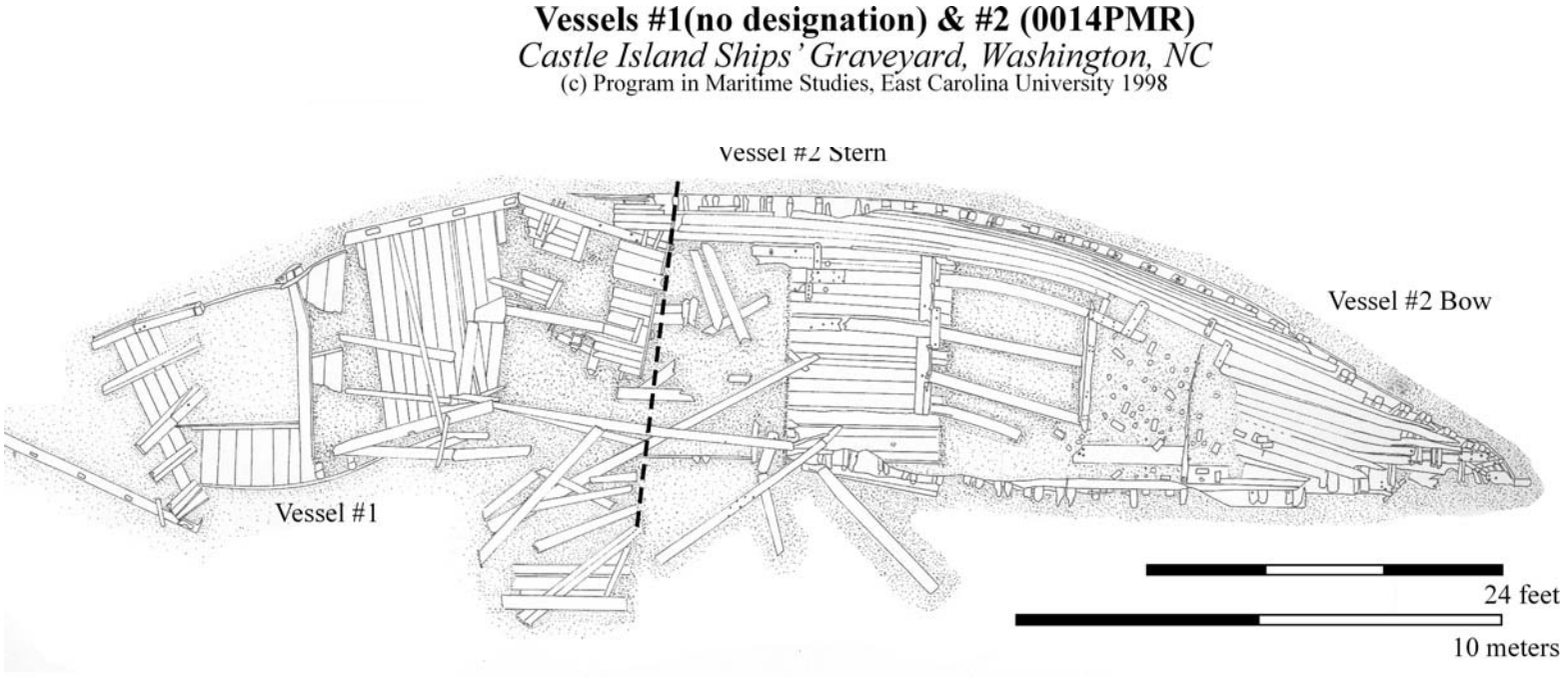


Figure 7. Plan view site map of Vessels One and Two (Maritime Studies Program, East Carolina University © 2005).

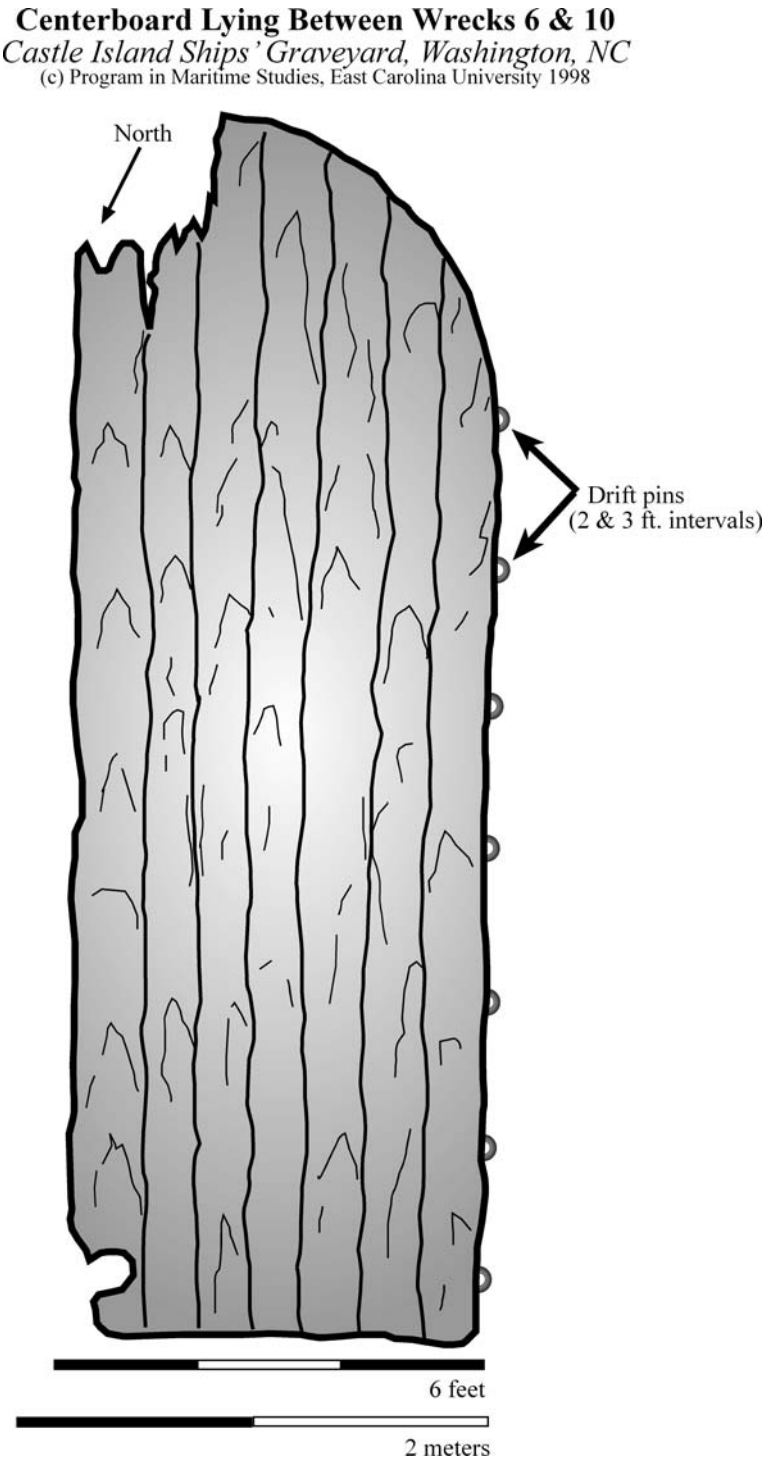


Figure 8. Plan view of centerboard (Maritime Studies Program, East Carolina University © 2005).

constructed these vessels with a relatively shallow draft. Introduced in the 1830s, the centerboard, allowed operator's to raise or lower a retractable board depending on water depth, and help the vessel sail on and off the wind without much leeway, even with a shallow draft.

Archaeological analysis suggests that someone had converted the large coasting schooner (Vessel Two) to a workboat or barge (Figure 9) late in its working life. This recycling and adaptive reuse was a common practice for vessels that have reached the end of a useful life in oceanic trade in lieu of total abandonment. It seems likely the ship could have undergone conversion to a barge for harbor use, but only after powered craft such as tugboats could manage and maneuver the hulk toward the end of the 19th-century. Industrial use of Castle Island would put such barges to use transporting commodities such as lime or lumber to shore for loading on railroad cars or transshipment to ocean going ships. Ultimately, the ship's owners abandoned the vessel near the shoreline of Castle Island. It remains unclear if it burned accidentally, or if salvagers torched the vessel intentionally in order to facilitate better recovery of valuable fasteners.

Unfortunately, the site formation process for Vessels One and Two may now be undetectable as divers could not relocate either watercraft in 2000. However, on diver inspection of the site it became obvious from bottom scouring, the hard pan sand in place of silt, and vastly deeper water depth, that both vessels

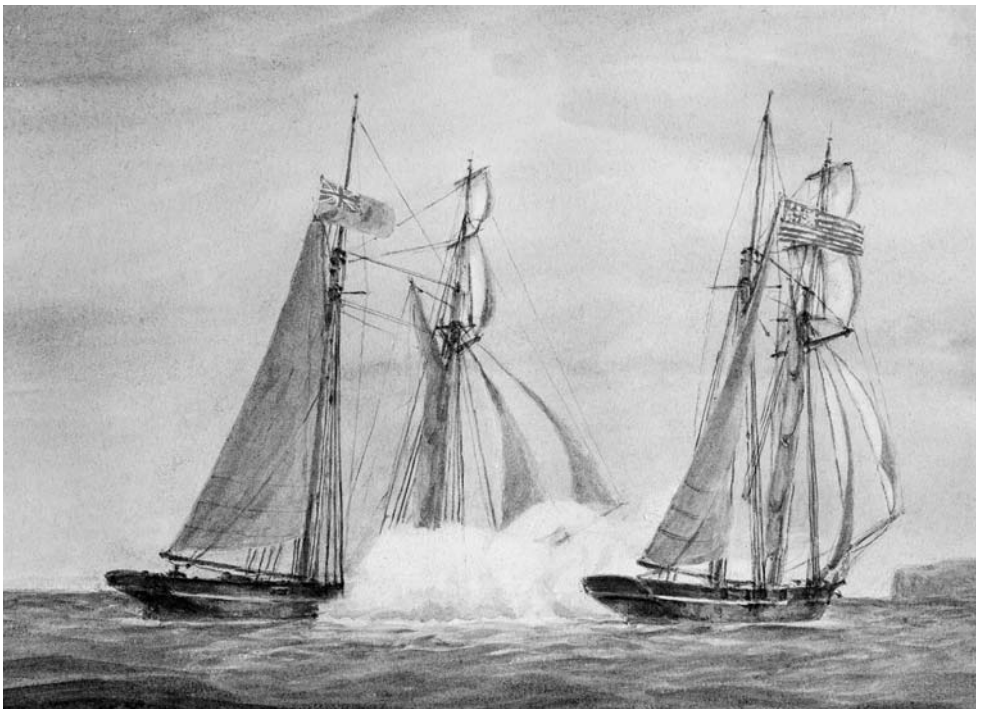


Figure 9. Watercolor of the *Bream* and the *Pyhagoras*, 9th August 1812, by Irwin John Bevan. Both vessels are believed to be of a similar configuration as the Castle Island Vessel Two (Reproduced with the permission of the Mariner's Museum, Newport News, Virginia).

had been moved by the river current and re-deposited elsewhere or torn to pieces. The hard pan sand all but rules out the concept that environmental factors reburied the vessels at a deeper depth. It is clear, however, from our preliminary research that the schooner is older than the flat that came to rest on it, and that the schooner shows signs of sea going use in trade. It was built possibly as early as the Federal period (if it did not originally have a centerboard), or mid century if it did have a centerboard. Though introduced in the early part of the 19th-century, centerboards were not common until the late 1830s and 1840s. The presence of a large centerboard between Vessels Six and Ten perhaps tips the scales in favor of the later mid century date for Vessel Two. As mentioned, the hull of the vessel shows obvious signs of burning. Burning was a typical way to salvage fasteners from a hull undergoing scrapping in the 19th-century (see Matthews 1987a: 160, 231, 1987b: 3, 151, 186, 229, 301, 332), but was also an all too common end for vessels, particularly barges, carrying lime (see for example, Labadie and Herdendorf 2004: 10-11). The chemical reaction to the introduction of water from a leaky hull infiltrating large amounts of lime created tremendous heat, and the danger of flash fire. Without further study, requiring the relocation of Vessels One and Two, there will be no definitive answers to the questions of age, use, and site formation process.

Vessel Three

Vessel Three was determined to be the remains of a "bottom built" vessel akin to a sharpie, also known as a North Carolina sharpie schooner or a terrapin smack (Fleetwood 1995: 148) (Figures 10 and 11). "Bottom built" or "bottom based" refers to the fact that this type of hull is based entirely on a flat bottom with the sides built up on a hard chine, or nearly 90 degree turn of the bilge, while the side supports are patterned differently than the bottom (Hocker 2005: 66). The hull is remarkably similar to a scow schooner except outwardly at the bow and stern, where it looks a bit more conventional with a pointed bow and a raked transom stern. Internally the vessel resembles a scow, complete with athwartship bottom planking, longitudinal stringers, and chine logs. It also contains an internal keel (central longitudinal stringers) on which the two masts are stepped. Unlike a scow, however, this vessel has no flat ramp or apron at each end. The chine logs, or stringers, have notches for king posts that rise from the turn of the bilge to support the sides of the vessel, much as frames do on a conventional hull. Given that the hull remains were intact only to the chine, researchers had to estimate the dimensions. However, the overall length of the vessel was approximately 35 ft. (10.67 m) with a beam measurement of 8 ft. (2.44 m). It is impossible to determine the depth of hold of the hull due to the lack of structural remains of the sides, but it would have had a shallow draft, not exceeding 3 ft.

This vessel could be a type of centerboard workboat, with the centerboard clearly visible through the keel, and the rudder still attached at the stern. The keel (there is no keelson) itself runs the length of the vessel with two mast steps, and is accompanied by two bilge stringers per side for added longitudinal support and to act as nailers for the athwartship bottom planks. The straight athwartship planking style is slightly different from the usual herringbone pattern of a

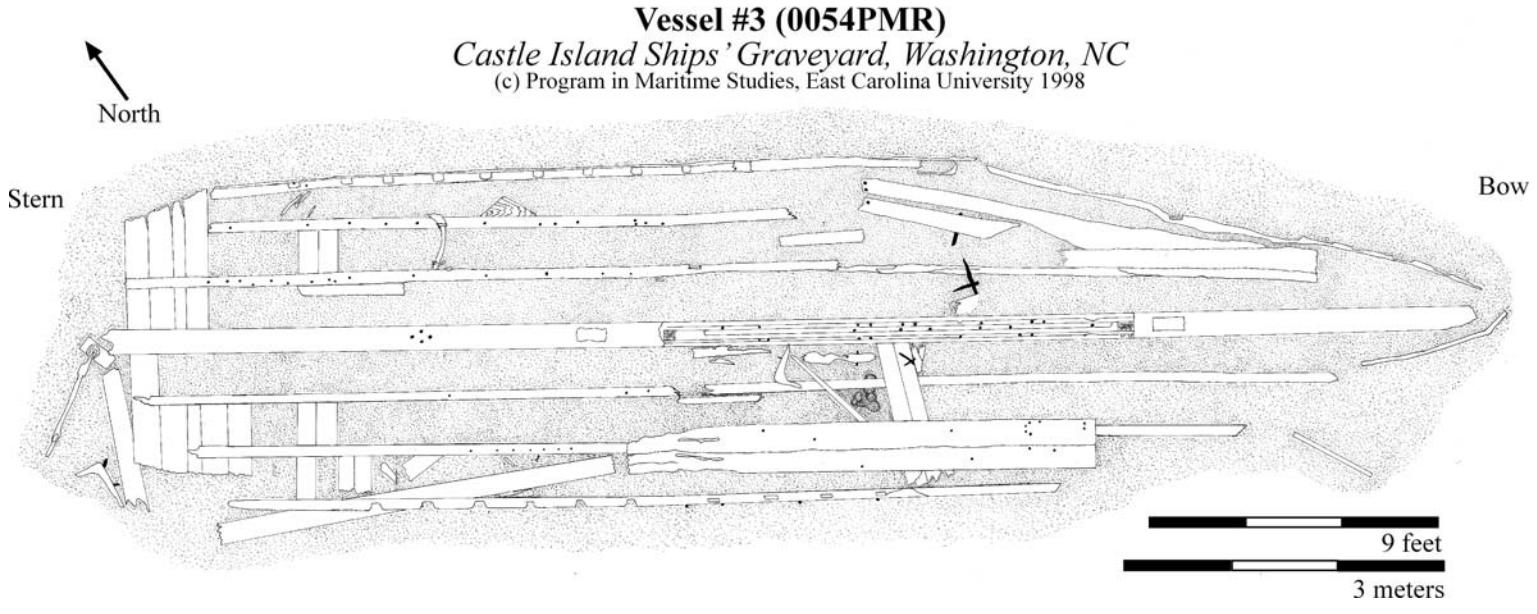


Figure 10. Plan view site map of Vessel Three (Maritime Studies Program, East Carolina University © 2005).

Chesapeake sharpie type hull, perhaps indicating a local variant. This type of work boat was used during the last quarter of the 19th-century well into the 20th-century in the shell fishing industry when, as time passed, many of these vessels were motorized. While the vestiges of the bottom of the ship are identifiable, the structural remains of the sides disappeared before our field documentation commenced. This local variation on the theme of a Chesapeake Bay "sharpie schooner" likely flourished toward the end of the 19th-century in this area. Sharpies were typically used as oyster dredges along the inland waterways and sounds because of their steadiness and wide beam. It seems probable that someone abandoned this craft on the shoreline of Castle Island after its useful life as a working boat in the shellfishery was over. Here it remained relatively undisturbed until the arrival of Hurricane Floyd in 1999. The depth of the water near this site has changed dramatically since that time. Before the hurricane's arrival, divers found the vessel at a depth of 5 ft. (1.52 m). After hurricane flooding, the water is approximately 20 ft. (6.09 m) deep, and the site can no longer be located.

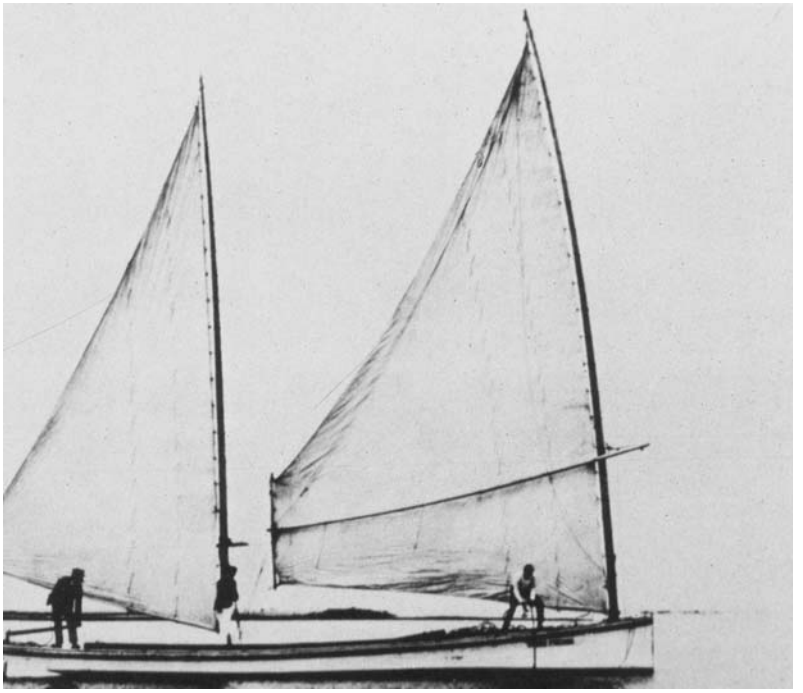


Figure 11. Photo of a terrapin smack (North Carolina Estuarium).

Vessel Four

Vessel Four represents the remains of a small stern paddle wheeler that measured approximately 43 ft. (13.1 m) in hull length with a beam of approximately 15 ft. (4.57 m), and oriented approximately southeast to northwest. The draft and depth of hold were impossible to determine from the vessel as the interior of

the boat was detritus-laden. Nonetheless, the slope and depth on the cylinder timbers indicate the riverboat had a three foot depth of hold and a draft of about 2 ft. The characteristic traits of this vessel include its shallow draft hull based on a system of internal bracing not seen on any of the other vessels located near Castle Island. Internally this vessel is similar, if not identical, to construction demonstrated on "western river" or "mountain" steamers (Corbin and Rodgers 2004: 81), although of a smaller size. People used these western river steamers on the great rivers of the American West, such as the Missouri, and Mississippi. A small version of this type of river boat would have been well suited to the shallow waters of the upper Tar River, and could have carried significant deck cargoes of tobacco, cotton, and other agricultural commodities.

This vessel contained no remaining machinery within its hull, and the paddle wheel could not be located within the survey area. Machinery items are typically the first hardware removed from a ship that is in the process of scrapping or salvage, and it is not surprising that these elements are missing. Additionally, two internal composite cylinder timbers that lie flattened on either side of the stern section of the vessel hint at the vessel's original purpose and construction. In their original upright positions, the cylinder timbers would have supported horizontal steam cylinders, one per side. The after part of the cylinder timbers would have supported the pillow blocks for the stern paddle wheel. The slope of the vessel's stern apron appears in the incline of the aft part of the cylinder timbers. The only difference between this ship and its larger western cousins is that in the west the cylinder timbers were massive constructions of solid timber. This vessel, therefore, may show a later construction date because of the more modern composite (wood and iron) cylinder timbers. These composite timbers would also have been lighter but likely stronger than solid timbers because of the diagonal bracing within their structure, seen as a series of "X-shaped" structures within the cylinder timbers in plan view (Figure 12).

As mentioned, the hull of Vessel Four demonstrates classic western river construction with floors that extend across the beam of the boat. It was not possible because of the amount of debris and the damage done to the sides of the craft to determine if the turn of the internal bilge demonstrated the classic chine clamp and cocked hat construction arrangement of a western steamer, but it seems likely that it did. Three stringers per side rested on and stabilized the floors, while acting to stiffen the hull longitudinally. This ship was lightly-constructed, even by western steamer standards, and would have been able to float in very shallow water, likely less than 2 ft.

There is no evidence of decking except for a piece of the starboard sponson located just aft of the main section of the vessel. Sponsons, or guards, are narrow side platforms that would have extended down each side of the deck from the bow area to past the paddle wheel in the stern. The guard not only added a few feet to the beam of the deck (and consequently also to the ship's cargo capacity), but it allowed the ship's engineers to walk out and lubricate the pillow blocks supporting each end of the paddle wheel shaft, as well as the pitman arm and crank bearings connecting the engines to the paddle wheel. There are no signs of boiler supports in the internal structure of this steamer. We can expect this of a vessel

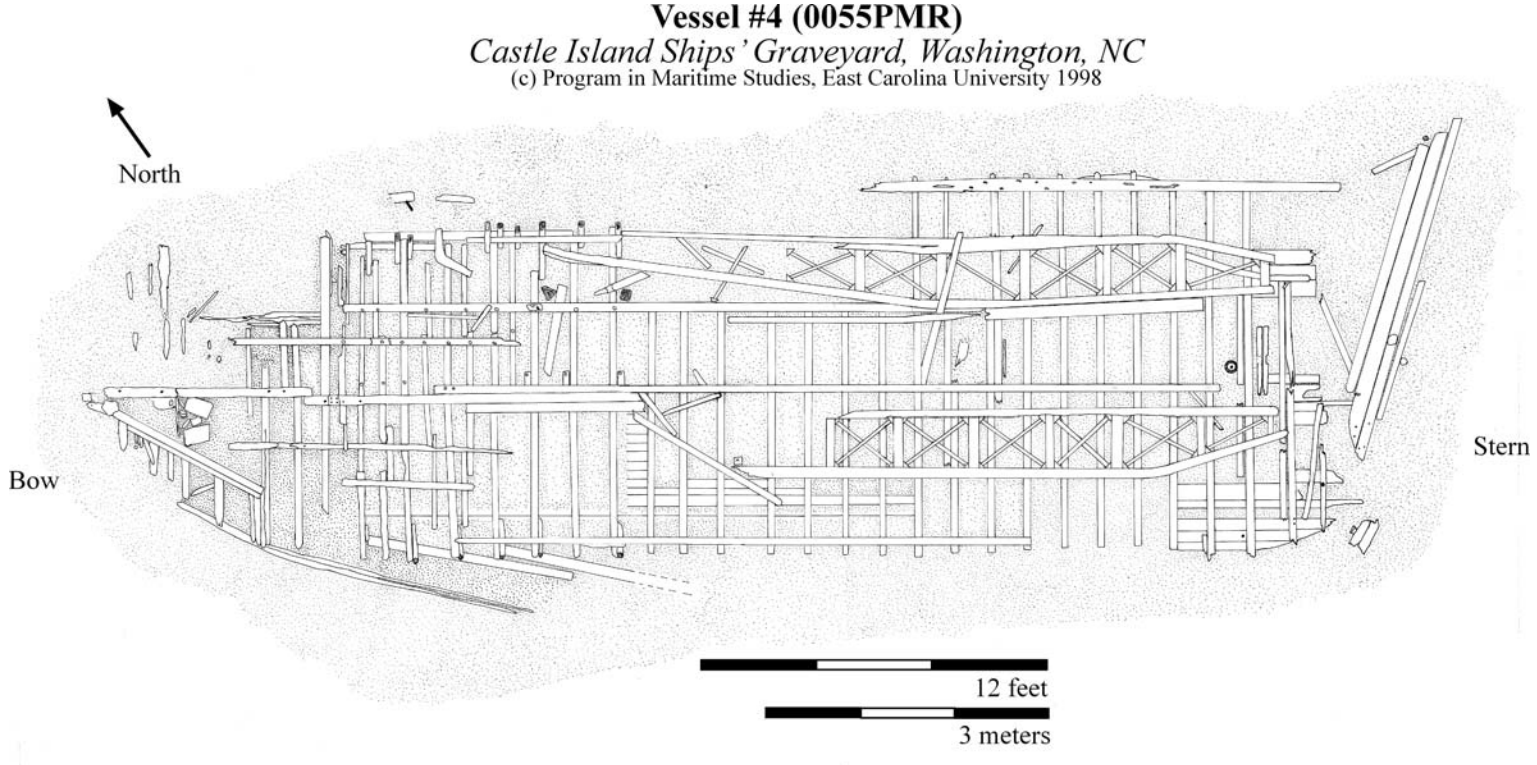


Figure 12. Plan view site map of Vessel Four (Maritime Studies Program, East Carolina University © 2005).

based on the western river model because the design of these vessels normally called for the mounting of the boiler or boilers on deck.

Vessel Four is an oddity among the watercraft located near Castle Island. It joins Vessel Three, whose design seems to be alien to the area. This is not to say that these vessels have a foreign origin, only that their designs reflect non-local traditions. It is likely that this steamer dates to the late 19th-century or even 20th-century because of the sophisticated structure of the composite cylinder timbers. No doubt, its owners used this vessel to transport goods, commodities, and people up and down the Tar-Pamlico River system, though we cannot rule out its use in other nearby rivers. Additionally, a number of scotch boilers are located in the river on the south side of Castle Island. While beyond the scope of this survey, these boilers could easily be of the correct vintage to have performed in this vessel. Unfortunately, Vessel Four has also joined the list of missing sites since the visitation of Hurricane Floyd.

Though it would be much too early to pronounce a match, one steamer that fits the description of this abandoned steam vessel is the *Alma* (Figure 13). For its entire short career, 1897-1899, *Alma* operated out of Washington and carried agricultural goods under command of Captain George R. Jones. Research indicates that *Alma* had an extremely shallow draft of 2 ft., and displaced 16 tons. *Alma's* hull dimensions of 41 ft. by 13 ft. fit well within the parameters of the approximate dimensions of this archaeological site. *Alma's* period of operation also coincides with that of the archaeological record estimated for Vessel Four. After too brief a

Figure 13. Unidentified stern wheel paddle steamer on the Tar River (date unknown), closely resembling the type steamer represented by Vessel Four (North Carolina Estuarium).

career, one historical source lists *Alma* as being "torn up and abandoned, 1899" (Bridgers 1978: 211). Despite research, no other historical information currently pinpoints the place of this vessel's breaking.

If subsequent historical research can prove that Vessel Four is *Alma,* it lends credence to the notion that vessels surrounding Castle Island represent the remnants of a marine scrapping operation. Certainly, most of the vessels surveyed, including Vessels One, Two, Three, Four, Five, Six, Eight, and perhaps Vessel Ten appear to be in various stages of being broken up. Whether this is a result of natural site formation process or breakers tools cannot immediately be deduced or proven.

Vessel Five

The remains of Vessel Five represent a small, local built North Carolina type sailing vessel, possibly an oyster sloop (Figure 14). The length of the site measures 30 ft. (9.14 m) with a 10 foot (3.04 m) beam. Some difficulties were associated with recording the site due to the amount of debris covering the vessel. Though originally built as a shallow draft sailing sloop, it is odd that it contained no discernible centerboard, generally a requirement in such a shoal draft vessel. Although it is possible that someone removed the centerboard and trunk, or that it broke away from the vessel, the slot in the bottom of the boat was not visible because of sand and debris. A single mast step, indicating its sloop rig, was present 7 or 8 ft. (2.1 m to 2.4 m) from the bow of the vessel. The uniform construction, mill cut lumber of standard size, and screw and wire nail fastenings loosely date this vessel to the end of the 19th and the beginning of the 20th-century. The vessel is flat-bottomed with what must have been a hard chine and slab sides. Framing is standard with floors running under the keelson, and planking running the axial length of the craft. The sides and stern of the vessel are not extant in the archaeological record, but the shape of the bottom indicates a sharp bow with a gentle side curve expanding to the midships bend and tucking in aft to a flat transom.

Though small, the ship looks to represent a riverine, or (on calm days) a Pamlico Sound working vessel. Oyster sloops were shallow draft craft used primarily as day sailing working craft. Construction of these boats was an art, and generally did not involve plans or calculations. Invariably, ship builders constructed these vessels with a mind to maximizing cargo space (see Figure 15). As Fleetwood (1995: 307) notes: "It can be said that the construction of these boats was as simple and uncomplicated as it was possible to achieve." In the Castle Island area, the sloop may have worked in the shellfish industry or as a lighter to transfer shells for lime processing. The placement of the vessel within the concentrated cluster of other vessels supports the idea that it had served out its useful life and was abandoned, or in the process of being salvaged.

Vessel Six

Vessel Six was very similar to Vessel Five except that this craft did have a centerboard (Figure 16). The length of the working boat measured 30 ft. (9.14 m). It was impossible to determine the beam, but it is likely that it was 10 to 12 ft. (3.0

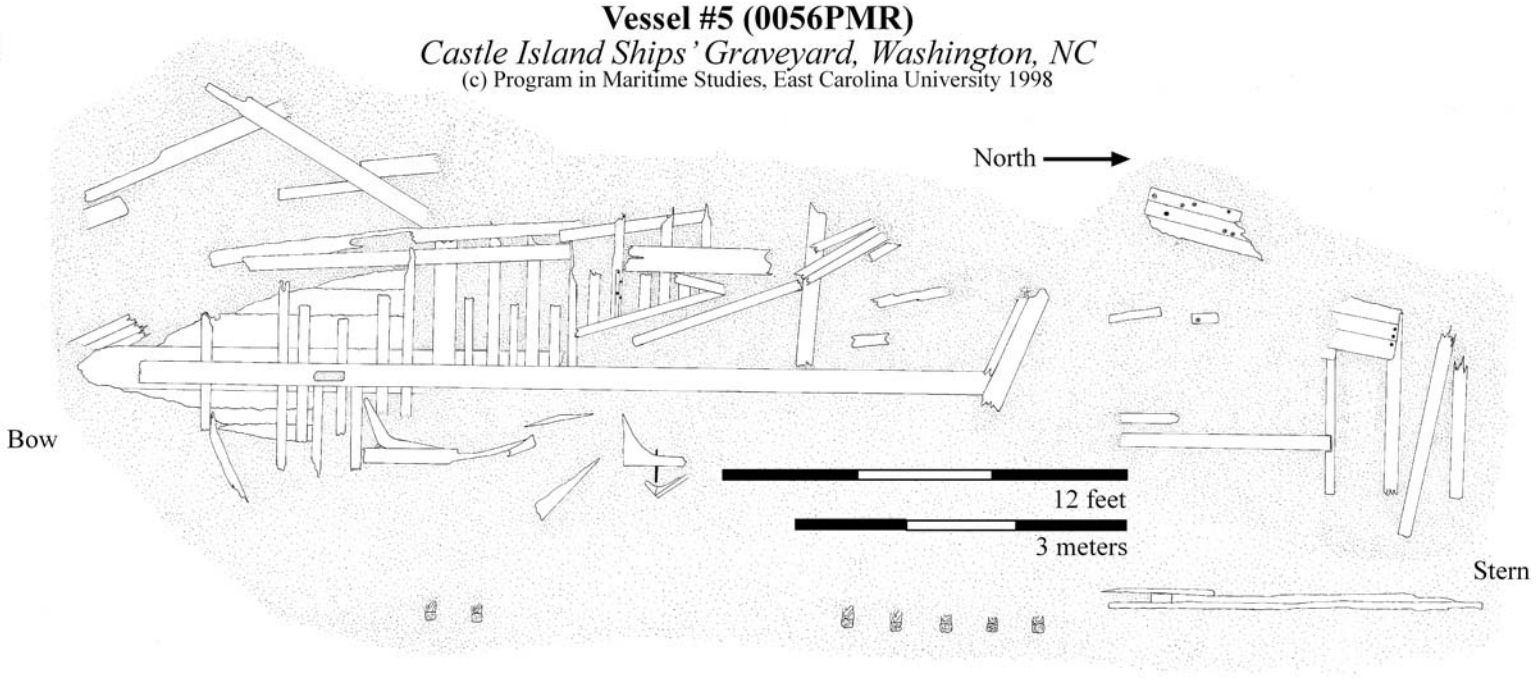


Figure 14. Plan view site map of Vessel Five (Maritime Studies Program, East Carolina University © 2005).

m to 3.7 m). The starboard side of the vessel is oriented toward the island. An offset centerboard was present on the site, as was a single mast step located far forward on the keelson. Divers identified a few frames, some floors, and planking. The vessel has a standard build with floors sandwiched between keel and keelson and planking and ceiling planking running fore and aft on the axial plane. The bottom has no deadrise, so it was likely hard-chined and slab sided like Vessel Five.

Figure 15. Photograph of the skipjack *Laura J. Barkley*, by Aubrey Bodine This vessel closely resembles the configuration of Castle Island Vessel Five (Reproduced with the permission of the Mariner's Museum, Newport News, Virginia).

This vessel is likely another small oyster sloop of the late 19th-century, very similar if not identical to that of Vessel Five with the same overall characteristics. The offset centerboard is a peculiar construction detail that generally disappeared on larger vessels by the middle of the 19th-century. Theoretically, it is possible that the keel/keelson structure is too small in its molded and sided dimensions on this craft to withstand the weakening imposed by cutting the centerboard through these structures, hence the offset. The offset centerboard may also reflect local building practices or even indicate that the sloop is older by some 30 or 40 years than its overall structure indicates.

As with the other watercraft sites surrounding Castle Island, its placement may indicate that it represents an abandonment event. Its rough condition with missing sides and stern could also indicate salvage or high energy site formation process.

Vessel Seven

Vessel Seven was located during the preliminary investigations conducted on Castle Island by Maritime Program Director William Still prior to the 1998 field season (Figure 17). Historical interpretation suggests that this is an oyster barge, flat, or less likely, a ferryboat. It is 50 ft. (15.24 m) long and 15 ft. (4.57 m) in beam, with a typical rectangular shape. Five longitudinal stringers give the vessel longitudinal support. There are no indication of chine logs or stringers located at the 90 degree turn of each bilge, and nothing to show that king posts (a flat's version of frames) supported its flat sides. The craft is largely intact with side and bottom planking in place but an absence of the characteristic ceilings or railings of a ferry.

The rectangular shape, overall dimensions, and construction suggest that the vessel may have once operated as a towed oyster barge, scow, flat, or plantation flat. A flat, unlike most other ship names, is a literal description. It has a flat-bottomed, barge-like hull with a very shallow draft, and ends that ramp up called aprons. Archaeologists have found similar vessels throughout both North and South Carolina. Their simplistic build and utility make them a universal working boat as lighters and shallow water freight haulers (Watts and Hall 1986). People constructed flats to carry maximum loads down current with large sweeps or poles providing steering. While in port, steam or motor type vessels would be engaged to tow them.

There is no indication of exactly how anyone used this vessel, and no indication from the archaeological data that it was ever sailed. There are, for instance no mast steps in the middle longitudinal stringer and no indication of standing or running rigging. Nonetheless, in North Carolina, the flat or barge could be schooner-rigged and, if narrow enough in beam, could sail reasonably well (Fleetwood 1995: 51). These vessels were well suited for riverine commerce and not intended for offshore use. Like the other Castle Island vessels, this craft probably represents an abandoned watercraft. Inexplicably, divers were not able to relocate Vessel Seven after Hurricane Floyd.

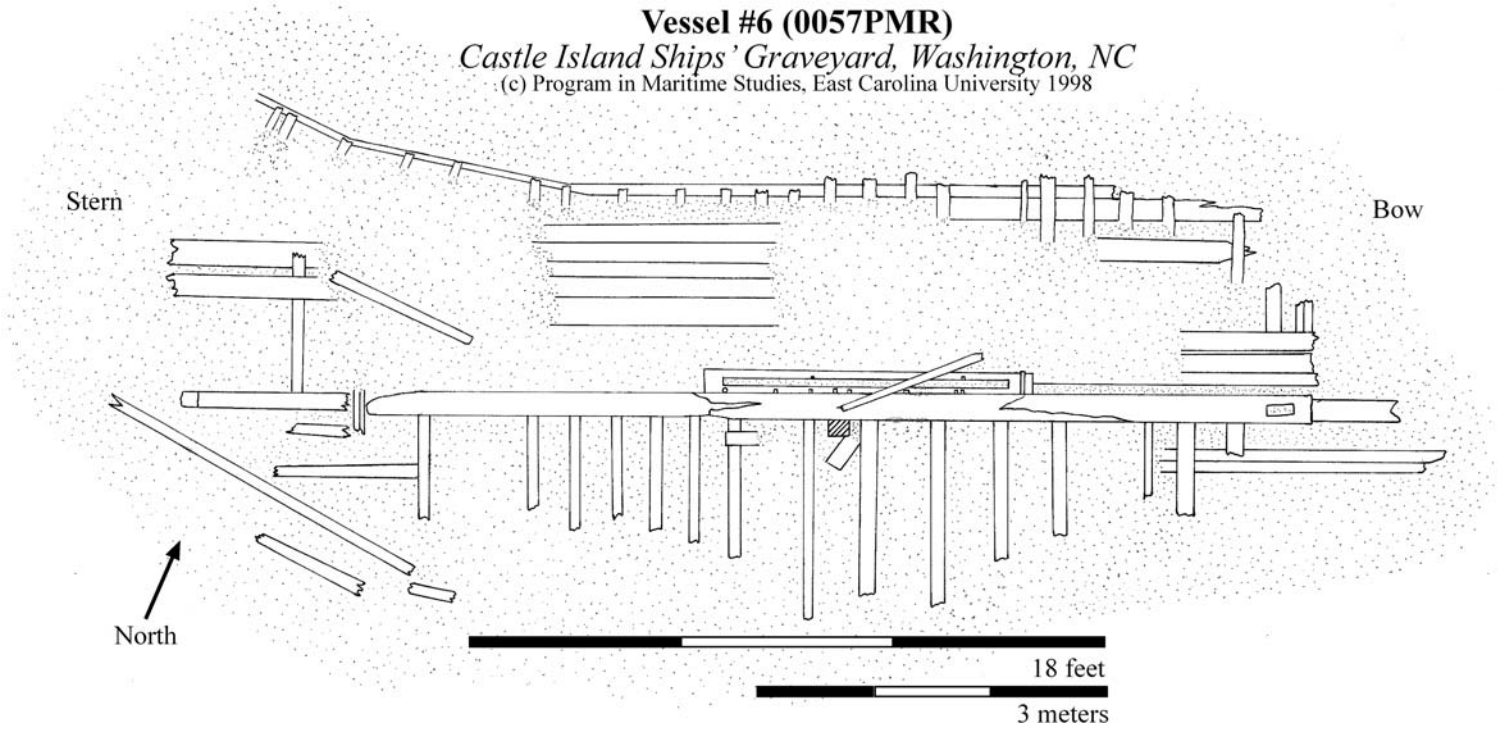


Figure 16. Plan view site map of Vessel Six (Maritime Studies Program, East Carolina University © 2005).

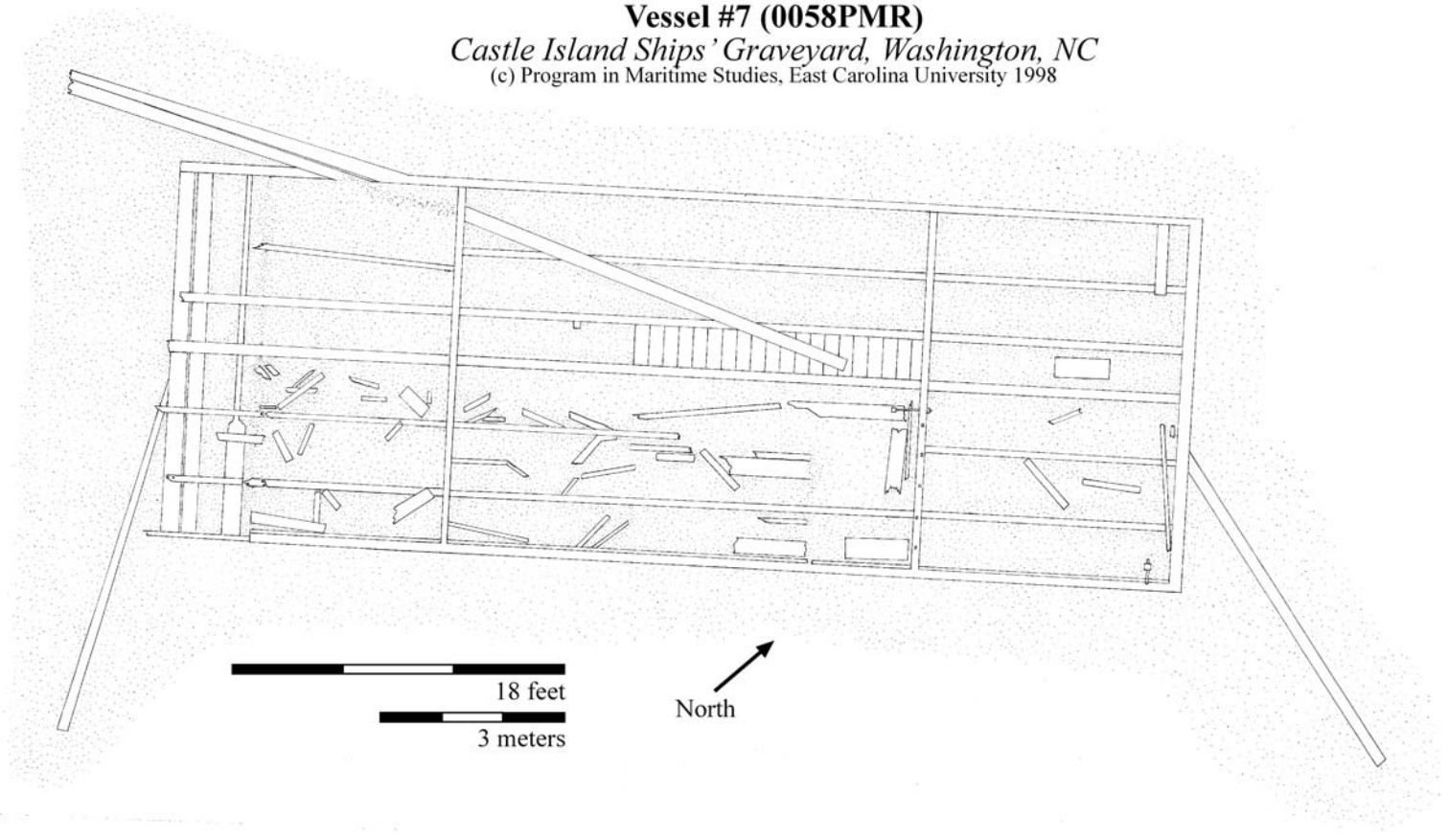


Figure 17. Plan view site map of Vessel Seven (Maritime Studies Program, East Carolina University © 2005).

Vessel Eight

Vessel Eight was located during the preliminary investigation of the 1998 field season (Figure 18) The wooden remains were limited to a rectangular wooden engine support saddle (1.22 by 1.82 m) connected to a keelson of approximately 53 ft. (16.2 m) in length. The keelson is supported by two sister keelsons running nearly the entire length of the keelson. Without excavation, it was impossible to tell if floors or much outer hull planking exists under the sand. In some places, iron keel straps were evident. There is no sign of a boiler or boiler saddle or supports, making it likely that an internal combustion engine powered the vessel. Most notable on this site is the engine mount saddle with shaft hole located in the deadwood near the stern. The stern is the closest feature to Castle Island. This is an unusual type of beaching as the stern hog (deeper draft) usually mandates that the bow beach first. Other features include iron pins, hex head nuts with washers, scarf joints, and minimal remaining hull planking.

Vessel Eight most likely represents a motorized propeller driven fishing or transport vessel of the early 20th-century. This site could not be re-located in 2000 but has since reemerged from the sand, and is visible at the time of this report. Oddly enough, archival sources list a vessel of near these dimensions named *Sophie Wood*, as having worked for the Pamlico Transportation Company out of Washington, having begun its career out of Edenton in 1891, owned then by John G. and F. Wood. The vessel, built in East Lake, worked an unspecified number of years out of Edenton before its transfer to the Pamlico Transportation Company. It worked under several masters including Howard L. Brooks, Robert B. Jackson, Macon H. Bonner, R.S. Griffin, and John A. Roberts. In 1905, W.H. Whitley of Durham Creek gained title, with James H. Harris as the vessel's master. *Sophie Wood's* final owners beached the vessel on "the Castle" that same year when in a sinking condition. The vessel was a propeller, measuring 63 ft. in length by 12 by 4 ft. (19.2 by 3.7 by 1.2 m). Its final enrollment of September 28, 1914, lists the vessel as having been out of commission since 1905 and destroyed by the great Hurricane of 1913 (Bridgers 1978: 209-210).

The condition of Vessel Eight precludes gaining her exact dimensions without excavation; therefore, naming the remains the *Sophie Wood* is premature. Nonetheless, speculation indicates that the wreckage does represent a motorized propeller vessel of standard build for the late 19th and early 20th-century. As the keel dimensions do not include features like a fan tail (that tend to extend the overall vessel length), the wreckage could indeed represent a vessel of 63 ft. in overall length. Finally, this seems to be the only vessel haphazardly beached on the island stern first, separated physically from the other vessels, perhaps indicating that its owners beached it in haste. Richards (2002: 7-8) calls this a "consequential abandonment," indicating that the circumstances of this vessel destruction are perhaps much different from those located nearby. Regardless of Vessel Eight's actual name, there can be no doubt that the hurricane of 1913 all but destroyed this hapless abandoned craft while no doubt wreaking havoc on all of the abandoned watercraft off Castle Island.

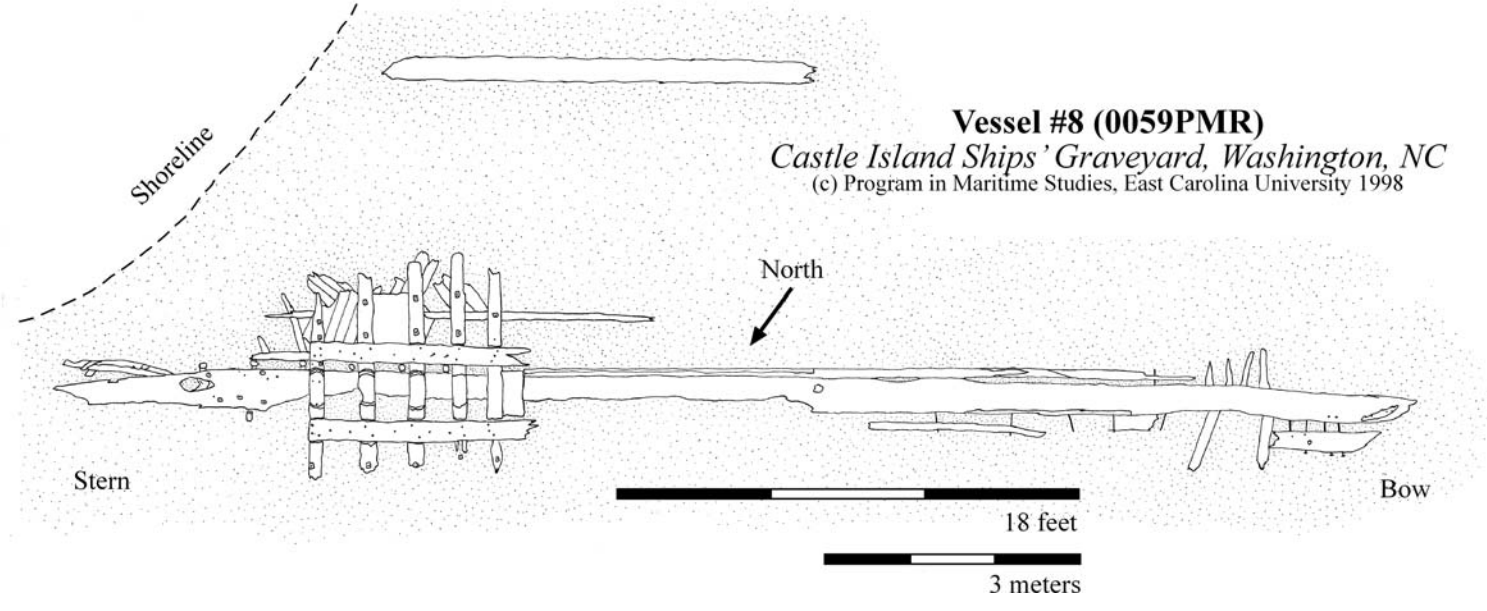


Figure 18. Plan view site map of Vessel Eight (Maritime Studies Program, East Carolina University © 2005).

Vessel Nine

Vessel Nine was located during preliminary investigations prior to the 1998 field season (Figure 19). The flat lies embedded in the Castle Island north shore, near Vessel One with only a few feet of one end exposed. The remains represent yet another working flat estimated at some 38 ft. (11.7 m) long and 17 ft. (5.2 m) in beam. Except for the north end, Vessel Nine lies embedded in the island, and filled with miscellaneous debris such as sand, brick, oyster shell, glass, and a ship's deadeye. This flat resembles Vessels One and Seven in its rectangular shape and construction detail except that it has fewer (only three) longitudinal stringers. Like Vessel Seven, it has no chine logs or stringers at the turn of the bilge. The outer-planking on the sides of the craft were edge fastened to one another with through bolts and are 2 in. (5.08 cm) thick by 10 in. (25.4 cm). Since the ends of both craft face upriver, we can theorize that Vessels Seven and Nine may represent intentional abandonment events, designed to extend the deep face of the landing wharf at Castle Island. However, since Vessel Seven now lies in deeper water and is debris-laden, we cannot prove this. It is unclear what affects Hurricane Floyd brought to Vessel Nine; at the time of recording, sand and debris covered two-thirds of the vessel. Divers could not relocate this vessel after the hurricane of 1999

Flats of this type (Vessels One, Seven, Nine, and Eleven) all resemble the North Carolina flat barge tradition, which can be traced to European flats and barges, and used all over North America. The shallow draft, beamy and wedge-ended designs are extremely useful in shallow North Carolina waterways for lightering shell, agricultural goods, and fertilizer. The use of flats was multi-faceted; people could use them under tow, allow them to float downstream in currents, or even sail them. The good condition and position of the flats near Castle Island lend credence to the hypothesis that they possibly had outlived their original purpose, and had become extensions to the island's wharfs.

Vessel Ten

Vessel Ten lies to the west of Vessels Six and Seven and likely represents a deep water fishing craft (Figure 20). It is just over 40 ft. (12.19 m) long and 12 ft. (3.66 m) in beam. This vessel may be a centerboard sloop or schooner, perhaps of a log canoe variety of bugeye or brogan design most common in the Chesapeake region. Though it was mostly buried, divers discovered a centerboard trunk surrounded by the coaming of a deck house, and ballast rock piled aft at the site. Researchers discerned very few other details during the preliminary survey of the vessel due to the depth of sand overburden. A small number of frame ends protruded from the bottom, and no mast steps were visible. The keel of this sailing canoe is likely a single carved U-shaped log, a feature consistent with the construction techniques for sailing log canoes of the time. The frames and hull appear built up from the keel in a traditional manner, with floors sandwiched by the keelson. The only actual dugout log vestige of these craft are their keels, otherwise they look like a traditional sailing vessel. Unfortunately, divers could not examine the keel of Vessel Ten because it of the degree to which sand had buried it.

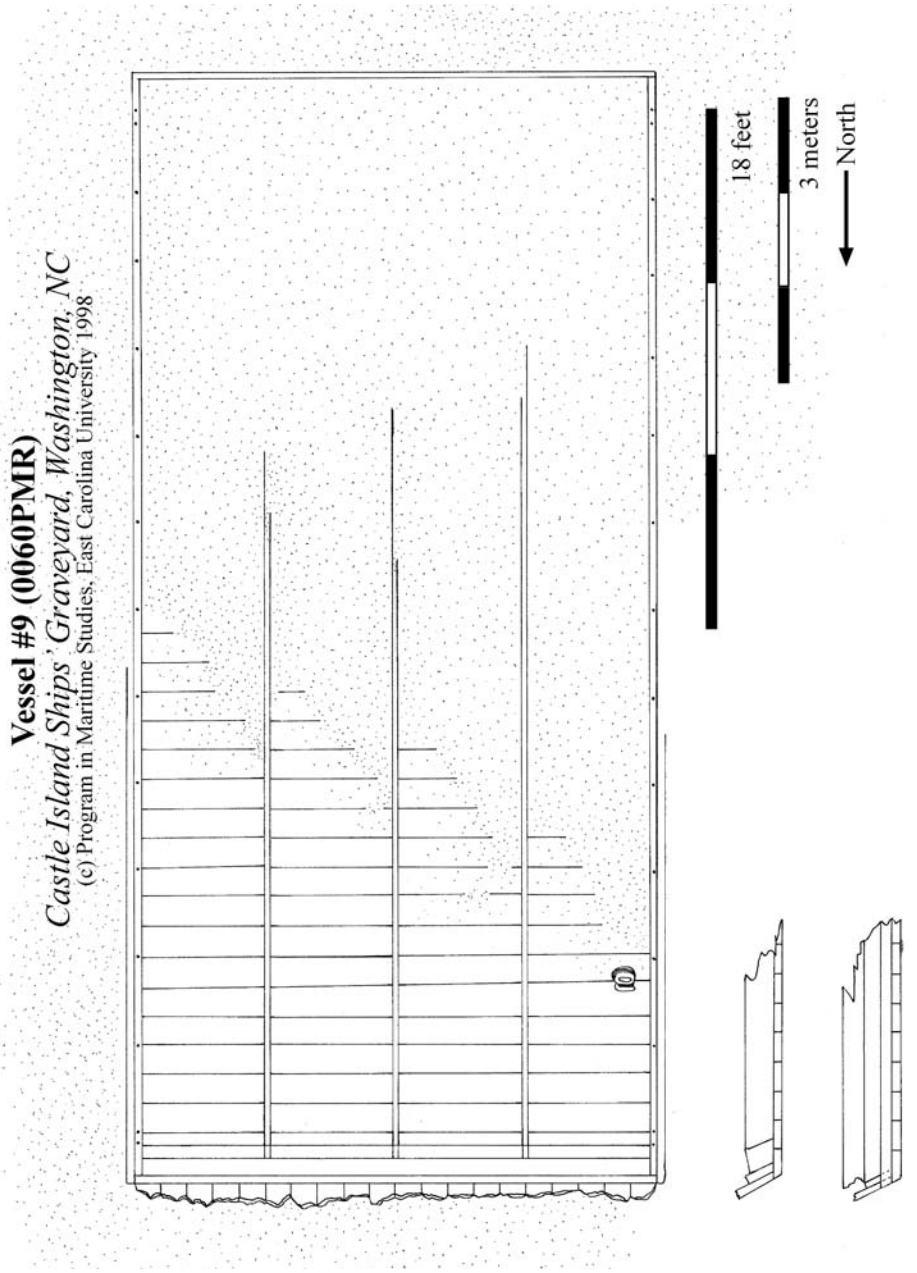


Figure 19. Plan view site map of Vessel Nine (Maritime Studies Program, East Carolina University © 2005).

While deep sea fishing may have been the original intent for this craft, how people employed it in Washington remains a mystery. Nonetheless, the vessel would have been a fast and seaworthy sailor that could have easily traversed the sound to fish off the coast. It is possible that in its later days its owners transferred it to the local oyster industry, or alternatively that they converted it into a barge. The vessel dates from mid to late 19th-century (Figure 21). Historical records point

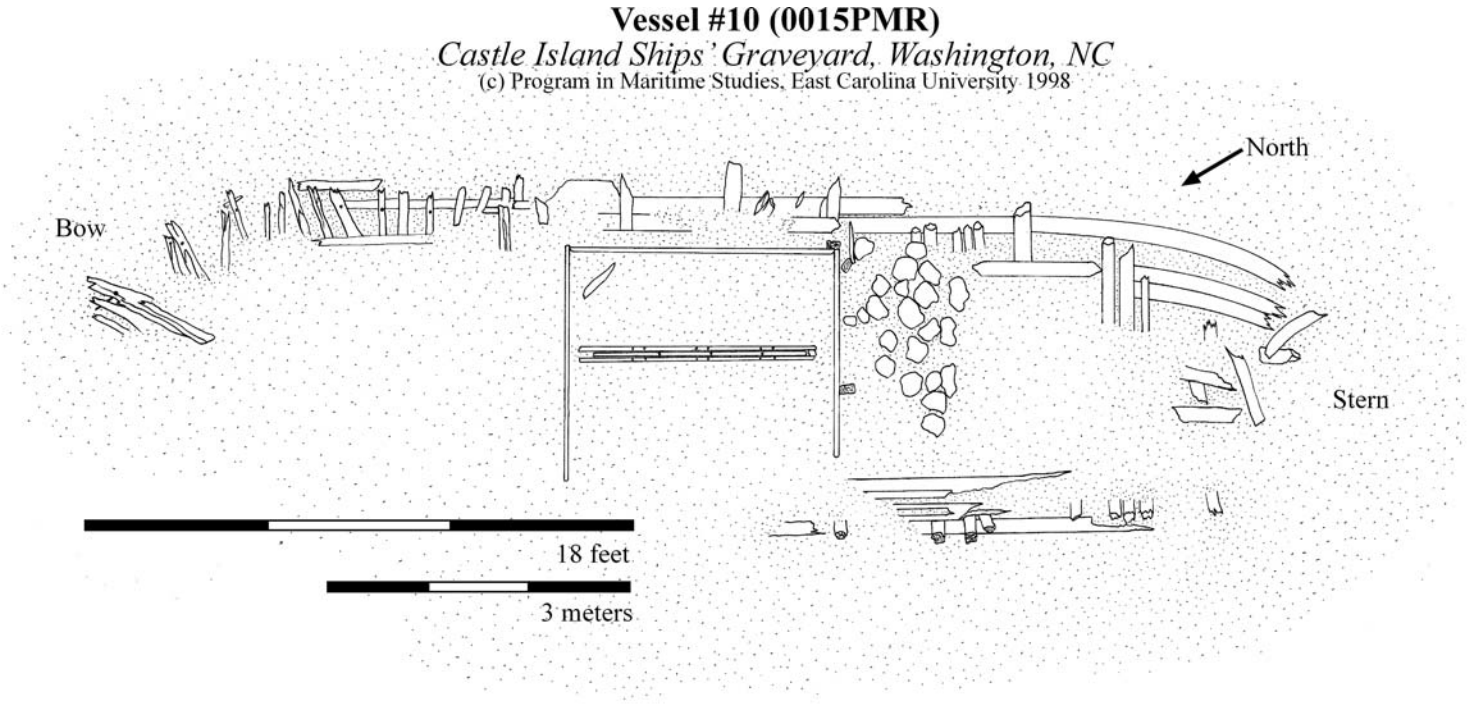


Figure 20. Plan view site map of Vessel Ten (Maritime Studies Program, East Carolina University © 2005).

to numerous vessels of this type present in Washington, few if any examples of which remain. This vessel is unique in the archaeological collection near Washington and would be worth further investigation to gain information concerning this particular variation of a Chesapeake Bay craft. Divers did not relocate its remains after Hurricane Floyd visited, and it is feared lost.

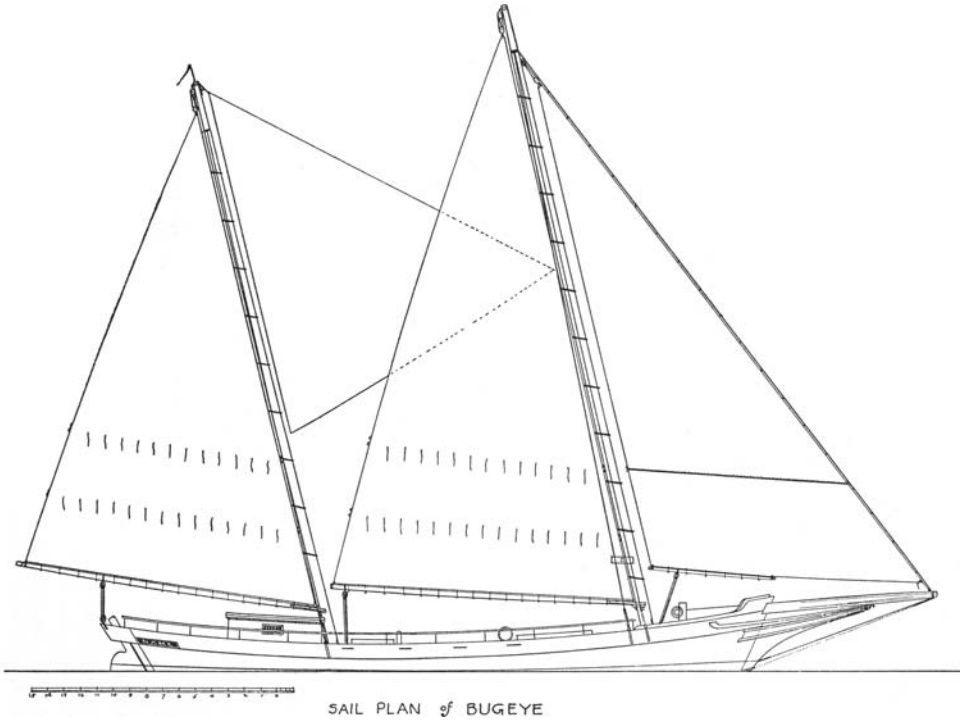


Figure 21. Sail plan of a bugeye (Davis 1929:47, reproduced with the permission of Dover Publications, Inc.).

Vessel Eleven

Long time Washington residents, happening by our public outreach booth set up on the river front, mentioned that a ferry barge used by the public to cross the river was lost during the storm of 1913. The location of the loss, toward the south shore across from the Washington waterfront is where Vessel Eleven was located during a survey in 2000. Vessel Eleven, easily detected on sonar, is in such shallow water that people can see it from shore when a low tide combines with a west wind to lower the water in the sound (Figure 22). The vessel is a flat measuring 75 ft. (22.8 m) long, and 30 ft. (9.14 m) wide and is constructed of yellow pine, a tree found locally (Figure 23). With the exception of a few missing bow and stern apron planks, the vessel is intact and survived Hurricane Floyd. Most fasteners were made of iron, though investigators also discovered a number of treenails.

Through-hull fasteners were round wire nails, as were the nails found on deck beams. This is a fastener not prevalent until the latter stages of the 19th-century, and continues to be the common nail today. We may also interpret a large number of *in situ* nail heads as a sign of salvage activity, suggesting that at some time prior to abandonment salvagers retrieved the entire internal deck by simply prying the wood free of the nails while leaving the nails attached.

Vessel Eleven's construction does deviate somewhat from some of the other flats located near Castle Island. Vessels Seven and Nine do not contain chine logs and are somewhat smaller than Vessel Eleven. The chine log or stringer is located at the turn of the bilge and supports the vessel longitudinally while it contains pockets in which king posts are set to serve as frames and supports for the side of the vessel. We can assume that originally some of these king posts continued past the shear to serve as a deck railing and guide for the ferry cable leads. Like Vessel Eleven, Vessel One also contains chine logs, though little else of the burned craft was evident. In addition to the chine logs on Vessel Eleven, the ship's builder laid cross keelsons on the top of the five internal longitudinal stringers, as well as the two chine logs to serve as a base for the traffic deck. This deck, with its longitudinal planks, took the weight of passengers, animals, and carts. The traffic deck is missing from the site and presumed salvaged.

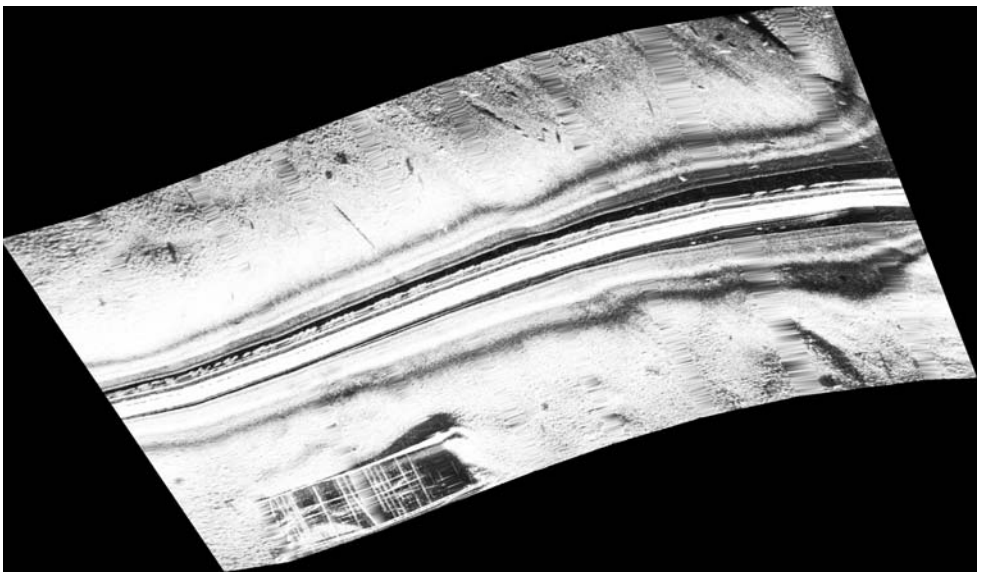


Figure 22. Side scan sonar image of Vessel Eleven (0061PMR) (Maritime Studies Program, East Carolina University © 2005).

The storm of 1913 must have rivaled Hurricane Floyd in intensity and devastated parts of Washington. Destruction included damage to all of the bridges in the area, requiring the temporary use of ferry barges such as Vessel Eleven. It is unclear, therefore, whether the Hurricane of 1913 sunk Vessel Eleven or if someone used it to mitigate the effects of the hurricane by letting traffic continue across the

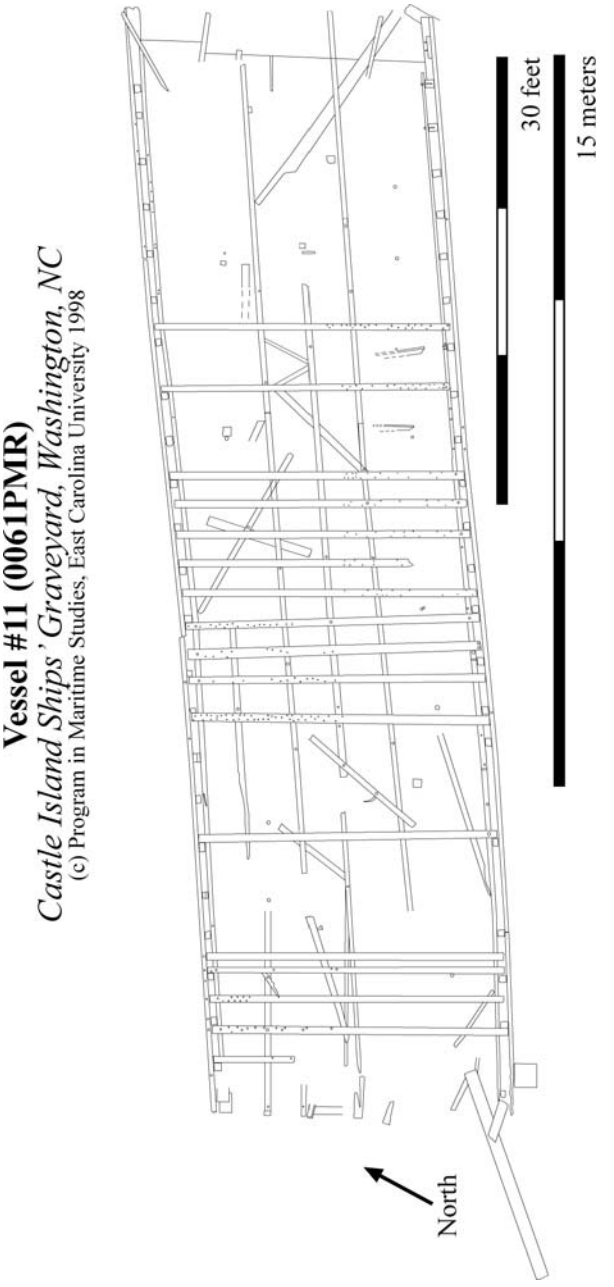


Figure 23. Plan view site map of Vessel Eleven (Maritime Studies Program, East Carolina University © 2005).

river while the bridges underwent repair. A photograph provided by Hugh Sterling of Washington likely shows this ferry, or one very much like it in operation, complete with passengers (Figure 24). It is unclear how the ferry is operating. The horse seems attached to the cart in the ferry, and is not providing power for the cable. Additionally, the ferry operator does not appear to be walking the cable

across the deck. By 1913, a powered winch system may have been set up on shore to pull the craft across the river.

Vessel Eleven lies just on the other side of the river from where the photographer took his or her image. Analysis of the three flat examples located near Castle Island may determine that chine log construction on a flat indicates it is a ferry, whereas the absence of a chine log indicates a working barge or plantation barge. Other archaeological examples do not contribute to this conclusion. The two ferries studied in the Northeast Cape Fear River do not have chine logs, and even though both were from an earlier era, they do not show traits contrary to those discovered on Vessels Seven and Nine, making conclusions concerning the use of chine logs difficult (Watts and Hall 1986: 23, 33).

Divers recorded Vessel Eleven in 2000. The wreckage does not in any way appear to be associated with the cluster of vessels located near Castle Island; therefore, its deposition in the archaeological record is also likely not associated with the island watercraft. The archaeological evidence provides no clue as to whether it is an abandoned or wrecked vessel, other than the fact that someone had removed the traffic deck. Furthermore, divers discovered no artifacts associated with passengers, or ferrymen adjacent to the site.

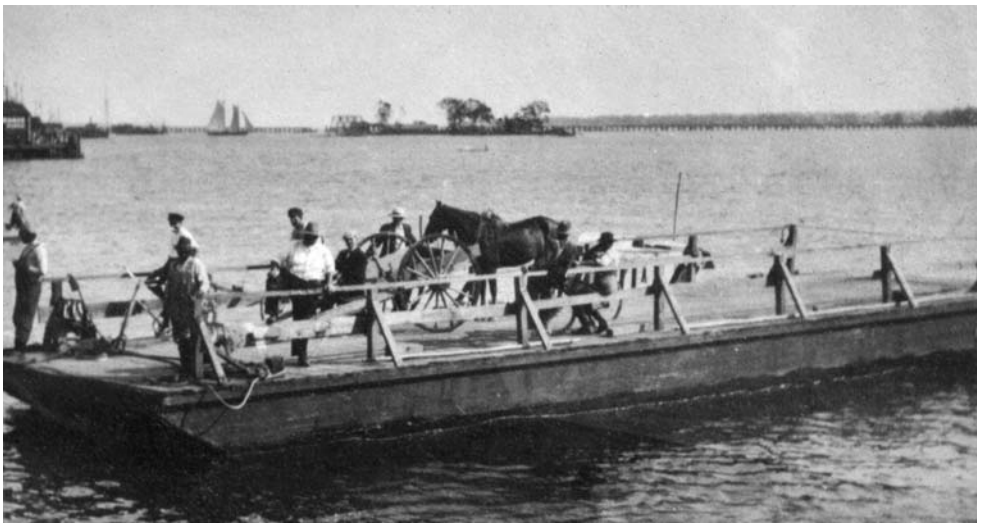


Figure 24. Ferry running between north and south shores of the Tar River, Washington, NC (c.1913). Ferry may correspond to remains of Vessel Eleven (Photograph courtesy of Mr. Hugh Sterling).

5

Conclusion

The wrecks or abandoned watercraft that surround Castle Island in Washington, North Carolina, offer an invaluable glimpse into the life and times of this bustling 19th-century port town. Of the eleven vessels documented in this survey, all represent various aspects of the area's economic base, and relate in a material way to how area ship and boat builders designed craft to reflect the work that they were to accomplish. These vessels vary from swift-ocean fishing watercraft to plodding sound shell fishing vessels. They also reflect modest agriculture transports for the river, both steam-powered and non-powered, as well as large coastal and international trading ships. The ships of Castle Island also show us how our ancestors extended road transportation across rivers and carried on lime production through the extended use of utilitarian bottom built flats. In fact, the only major 19th-century industries not represented in the remains of these vessels that we know Washington entrepreneurs were engaged in are the timber, lumber, and naval stores industry. These activities are of course represented archaeologically in other areas in or near Washington, but are not reflected in the ruined craft on the north and northwest side of the island, except in the predominantly softwood timber that makes up their hulls.

The Castle Island wreck and abandonment sites run the gamut of named North Carolina and import vessel types including flats (barges and ferries), coasting schooners, North Carolina sharpie schooners, oyster sloops, a sailing log canoe, and a river steamer. In some instances, the Castle Island study reveals the internal construction of these small vessels for the first time making it an invaluable archaeological resource for anyone wishing to study these vernacular working craft. Research suggests that people brought the designs of the bugeye log canoe and sharpies in from the Chesapeake Bay area, therefore, the Castle Island examples may have shown us just how the North Carolina versions differed from their namesakes. The shallow draft steamboat is also atypical of the eastern seaboard type of steamer, and shows a distinct relation to mountain and western river designs, again pushing our knowledge envelope for types of local steamboats.

In all, therefore, Castle Island represents a smorgasbord of vessel types widening our horizons concerning what we believe were the typical work boats of the area. This survey also demonstrates that the ship and boat building prowess of the local builders was far more complex than had been anticipated. This, in turn, demonstrates the burgeoning economic and cultural importance of the city of Washington near the turn of the 20th-century. It truly was a hub of commerce, agriculture, industry, and technical acumen - particularly in boat design and use.

Unfortunately, the work carried out at Castle Island from 1998 to 2000 was only a pre-disturbance archaeological survey. There was no excavation or in depth

archaeological study. The authors intended this survey to describe the resources available for further study in the survey area, and we do not consider it the final word concerning each of these sites. In a tragic twist, however, this study may indeed be the only analysis that most of these vessels will ever get since subsequent remote sensing has only relocated three of the eleven sites since the flooding of 1999.

Ironically, one of the intentions behind this three year Phase II survey was mapping and documentation that could demonstrate site formation process and the impact of both human and natural forces on the sites at Castle Island. Nature, however, proved that it is the final arbiter of archaeological site formation process, fully capable in this instance of simply wiping the slate clean of large amounts of cultural material at a moments notice. Humbling as it may seem, even embedded shipwrecks can disappear through natural and energetic site formation, even after a century of preservation and seeming protection.

We do not yet know the full extent of the damage done to the sites at Castle Island. Future survey work in the Tar-Pamlico River and drainage area is necessary, and East Carolina University Researchers will carry this out in the near future. Comprehensive remote sensing (sonar and magnetometer) surveys of the Castle Island area may reveal where the missing watercraft have gone, or give us a better idea of site formation in this periodically high energy environment. Future scuba diving work near the island is not feasible until the north face of the island sloughs and stabilizes. For now, it is a dangerous place, at a 20 ft. depth of water, where once we waded. However, even a return to a stable environment will affect the cultural resources adjacent to the island. The slumping and movement of the island will swallow and inundate ruined structures and artifacts near the north face just as it buries structures and artifacts on the south and east face. Rivers are indeed dynamic ever changing environments, and so are the islands that inhabit them.

Finally, we offer this survey data in the hope that future archaeologists and historians can better plan and carry out meaningful work by using our study as a springboard to more sophisticated studies. The vessel remains located in and near Washington, North Carolina, represent a valuable, non renewable, and as we have found, an unfortunately all too easily lost resource. Nevertheless, we do know that there are other remains of historical working craft still located on or near the bottom lands of Washington that were not lost in the flood. This work has served to make us more aware of these archaeological sites, their value, and most importantly, point us toward asking proper questions into the future. For all good scientific inquiry begins and continues by asking the proper, appropriate, and germane questions for the circumstances. Castle Island will allow us to formulate these questions, and may point us toward where we can find the answers.

References

Attmore, William
1922 Journal of a Tour to North Carolina by William Attmore, 1787, *James Sprunt Historical Publications*, 17(2): 1-46.

Alford, Michael B.
1990 *Traditional Work Boats of North Carolina.* The North Carolina Maritime Museum, Hancock Publishing, Harkers Island, NC.

Bridgers, Henry Clark, Jr.
1978 Steamboats on the Tar. Unpublished manuscript, Outer Banks History Center, Manteo, NC.

Cecekski, David S.
2001 *The Waterman's Song: Slavery and Freedom in Maritime North Carolina.* University of North Carolina Press, Chapel Hill, NC.

Chappelle, Howard I.
1935 *The History of American Sailing Ships.* Bonanza Books, NY.

Corbin A. and Bradley A. Rodgers
2004 Leviathan of the Plains: History, Excavation, and Architecture of the Steamboat Montana. Unpublished manuscript East Carolina University, Greenville, NC.

Davis, Charles G.
1929 *American Sailing Ships: Their Plans and History*. Dover Publications, Inc., New York, NY.

Fleetwood, William C. Jr.
1995 *Tidecraft: The Boats of South Carolina, Georgia and Northeastern Florida- 1550-1950.* WBG Marine Press, Tybee Island, GA.

Fournet, Stephen C.
1990 Pleistocene-Holocene Sediment Aggradational History of the Lower Tar River and the upper Pamlico River Estuary, North Carolina. Master's Thesis, Department of Geology, East Carolina University, Greenville, NC.

Giuese, G. L., H.B. Wilder, and G.G. Parker, Jr.
1979 *Hydrology of Major Estuaries and Sounds of North Carolina.* U.S. Geological Survey Water Resources Investigation.

Hartness, Thomas Scott.
1977 *Distribution and Clay Mineralogy of Organic-Rice Mud Sediments in the Pamlico River Estuary, North Carolina.* Master's Thesis, Department of Geology, East Carolina University, Greenville, NC.

Harriot, Thomas
1590 *A Briefe and True Report of The New Land of Virginia.* 1972 edition, Dover Publications Inc., NY.

Hill, Michael R.
1984 *Historical Research Report*: *The Waterfront Area of Washington, North Carolina.* Microfilm, Historical Research Reports: Series 2, Number 34, North Carolina Division of Archives and History, Raleigh, NC.

Hocker, Frederick M.
2005 Bottom-based shipbuilding in Northwestern Europe. In *The Philosophy of Shipbuilding: Conceptual Approaches to the Study of Wooden Ships*, Frederick M. Hocker and Cheryl A. Ward, editors, pp. 65-93, Texas A & M Press, College Station, TX.

Hodges, Norfleet D.
1976 *Historical Highlights of Washington and Beaufort County North Carolina Bicentennial Edition 1776-1976.* Major Reading Blount Chapter, National Society, Daughters of the American Revolution, Washington, NC.

Labadie, C. Patrick and Charles E. Herdendorf
2004 *Wreck of the Steam Barge* Adventure*: An Archaeological Investigation in Lake Erie at Kelleys Island, Ohio*. Great Lakes Historical Society, Vermillion, Ohio.

Labaree, Benjamin W., William M. Fowler, Jr., John B. Hattendorf, Jeffrey J. Safford, Edward W. Sloan and Andrew W. German
1998 *America and the Sea: A Maritime History*. Mystic Seaport, Mystic, CT.

Lawrence, Mathew
2003 A Fair Specimen of a Southern River Steamer: The Oregon and Tar/Pamlico River Steam Navigation. MA Thesis, East Carolina University, Greenville, NC.

Litchfield, Ysobel DuPree
1976a Shipping, in Ursula Fogleman Loy and Pauline Marion Worthy, editors, pp. 225-247. *Washington and the Pamilco.* Washington-Beaufort County Bicentennial Commission, Raleigh, NC, Edwards and Broughton.

Loy, Ursula and Pauline Worthy (Editors)
1976 *Washington and the Pamlico*. Washington-Beaufort County Bicentennial Commission, Raleigh, NC, Edwards and Broughton.

Matthews, Frederick C.
1987a *American Merchant Ships 1850-1900: Series 1*. Dover Publications Inc., New York, NY.
1987b *American Merchant Ships 1850-1900: Series 2*. Dover Publications Inc., New York, NY.

May, Louis G.
1976 Lumber, Part 1: The Story of Beaufort County's Lumber Industry, in Ursula Fogleman Loy and Pauline Marion Worthy, editors, pp. 329-352. *Washington and the Pamilco.* Washington-Beaufort County Bicentennial Commission, Raleigh, NC, Edwards and Broughton.

Morgan, John I. and Bill Abeyounis
1976 Since World War II, in Ursula Fogleman Loy and Pauline Marion Worthy, editors, pp. 510-513. *Washington and the Pamilco.* Washington-Beaufort County Bicentennial Commission, Raleigh, NC, Edwards and Broughton.

North Carolina Division of Resource Planning and Evaluation
1974 *Hydrology and Climatology of the Tar-Pamlico River Basin Area*. Department of Natural and Economic Resources, Raleigh, NC.

Olsberg, R. Nicholas.
1973 Ship Registers in the South Carolina Archives, 1734-1780, in *South Carolina Historical Magazine,* Volume 74: 189-299.

Paschal, Herbert.
1976 In the beginning, in Ursula Fogleman Loy and Pauline Marion Worthy, editors, pp. 1-6. *Washington and the Pamilco.* Washington-Beaufort County Bicentennial Commission, Raleigh, NC.

Richards, Nathan T.
1997 *The History and Archaeology of the Garden Island Ships' Graveyard.* Unpublished Honours Dissertation, Flinders University: Adelaide, Australia
1998 Inferences from the study of Iron and Steamship Abandonment: A Case Study from the Garden Island Ship's Graveyard, South Australia, in *Bulletin of the Australian Institute for Maritime Archaeology* Volume 22(1): 75-80.
1999 The Garden Island Ships' Graveyard: Results and Findings of Archaeological Fieldwork 1996-1998, *Proceedings of the National Archaeology Students' Conference 1998*. Australian National University: Canberra, pp.11-18.

Richards, Nathan T., *continued. . .*

2002 *Deep Structures: An Examination of Deliberate Watercraft Abandonment in Australia.* Unpublished Doctoral Dissertation, Flinders University: Adelaide, Australia.

2003 The role of isolation in cultural site formation: A case study from Strahan, Tasmania, in *Bulletin of the Australian Institute for Maritime Archaeology* Volume 27: 77-84.

2004 The role of geo-politics in cultural site formation: A case study from the Northern Territory, in *Bulletin of the Australian Institute for Maritime Archaeology* Volume 28: 97-106.

Southerly, Chris W.

2003 Cedar on the Reef: Archaeological and Historical Assessment of Eighteenth-Century Bermuda Sloops Exemplified by the Wreck of the *Hunter Galley*. Unpublished MA thesis, East Carolina University, Greenville, NC.

Swanson, Carl E.

1991 *Predators and Prizes: American Privateering and Imperial Warfare, 1739-1748*. University of South Carolina Press, Columbia, SC.

Washington Daily News

1951 River Boat Traffic Once Big Business. *Washington Daily News*, 17 August: 7, Washington, NC.

Watts, G. and Hall W.

1986 An Investigation of Blossom's Ferry on the Northeast Cape Fear River. East Carolina University Program in Maritime History Research Report #1, Greenville, NC.