AW SHUCKS: AN ARCHAEOLOGICAL INVESTIGATION OF A POSSIBLE OYSTER FISHING VESSEL IN WASHINGTON, NORTH CAROLINA

By

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May, 2022

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ABSTRACT

Oysters were a significant food source for Native Americans and settlers of North Carolina. In the mid-19th century, local markets for oysters developed around coastal cities such as Wilmington, New Bern, and Washington. The absence of a fast and reliable means of transporting the harvest to inland cities, however, precluded a larger industry from being established. Yet, in the late 1880s the North Carolina oyster fishery experienced a sharp rise in activity. Diminishing oyster populations and stricter fishing laws in the Chesapeake Bay region led its oyster fishers to search for new areas to harvest. Distinct vessel types from the Chesapeake Bay area soon flooded the estuaries of North Carolina. Many of those vessel types, including sharpies, bugeyes, and skipjacks, were designed for oystering activities. Recent archaeological investigations of a sunken sailing vessel embedded on the southern side of the Pamlico River near Washington, North Carolina suggest an association with oyster fishing. Known locally as the Centerboard Wreck, the remains of the vessel exhibit construction features and an artifact assemblage that are consistent with the oyster industry. This thesis aims to investigate the historical background of oystering in North Carolina and particularly the development of the Pamlico trade, attempt to determine a vessel type for the Centerboard Wreck, and to understand its possible employment in the fishery and ultimate deposition within the vicinity of Washington, North Carolina.

Aw Shucks: An Archaeological Investigation of a Possible Oyster Fishing Vessel in Washington, North Carolina

A Thesis

Presented to the Faculty of the Department of History

East Carolina University

In Partial Fulfillment of the Requirements for the Degree

Master of Arts in Maritime Studies

By

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DEDICATION

This thesis is dedicated to my friends and family.

ACKNOWLEDGEMENTS

There are many people who I would like to thank for helping me complete this thesis. First, I would like to thank my advisor, Dr. Jason Raupp, for guiding me through graduate school and preparing me for future endeavors. I would also like to thank my committee members, Dr. Nathan Richards and Dr. Christopher Oakley, for their valuable assistance during the planning, writing, and editing of this thesis.

I would like to thank all the students within the Program in Maritime Studies for their help and support. You all inspired this thesis in some way. Thank you to the team members who helped collect data on the Centerboard Wreck during the 2020 Fall Field School. Thank you, Taylor and Darby, for your beautiful, scaled drawings. Thank you, Dr. Jason Raupp and Dr. Jennifer McKinnon, for teaching us how to be maritime archaeologists.

I would also like to thank Dominic, Will, Andi, Amber, and Lindsay for their help in returning to the Centerboard Wreck for even more data collection. I appreciate all the support you have given me throughout my time at ECU.

A special thanks is given to Brendan Burke for his undying support and special interest in Chesapeake Bay bugeyes. I am grateful to have you as a friend and mentor. I hope to continue learning from you on future endeavors.

Many special thanks are given to the members of LAMP, specifically Chuck Meide, Nicholas Budsberg, and Airielle Cathers. You all helped motivate me to become a better student, diver, and archaeologist.

I would like to thank the staff at the Chesapeake Bay Maritime Museum who aided my research. Thank you, Jenifer Dolde, Christian Cabral, and Pete Lesher, for your contributions to this thesis. Your collected knowledge of the history of the Chesapeake Bay is profound.

I would also like to thank Mark Keusenkothen, Jason Nunn, Jeremy Borelli, and Ryan Bradley for your advice, support, and for keeping us all safe underwater.

Lastly, I would like to thank my friends, family, and fiancé, Kylie, for their constant love and support. I would not have finished this thesis without you.

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Chapter 1: Introduction

The North Carolina oyster industry is a significant part of the state's cultural, environmental, and maritime history. Many coastal towns developed solely because of their proximity to lucrative oyster beds. The industry was small and locally focused until the late 19th and early 20th centuries, when fishers from northern states entered the North Carolina sounds. These fishers brought new techniques, equipment, and vessel types that significantly affected the existing oyster industry. Although the broad history of the North Carolina oyster industry has been examined, a comprehensive study of how it affected the maritime culture of the state has yet to be undertaken. The exact vessel types used within the industry are also understudied, as they were generally referred to simply as "oyster boats" during the period. The extent of influence that other maritime cultures had on the industry, such as those of the Chesapeake Bay, is also unknown. Some of these influences, however, can be observed in both the historical and archaeological records.

To determine how North Carolina's oyster industry may have affected the state's maritime cultural heritage, a small shipwreck possibly related to the fishery was investigated. The Centerboard Wreck (PMR0062) is embedded on the southern side of the Pamlico River across from the historic port of Washington, North Carolina. The shipwreck was partially surveyed previously by staff and students from East Carolina University's (ECU) Program in Maritime Studies (Watts 1997; Seltzer 2004). Although the identity and exact vessel type is unknown, many of the documented artifacts suggest an association to the oyster industry. Data obtained through these investigations, along with a variety of primary and secondary historical sources including maps, newspapers, and journals, are used to determine the extent of influence the oyster industry had on North Carolina's maritime cultural heritage.

Site Description

Although late 19th century oystering vessels are documented in the historical record, physical remains of these vessels are rare. There are, however, multiple shipwreck sites located on the Pamlico River that are considered directly related to the North Carolina oyster fishery. And while some of these sites were previously surveyed by ECU's Program in Maritime Studies, many have yet to be thoroughly investigated. One of those shipwrecks, referred to as the Centerboard Wreck and designated PMR0062 by the North Carolina Office of State Archaeology, lies suspended in mud and submerged in 1.2 meters (4 feet) of black water on the south bank of the Pamlico River across from Washington, NC (FIGURE 1).

An extensive non-disturbance survey of the Centerboard Wreck was undertaken by ECU's Program in Maritime Studies during the 2020 Fall Field School (HIST6850). The wreck measures approximately 15.6 m (51 ft.) in total length and has a curved frame configuration. Extant features include a stem assembly, stern assembly, centerboard case, and at least 20 framing stations. Based on preliminary data, the Centerboard Wreck shares design characteristics with oyster fishing vessels employed in mid-Atlantic region in the late 19th and early 20th centuries. Furthermore, a variety of artifacts recorded at the site are directly relatable to the oyster industry.

Dimensions and construction features recorded at the Centerboard Wreck are comparable to that of a Chesapeake Bay bugeye, a commonly used oyster vessel. A variety of oyster vessel types were employed in North Carolina's oyster industry during the 19th and 20th centuries, however, and though bugeyes were indeed used on the Pamlico River, the recent surveys at the Centerboard Wreck site could not determine an exact vessel type. While it is entirely possible that the wreck represents a vessel originally built and employed on the Chesapeake Bay, it is just

as likely that it could represent a local variation of that region's shipbuilding traditions diffused to North Carolina. Thus, the archaeological survey data recovered at the Centerboard Wreck site was compared to historical documents of known oystering vessel types to better understand its construction and potential use in the oyster fishery.

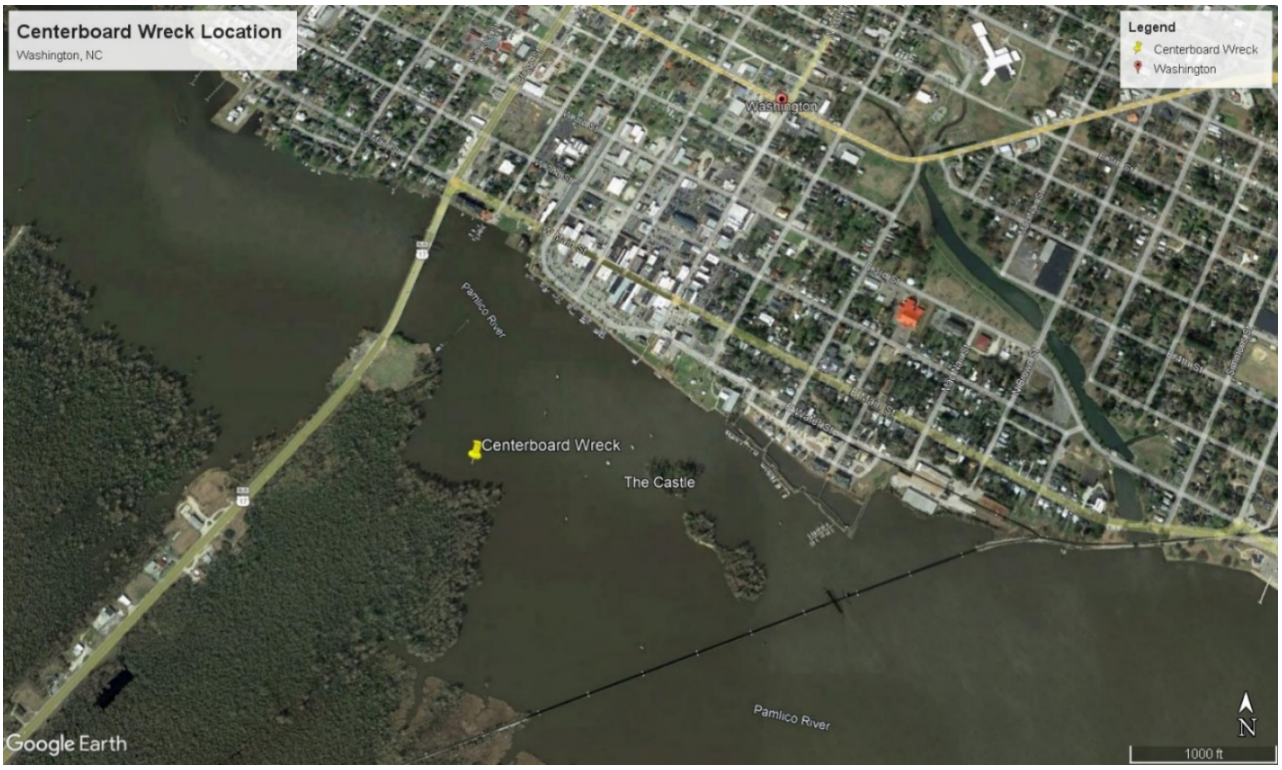

FIGURE 1. A chart detailing the location of site PMR0062 near the historic port of Washington (Google Earth 2022).

Research Questions

The primary goal for this thesis is to understand North Carolina's historic oyster fishery from historical research and archaeological investigations of the Centerboard Wreck. To explore this topic, it is important to consider the following secondary research questions:

1. What are the origins of the North Carolina oyster fishery and the development of Washington's oyster trade? What vessel types were employed for oyster fishing?

2. Was the Centerboard Wreck employed in the oyster fishery? Can a specific vessel type be identified through archival research and/or an archaeological survey?
3. What economic and environmental factors influenced the construction of the Centerboard Wreck? How does its design compare to the vernacular watercraft that plied the oyster trade in the Chesapeake Bay and other areas of North Carolina?

Justification and Problem Orientation

Although the North Carolina oyster industry and its associated vessel types used for oystering have been examined through historical research, neither topic has yet to be studied in depth archaeologically. Thus, a comprehensive investigation allows for a better understanding of the history of North Carolina's oyster fishery. Focusing on the Centerboard Wreck and the remains of the fisheries that operated within the Pamlico River expands existing knowledge pertaining to the history and maritime culture of North Carolina. As stated above, the state's historic oyster fishery has yet to be thoroughly researched from an archaeological perspective, and little is currently known about its industrial operations at Washington, North Carolina. Despite the importance to the region's economic development, only a limited number of historical sources focus on the fishing vessels that plied the waters of the Pamlico River. As such, the proposed archaeological and historical investigation of the Centerboard Wreck contributes significantly to knowledge of the region's maritime heritage.

Though historical sources that focus on small fishing vessels employed in North Carolina are scarce, Howard I. Chapelle's *American Small Sailing Craft* (1951) and M. V. Brewington's *Chesapeake Bay Log Canoes and Bugeyes* (1963) examine some of the vessel types. Identifying the vessel type, function, and possible origins of the Centerboard Wreck could provide a significant contribution to the knowledge of these small craft. As the archaeological investigation

focuses on the extant hull structure at the site, an overall analysis of those remains provides an opportunity to attempt to identify a specific vessel type. Additionally, combining historical and archaeological data could help to determine whether the vessel was employed in the local or regional fishery.

Previous Investigations

The Pamlico River, specifically the portion near Washington, North Carolina, has been the focus of several archaeological field schools by ECU's Program in Maritime Studies since the early 1980s. Of particular interest to this study were the multiple surveys undertaken by the program at Washington during the field seasons of 1998-2000. These surveys focused on an abandonment area situated near Castle Island (in the middle of the river across from the Washington waterfront) and included at least eleven different shipwreck sites. Some of those sites are reportedly related to North Carolina's historic oyster industry. The detrimental effects of Hurricane Floyd in 1999, however, caused many of the shipwrecks to be buried or destroyed and only a few of them could be reidentified in the final 2000 field season (Rodgers et al. 2006:1-3).

Several shipwreck sites around Washington were examined by student volunteers from the Institute for International Maritime Research in 1997 (Watts 1997). And while the preliminary report for that project does not list the actual sites surveyed, the Centerboard Wreck was among them (Watts 2020 pers. comm). The Centerboard Wreck was later imaged through a sonar survey conducted by ECU in 2004 (Richards 2005). The site was also briefly examined during the 2004 ECU field school, when a small team of students were tasked with recording the wreck within a limited timeframe as a learning exercise. Although valuable site sketches were created through the exercise, the limited survey time did not allow for the collection of precise data (Seltzer 2004).

Methodology

Along with one other shipwreck, the Centerboard Wreck was the focus of the 2020 fall field season for the Program in Maritime Studies. Like the 2004 ECU field school, the survey of the Centerboard Wreck was originally intended as an introductory lesson for students. The preservation of the vessel remains, however, led to the site's examination over the course of multiple days by students using a combination of survey techniques. The wreck's overall length and beam were measured by establishing a baseline and recording offsets to framing stations, as well as to the outer and inner hull planking at 1 m (3.3 ft.) intervals. The stem assembly, stern assembly, and centerboard were measured and drawn to scale. A variety of artifacts were also identified on the surface of the site; the locations of these were mapped onto the site plan using baseline offset measurements before they were temporarily recovered and recorded through sketches and photography. Once documentation was complete, all artifacts were replaced back on the site at the exact locations in which they were found.

Historical and Archival Research

The Centerboard Wreck investigation involves collecting data through primary and secondary historical sources. Information related to both the fishing industry and the shipwreck was obtained through archival research, with repositories such as the Chesapeake Bay Maritime Museum (St. Michaels, Maryland), Calvert Maritime Museum (Solomons, Maryland), and Brown Library (Washington, North Carolina) as main sources. A large collection of secondary source material was collected through ECU's Joyner Library and online archive.

Historical research helped to identify the coastal communities of the Pamlico River that contained oyster canning factories. Although the exact locations of these oyster processing facilities are rarely reported in secondary source material, it is possible that such areas can be

identified through primary sources located in the Brown Library archive. For example, multiple fire insurance maps dating to the late 19th and early 20th centuries depicts an oyster canning factory and nearby shipyard at Washington (FIGURE 2). Similarly, the possible vessel types for the Centerboard Wreck were significantly narrowed by comparing the archaeological data to oyster vessels recorded in historical sources.

Archaeological Data Collection

Field recording activities for the Centerboard Wreck were undertaken through the Program in Maritime Studies 2020 Fall Field School and conducted under permit 660 PMR-TRR 2020 from North Carolina's Underwater Archaeology Branch (UAB). Methods for documenting the site included traditional site mapping techniques, such as tape-based recording, and position recording using GPS. Any artifacts discovered were recorded geospatially, recovered and photographed, and then returned to the exact locations within the site.

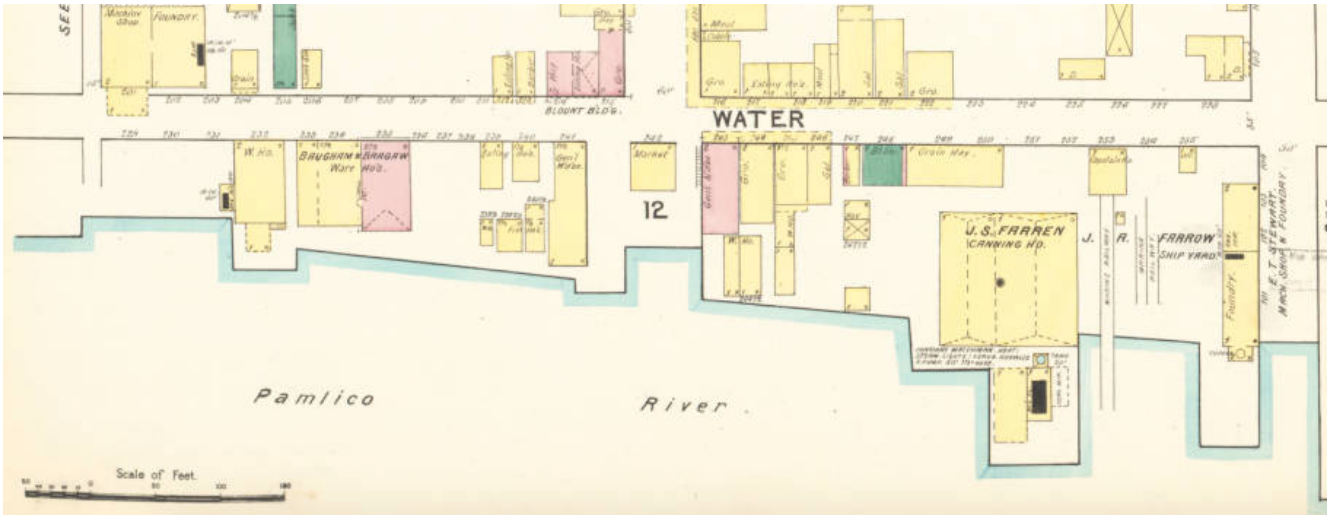

FIGURE 2. Insurance map depicting J.S. Farren's oyster canning factory at Washington in the lower right (Sanborn-Perris Map Company 1891).

Hull Analysis

To gather data for a hull analysis, data collection focused mainly on the extant timbers of the wreck to gather data for a hull analysis. The extant frames, stem assembly, stern assembly, and centerboard were measured as well as photographed when visibility allowed. To undertake a full hull analysis of the vessel, it would be necessary to record the curvature of as many remaining frames as possible. To obtain this data in the future, a profile could be taken using a level line and plumb bob or a goniometer, which is a handheld device used for recording the curvature of frames (Cozzi 1998:65). Doing this could allow for the collection of accurate data relating to the shape of each timber and be used for a hypothetical reconstruction of the vessel's lines. Unfortunately, obtaining this data was not possible without disturbing the surrounding sediment nor allowed under the existing UAB permit.

Artifact Analysis

Thirty-six artifacts were discovered and recorded at the Centerboard Wreck site. Each artifact's position was recorded *in situ* using baseline offsets and each object was temporarily removed for documentation. The artifacts were individually drawn, measured, and photographed at the shipwreck site before being returned to their original location. Some of the artifacts are not identifiable and possibly intrusive, however, a variety of artifacts reveal significant information about the vessel's role in the oyster fishery.

Significance

Multiple aspects of this thesis project are historically and archaeologically significant. First, since the oyster industry at Washington is an understudied topic, this investigation increased the historical knowledge which will likely aid future investigations and interpretations. Focusing on both the history of the oyster industry on the Pamlico River and the archaeological

data of an unknown vessel provides new information to the historical fishing narrative of Washington and North Carolina as a whole.

Secondly, the Centerboard Wreck has been examined in multiple ECU field schools, but neither the exact vessel type nor its identity was determined. Using the collected data, however, has narrowed down possible vessel types. The Centerboard Wreck shares many construction features with the oyster vessels built in the Chesapeake Bay region. It is therefore possible that the shipwreck likely represents the remains of one of these vessels or was built as a local North Carolina variation of one of these types. Determining if the Centerboard Wreck was a Chesapeake Bay type or a local adaptation would be significant because it would add to the known historical record of the site and the historical narrative of the North Carolina oyster industry. If the remains do in fact represent a Chesapeake Bay vessel type, it would be one of a few confirmed examples of Chesapeake Bay vessels found in the archaeological record in North Carolina. Of the Chesapeake Bay oyster vessels known to exist, the Chesapeake Bay Maritime Museum's *Edna E. Lockwood* and a few others located in Maryland and Virginia have been restored as museum exhibits. These exhibits offer an opportunity to compare the Centerboard Wreck's archaeological data to the restored vessels. Similarly, if the shipwreck is a North Carolina adaptation of a Chesapeake Bay vessel type then it would also be significant because this local variation is undocumented historically or archaeologically. Whether the Centerboard Wreck was built in the Chesapeake Bay region or as a local variation of the type, it has both historical and archaeological significance to the maritime cultural heritage of North Carolina.

Project Limitations

The Centerboard Wreck investigation relied on a variety of resources and consequently had multiple limitations. These limitations included access to equipment, archival material, and

the shipwreck site itself. Historical research was limited to the resources available through the university's libraries, as well as the materials housed within the museums in the vicinity of the area of study. Therefore, the time needed to obtain information, overall travel costs, and ease of access were all limitations for the project. The Chesapeake Bay Maritime Museum has a variety of primary sources that are available to the public. Other smaller museums located throughout the region also hold resources valuable for the project. Access to these resources, however, was limited by travel restrictions implemented because of the global COVID-19 pandemic. The most significant limitation to the proposed project is the degree of influence that COVID-19 had on the ability to travel and work in large groups. Enough field data was collected, however, to allow for an examination of the vessel type. Much of the historical data was obtained through electronic online databases.

Chapter 2: Literature Review and Theoretical Approach

To fully characterize the North Carolina oyster industry, as well as its commonly used oystering vessel types, it is necessary to discuss the variety of sources that are examined through this study. First, a review of known literature relating to the historic North Carolina oyster industry, oyster vessel types, and previous archaeological work is discussed to understand how this study adds to the historical knowledge of the topic. Next, the culture-historical approach to studying vernacular watercraft as applied to this research is explained. Finally, the application of this approach to the historical and archaeological study of historic fisheries are discussed.

Literature Review

Although the historic Pamlico River oyster industry has not been studied in detail, there is a large selection of historical material that considers the North Carolina's oyster industry. Furthermore, the vessels used within the industry have been documented in many primary and secondary historical sources. While these vessel types are rarely examined in detail within the archaeological record, some archaeological reports contain possible and confirmed oystering vessel types. A variety of both primary and secondary historical sources, along with known archaeological reports, were therefore used in this study.

North Carolina Oyster Industry Sources

Since the oyster industry played an integral role in North Carolina's growth, there are a variety of historical sources available. North Carolina's oyster industry was first examined in detail in *The History and Present Condition of the Fishery Industries: The Oyster-Industry* (1881) by Ernest Ingersoll. A significant decrease in United States fish populations was noticed by the 1870s and the U.S. Commission of Fish and Fisheries was established in 1871 to examine

the causes. A multi-volume report of all fisheries in the United States was compiled in 1881. Including fishery locations, fishing methods, and statistics, this report provided some of the first detailed accounts of North Carolina's oyster industry prior to its expansion resulting from the influx of Chesapeake Bay oysterers.

As the oyster population continued to decrease in the mid-Atlantic region of the United States, more studies were undertaken to understand the causes. Grave's *Investigations for the Promotion of the Oyster Industry of North Carolina* (1904) was a follow up study to the 1881 U.S. Commission of Fish and Fisheries report and reassessed the condition of the North Carolina oyster industry in the early 20th century. Robert Coker's *Oyster Culture in North Carolina* (1905) and *Experiments in Oyster Culture in Pamlico Sound, North Carolina* (1907) both examine the conditions of North Carolina oyster beds in the first decade of the 20th century. Each of these reports inform the health of the Pamlico Sound oyster beds and allow for examination of changes in the industry and the direct effects of developing technologies employed by oysterers.

Oyster Vessel Sources

Many different types of watercraft were employed in the 19th and 20th century oyster industries of the mid-Atlantic region and several of them are recorded in the historical record. The renowned American maritime historian, Howard I. Chapelle, wrote numerous articles and historical monographs that focused on the wooden ships and shipbuilding methods of the east coast of the United States in the 19th and 20th centuries. Many of his compilations are frequently referenced within this study. Chapelle's detailed work, *Boatbuilding: A Complete Handbook of Wooden Boat Construction* (1941), contains comprehensive descriptions of wooden shipbuilding methods used in the early 20th century. Other works such as *American Small Sailing Craft*

(1951), *American Sailing Craft* (1975), and *The American Fishing Schooners 1825-1935* (1973) contain detailed descriptions and construction methods of some small vessel types that were used specifically for oystering. These works, and others by Chapelle, are frequently used to understand the ship construction features of historic oyster vessels.

The Centerboard Wreck has many similar characteristics to Chesapeake Bay oyster vessels, specifically the bugeye type. M. V. Brewington's *Chesapeake Bay Log Canoes and Bugeyes* (1963) is a detailed shipbuilding treatise specifically focused on the origins and development of the bugeye type. The volume contains extensive lines drawings of types such as log canoes, brogans, and bugeyes, as well as many historic photographs of them. Also compiled in this source is a list of all known bugeye vessels registered in *The List of Merchant Vessels of the United States* (MVUS). Brewington's work helps to compare the artifacts and construction features identified at the Centerboard Wreck to those of oyster vessels. Although the bugeye is noted within other sources, Brewington's treatise is a comprehensive study of the vessel type and was a key source for this study.

Multiple historical monographs related to Chesapeake Bay shipbuilding are used to understand the vessel types created specifically for the oyster industry. Among these are Burgess's (1975) *Chesapeake Sailing Craft* and Davis' (2012) *American Sailing Ships: Their Plans and History*, which are used extensively because they both contain detailed shipbuilding information about vessels related to the oyster industry and provide ship plans, drawings, and historic photographs.

Historical Sources

Compiled by the Washington-Beaufort County Bicentennial Commission and edited by Loy and Worthy (1976) *Washington and the Pamlico* is a collection of primary and secondary articles relating to the history of Washington, North Carolina. The information within was collected from a variety of sources including newspapers, journals, photographs, and interviews. This collection is often referenced to understand the way of life in Washington, North Carolina during the late 19th and early 20th centuries.

Multiple historic newspapers were reviewed to understand the scope of Washington's local oyster industry. Although many other local newspapers are referenced, there are three featured more often than others. The *Washington Progress* (1887-1931) contains a variety of articles that kept the local citizens up to date with the changes in the local oyster industry and includes some references to wrecked oyster boats. *The Washington Daily News* (1909-present) published many articles about the daily occurrences within the town, some of which directly refer to the local oyster canning facility, the docked vessels in port, and the state of the local oyster industry. Finally, *Fisherman and Farmer* (1887-1901) published articles containing information related to the Pamlico River oyster industry and to oyster boats for sale in the area which include the ship type, name, and tonnage. These historical newspapers help place the Centerboard Wreck within the context of the North Carolina oyster industry.

Along with written primary sources, a variety of maps, photographs, and ships plans were utilized. A collection of ship plans, and photographs of oyster vessels collected from the Chesapeake Bay Maritime Museum are some of the only known historic photographs of the oyster vessels used in the late 19th and early 20th century. A digitized collection of historic photographs from the Brown Library and the State Archives of North Carolina (Raleigh) are also

used to depict the maritime landscape of Washington. Multiple historic maps are used to reference locations relating to the oyster industry in Washington. Some of the primary historical maps are part a collection of fire insurance maps printed by Sanborn-Perris Map Co. Ltd. These maps were consistently updated and depict all local streets, houses, and buildings. Local businesses, including the oyster canning facility and shipyard, are labeled at their according location and show changes of ownership and appearance over time.

Archaeological Reports and Theses

Several academic theses that focus on North Carolina fisheries have been produced over the past 40 years and some contain useful chapters that discuss the history and economy of the oyster industry. Multiple archaeological studies also focus on North Carolina shipwreck sites that are related to oystering. Many of these theses and reports are referenced throughout this study, however, a few are specifically noteworthy. Bradley Thorson's *Origins and Early Development of the North Carolina Division of Commercial Fisheries, 1822-1925* (1982) provides a detailed history of the laws and commissions created for North Carolina's oyster industry. Similarly, Alicia Kramer's *The Pamlico Oyster, Crab, and Shrimp Industries: Early 20th Century* (1996) examines the production and transportation oysters on the Pamlico River. Finally, Miguel Barbary's *The Hull Remains of Helen C.: A Comparative Analysis of Chesapeake Bay and Albemarle-Pamlico Skipjack Shipbuilding Traditions* (2020) contains a discussion of archaeological methods used to differentiate local North Carolina shipbuilding to that of the Chesapeake Bay. Together these theses are used to compare previous studies on the topic and to identify areas in which historical knowledge is lacking.

Many archaeological investigations of shipwreck sites have been undertaken on the Pamlico River. The reports referenced in this study are limited only to those that discuss vessels

related to the North Carolina oyster industry or are near the Centerboard Wreck. All accessible site reports specifically related to the Centerboard Wreck were consulted to fully understand the site. The reports written for archaeological surveys of the vessels located within the Castle Island ship graveyard are also referenced for comparison with the Centerboard Wreck site.

A brief report of some known North Carolina shipbuilding traditions was produced in 1990 by the North Carolina Maritime Museum and the North Carolina Underwater Archaeology Unit. This report was a direct response to the issues of identifying North Carolina's vernacular watercraft in archaeological shipwreck sites. The aims of the study were "to help researchers working in the state to identify North Carolina built small craft and their ages, promote consistency and clarity when describing them, and determine their relative significance, leading to efficient ways to best manage each, particularly when threatened by destruction" (Wilde-Ramsing and Alford 1990:3). The report is heavily referenced to compare possible local building traditions with data recorded at in the Centerboard Wreck site.

William N. Still, Jr. and Richard A. Stephenson's *Shipbuilding in North Carolina, 1688-1918* (2021) contains a comprehensive overview of wooden shipbuilding activities in North Carolina from the late 17th century to the early 20th century. Although the names of many specific wooden schooners built in North Carolina are not identified, this source contains a detailed description of shipbuilding at Washington. The exact shipyards, names of shipbuilders, and many descriptions of wooden vessels are included. The detailed historical background of shipbuilding in Washington, along with the references to primary documents, are used to identify possible oystering related vessels and shipyards.

Finally, multiple archaeological reports that examine the bugeye vessel type are used to compare with data obtained from the Centerboard Wreck. Considering their rarity in the

archaeological record, the primary report used for comparison to the Centerboard Wreck is *The Nansemond Ghost Fleet: Archaeological Investigations of a Vessel Abandonment Area in Suffolk, Virginia* (Burke et al. 2020). Prepared by the Virginia Department of Historic Resources (DHR) and the St. Augustine Lighthouse Archaeological Maritime Program (LAMP), the archaeological report contains data on a variety of historic watercraft related to Virginia's fishing and lumber industries. One of the shipwrecks, referred to as the Hobbs Wreck, is identified as a Chesapeake Bay bugeye (FIGURE 3). Among the information included on this site are a two-dimensional site plan and a three-dimensional photo model. The Hobbs Wreck is one of the only bugeye vessels known to exist in the archaeological record and provides a significant comparative source for this study.

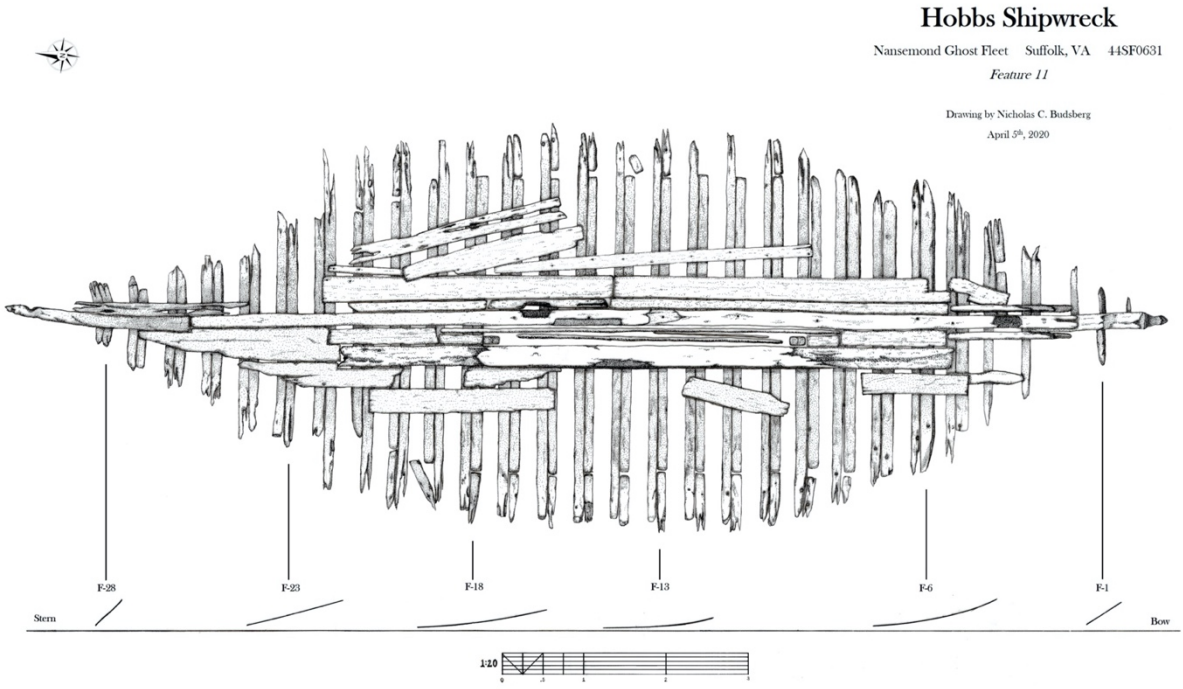

FIGURE 3. The drafted site plan of the Hobbs Wreck bugeye located in Suffolk, Virginia (Image Courtesy of LAMP).

Vernacular Watercraft

The Centerboard Wreck site provides a case study in which a traditional culture-historical approach to vernacular watercraft can be applied. While evidence indicates that the vessel was likely used in the historic North Carolina oyster industry, it is not known if it was built specifically for the trade. Similarly, the vessel may have been used for a variety of other purposes that fit the needs of the operator at various times. It is also possible, however, that the vessel was adopted from a different region and adapted to North Carolina waters. Understanding the environment in which a vessel was intended to operate can provide information about the needs of the shipbuilder and operators. Thus, considering vernacular watercraft perspectives in the analysis of the Centerboard Wreck provide beneficial information about how effectively it plied the trade in which it engaged.

Over the past few decades, the study of vernacular watercraft by maritime archaeologists has become increasingly prevalent. Vernacular watercraft refers to the ordinary and common workboats that are used for everyday tasks and a significant amount of new information is obtained through the examination of such vessels. Since many vernacular watercraft were built with common shipbuilding techniques of a particular period and culture, "most traditional boat types are not recorded in the historical record, and in these cases the archaeological record may retain evidence of vernacular watercraft in the form of shipwrecks and abandoned vessels" (Evans 2016:3-4).

Vernacular watercraft within North Carolina have been examined to determine if there are shipbuilding traits specific to the state's vessels. A variety of North Carolina shipwrecks contain regionally developed construction features. Many of these sites have been extensively examined in master's theses through ECU's Program in Maritime Studies. Wilde-Ramsing and

Alford's (1990) "North Carolina Small Craft Historical Context: An Underwater Archaeology Unit Management Plan" also provides an in-depth examination of North Carolina vernacular watercraft and building traditions. Comparing new shipwrecks to these sources can help determine which shipwreck sites include traits specific to North Carolina.

North Carolina vernacular watercraft can be separated into four different vessel types. These include hollowed log shell, plank-on-frame, skiff constructed, and flatboats. The known shipbuilding features are listed for each vessel type within Wilde-Ramsing and Alford's (1990) report. For example, a noticeable feature specific to North Carolina vernacular watercraft is an alternating placement of floor timbers and frames used for the construction of plank-on-frame boats (FIGURE 4). Having a compiled list of all known North Carolina building traditions was significant to this study. Comparing archaeological data obtained from the Centerboard Wreck to that from known North Carolina built vernacular watercraft helped determine if the vessel was built in the region (Wilde-Ramsing and Alford 1990).

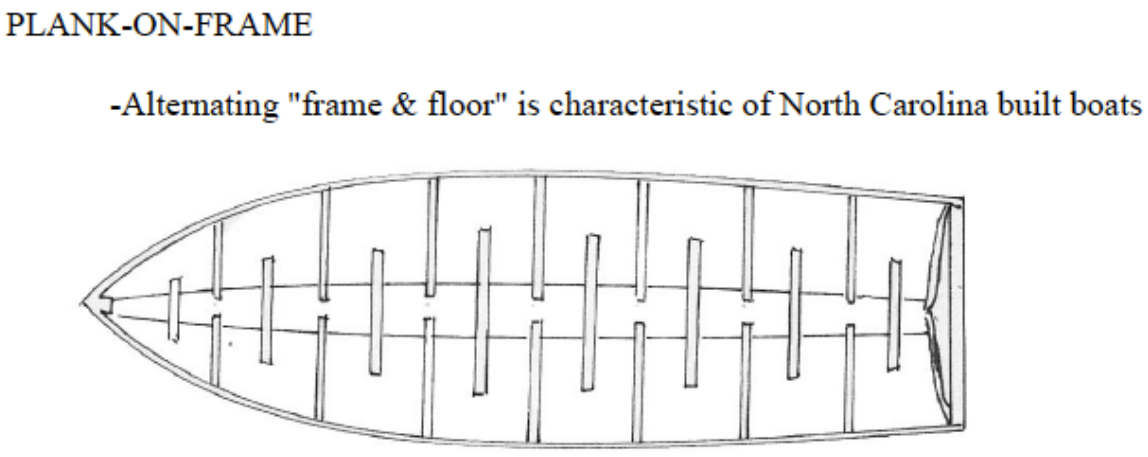

FIGURE 4. Illustration of "frame & floor" construction, a characteristic of North Carolina building tradition (Wilde-Ramsing and Alford 1990).

Fisheries Application and Hypothesis

Theories pertaining to vernacular watercraft can be directly applied to the examination of the Centerboard Wreck and the North Carolina oyster industry. Many features of the wreck, including the artifact assemblage, indicate that it was used in the oyster industry. Though the exact vessel type may never be definitively proven, the possibilities can be narrowed down by examining the known oystering vessel types used in Washington in the late 19th and early 20th centuries. Applying vernacular watercraft theory can examine the possible vessel types even further by understanding the reason a limited number of ship types were used within the oyster industry.

Vernacular watercraft theory is particularly useful when examining vessels related to fishing industries. Although several vessel types were used opportunistically for fishing, many in the 19th century were designed to be used for a specific fishing industry. Within each fishing industry, the design of each vessel type was directly influenced by the environment in which the vessel was used. Whether it was in offshore waters or shallow rivers, vessels were designed to be used as efficiently as possible within a particular environment (Steffy 2012:12).

Oyster vessels of the Chesapeake Bay were built to traverse its shallow waterways and many types incorporated a flat-bottomed hull and a shallow draft. A need for more power under sail, however, caused the shipbuilders to develop vessel types to include a centerboard and a rounder hull shape. These modifications allowed vessels to operate in deep areas to catch oysters, but also to traverse shallow waters to deliver cargo. The adaptable nature of these vessels also made them desirable for use in other industries when not employed for fishing (Chapelle 1973:265-268).

Another important aspect of vernacular fishing craft is that once a successful ship type was created for an industry it was often replicated by other shipbuilders. Although several variations of a particular vessel type were created in different regions, they were characteristically similar in nature. As a result, a specific type would be used extensively and be preferred in a fishing industry. Although some fishing vessels were adapted and used in different environments, specific vessel types were typically only used in the environment and cultural location in which they were created. When particular vessel types did travel to different areas, however, it was common for a local variation of the type to develop. The North Carolina sharpie is a well-documented ship type used throughout the east coast of the United States. Even though it developed in New England, the sharpie has many different variations depending on where it is built and specific environmental needs (Chapelle 1973:265-268).

Although it is possible that the Centerboard Wreck is a local North Carolina variation of a Chesapeake Bay vessel type, the lack of historical accounts of an adaption, as well as a significant number of accounts of Chesapeake Bay boats used in the area, suggest that the wreck is more likely to be a vessel built in the Chesapeake Bay region. Using a traditional culture-historical approach to vernacular watercraft, the Centerboard Wreck can be examined to identify the vessel type and establish its significance within the historic North Carolina oyster industry.

Chapter 3: North American Oyster Industry

The North American oyster industry is one of the oldest and most lucrative fisheries in the United States. Oysters were an integral food source for Native Americans and early European settlers relied on them to survive while exploring the continent. As the United States grew, the oyster industry developed in areas where oysters were most prevalent, such as the Chesapeake Bay region. The oyster industry developed several innovations to maritime tools, fishing techniques, and ship types.

Toward the end of the 19th century, oysters in the Chesapeake Bay were overharvested which led to a sudden depletion of the oyster beds. The Chesapeake Bay fishers expanded into different areas where oysters were still prevalent, such as North Carolina. Many of the early coastal cities of North Carolina, including Washington, Wilmington, and New Bern, already contained small oyster markets. The influx of Chesapeake Bay fishers, however, resulted in a rapid expansion of oystering as they brought with them advanced industrial fishing tools.

By the early 20th century, the once small North Carolina oyster markets became much larger distribution centers focused on the shipping and receiving of goods by sailing vessels on the Pamlico Sound. The rapid expansion and advanced fishing methods introduced by the Chesapeake Bay fishers eventually led to the depletion of North Carolina oyster beds. This chapter discusses the historical background of the North American oyster industry while focusing on the late 19th century expansion and decline of the mid-Atlantic oyster industry while also examining the advancements made in the maritime tools that were directly influenced by the oyster industry.

Origins and Development

The oyster is one of the oldest marine animals caught by humans, having been used by ancient cultures as a prized food source (Chestnut 1951:142). Of the more than 100 species of oysters in the world, the eastern oyster (also known as the Atlantic oyster or American oyster) is the most commonly found oyster on the North American continent. The type can be sourced from "the Gulf of St. Lawrence to Mexico and is the only species of commercial importance on the Atlantic and Gulf coasts" (Chestnut 1951:141). The eastern oyster was the main oyster type caught within the Chesapeake Bay in the late 18th and early 19th centuries. The Chesapeake Bay, along with its tributaries, was exploited by the states of Maryland and Virginia for the oyster industry (Ingersoll 1881:156).

The first Native Americans settled in the Chesapeake Bay area around 9500 BCE. Oysters, however, were not integrated into the bay until 6500 BCE when glacial melting and an expansion of saltwater introduced them to the area (Schulte 2017:1). Eventually, the 2,300 square miles of the Chesapeake Bay provided a pristine environment for oyster growth. The creature was a primary food source for coastal Native American communities which can be seen in the many middens containing millions of bushels of oyster shells found along the east coast of the United States (Chestnut 1951:142). One of the largest oyster middens created by Native Americans in this region is located at Pope's Creek, on the Potomac River, and covers about thirty acres in area. Interestingly, a noticeable decrease in size of oysters within some middens may suggest that Native Americans initially caused negative effects to reproduction on a small scale (Wennersten 2007:5).

Early European settlers of the Chesapeake Bay region were also known to subsist on oysters when exploring the continent. Oysters were so prominent in the Chesapeake Bay region

that early colonists could catch them from shore or by boat with a crude set of wooden tongs. By the mid-17th century, settlers sought oyster shells to create lime for agricultural and construction needs. Since oysters were desirable specifically for their shells instead of their meat, massive Native American middens were even used as sources for shells without the requiring fishing. The need for lime continued as the American colonies developed and was used in road construction, agriculture, and for mortar (Wennersten 2007:6; Schulte 2017:2). Although oysters were initially a primary source of food for the early settlers of the Chesapeake Bay region, as the area developed, they were eventually only consumed out of desperation. It was not until the late 18th and early 19th centuries that the growing colonial population prompted the development the North American oyster industry (Schulte 2017:2).

Oystering Equipment

The North American oyster industry expanded over many years, but the tools that were commonly used in the trade did not develop until the 19th century. For centuries, the main tool used to catch oysters was the tong. An oyster tong consists of a short, toothed, metal rake attached to the bottom of a long wood pole. Two tongs were typically used together to scoop up oysters from the seabed and this technique is among the oldest known uses of tools to aid in harvesting them. According to Wennersten (2007:5) the Native Americans who lived around the Chesapeake Bay "were fond of raking up large piles of fresh oysters from creek bottoms with forked sticks and indulging in feasts that sometimes lasted several days". Two individual oyster tongs were eventually adapted into a new tool by attaching both to a hinge that allowed the poles to pivot for easier use and is still in use today (FIGURE 5) (Brewington 1963:62; Wennersten 2007:5).

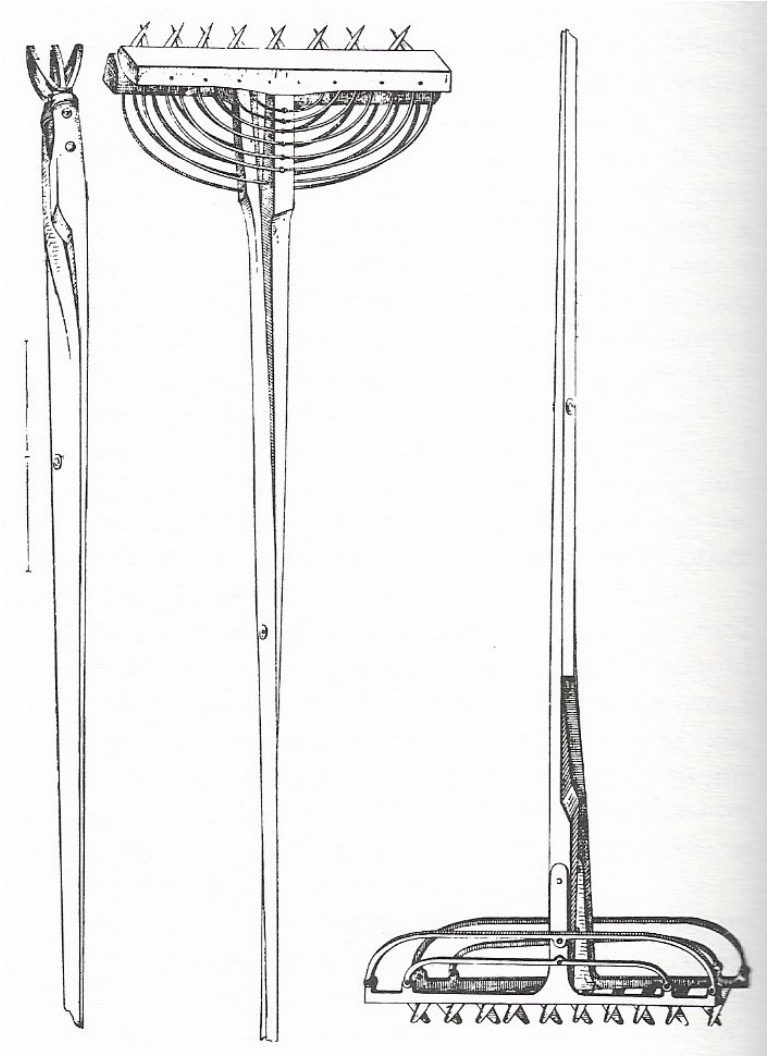

FIGURE 5. A representation of different types of oyster tongs (Goode 1881; Brewington 1963:92).

Tonging for oysters required the fisher to have access to shallow water so that the length of the pole could reach the oyster bed underwater. The fisher was therefore required to either tong from land, in areas shallow enough to stand, or use a small watercraft. The vessels used for oystering in the Chesapeake Bay area can be traced back to the early dugout canoes built by Native Americans. Dugout canoes were built through an intricate process using a single tree and were first used as transportation on the shallow bays and inlets. They were adopted for oystering because they could easily traverse shallow waters and were already commonly used in the area (Brewington 1963:5).

Another critical piece of oystering equipment was the oyster dredge, which was a small cage that was towed behind a sailing vessel (FIGURE 6). A typical dredge was comprised of an iron-toothed bar which was attached to an iron cage surrounded by iron chain. The dredge was thrown overboard and was connected by a cable to the deck of an oyster boat. The dredge was then "dragged along a bed while its teeth uprooted oysters from the bottom, filling the iron-mesh bag" (Taylor 1992:27). The dredge was a highly advanced piece of equipment that was first used in the Chesapeake Bay region in the early 19th century. It could only be employed by vessels strong enough to drag the iron-cage and many vessel types developed specifically to dredge oyster beds (Taylor 1992:27).

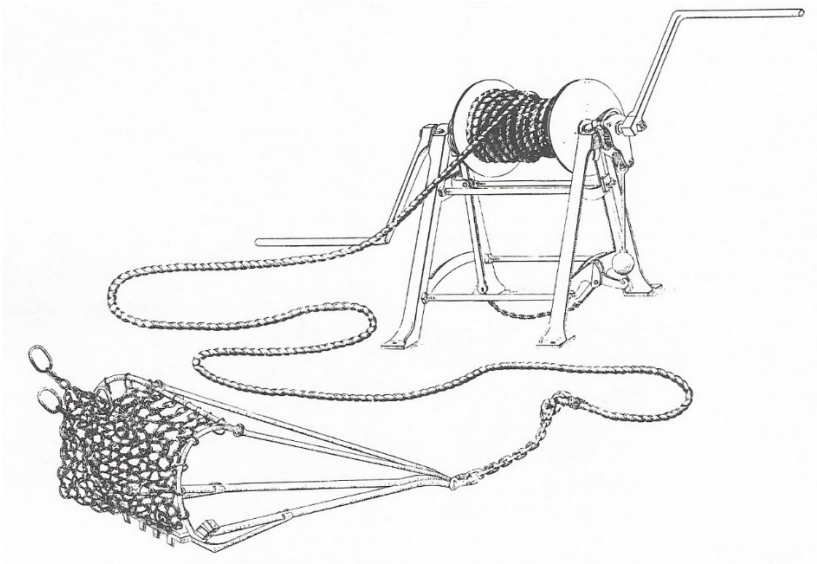

FIGURE 6. A drawing of a hand-wound dredge (Goode 1881; Brewington 1963:94).

Oyster Vessel Types

The Chesapeake Bay region is surrounded by both Maryland and Virginia and both states have a significant shipbuilding history that started when settlers created small boats to traverse the many narrow inlets of the region (FIGURE 7). The conditions of the American coasts and estuaries influenced the need for small but fast vessels. A lack of skilled labor, however,

influenced the shipbuilders to keep the vessels relatively small. These small boats quickly developed into ship types built for specific needs such as fishing, carry cargo, or simply traveling around the bay. It became necessary over time to create bigger vessels to carry more cargo and travel longer distances. Thus, Chesapeake Bay ship builders made slightly larger vessels known as schooners (Chapelle 1982:10; Gillmer 1994:6).

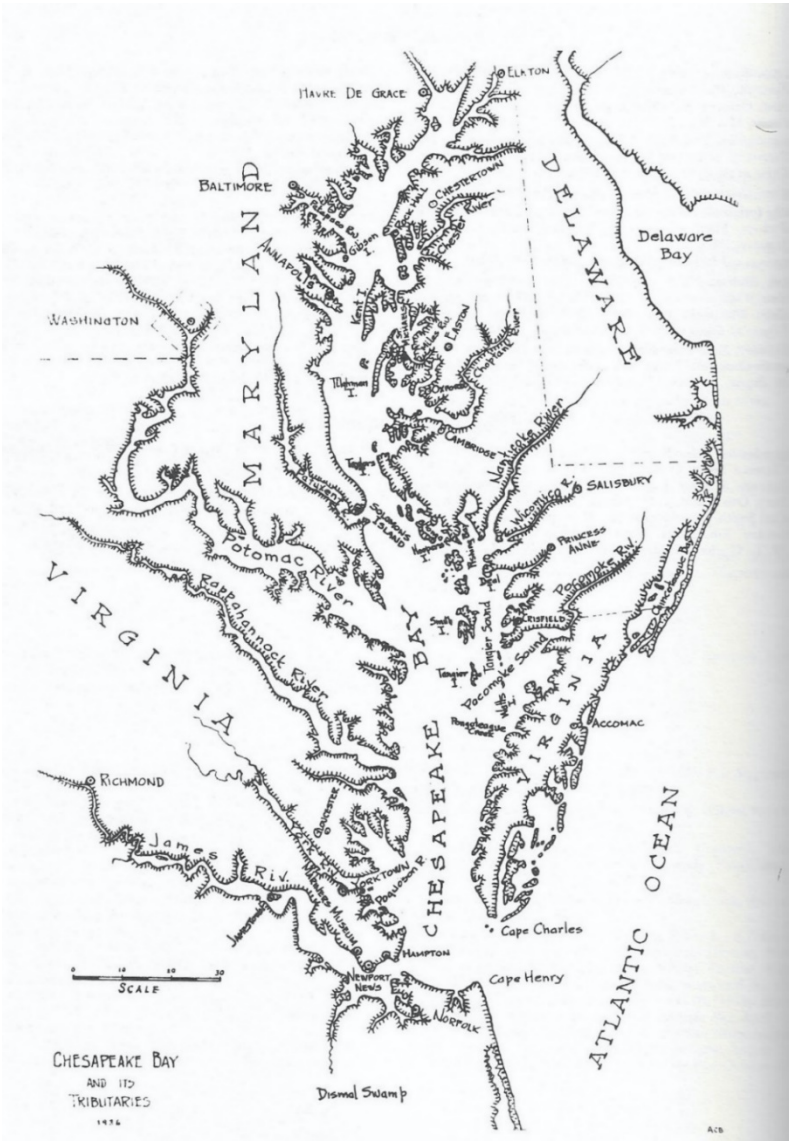

FIGURE 7. A map of the Chesapeake Bay region by Alexander Crosby Brown (Brewington 1963:114).

Sailing was an integral part of the oystering communities of the Chesapeake Bay region. Oyster fishers were taught at a young age to sail on dugout canoes that featured one or two masts (Wennersten 2007:11). Once the technique of dredging for oysters was permitted in the region after the Civil War, larger vessel types specifically built for oyster harvesting were created (FIGURE 8). These vessel types included sloops, pungies, schooners, skipjacks, and bugeyes (Brugger 1996:787). The oyster boats were renowned for their speed which were typically faster than any sailing vessel on the Chesapeake Bay (Wennersten 2007:11).

FIGURE 8. Oyster boats and an oyster house at an unknown location (Photograph courtesy of the NC Division of Archives and History).

The Rise of the Chesapeake Bay Oyster Industry

The first major fishing industry of the United States, the Chesapeake Bay oyster fishery started "by New England oyster fishers that sailed south to the Chesapeake Bay and began dredging subtidal reefs for oysters in the early 1800s after depletion of their own beds" (Schulte 2017:2). Dredging, however, was banned in Virginia in 1810, which caused fishers to shift to Maryland waters. Dredging continued in Maryland until it was banned in 1820, in response to the clear destruction of the oyster beds, and only hand tools were allowed to capture oysters (Wennersten 2007:6-7; Schulte 2017:2).

The oyster industry began to prosper in the mid-19th century with the expansion of American shipping industries. The expansion of railroads, which connected multiple major cities for the first time, had a significant impact on its development. Once the transportation for oysters was expanded, there was a rise in demand for oysters in inland areas. As a result, the number of oysters caught in the Chesapeake Bay region "increased from 178,000 bushels in 1849 to 2.3 million bushels in 1859" (Schulte 2017:2). Many new oyster canning facilities were established in Baltimore at the same time as the construction of the Baltimore and Ohio Railroad. This line "served as a powerful marketing stimulus for the oyster industry, and by 1860 the railroad annually carried over three million pounds of oysters westward" (Wennersten 2007:14; Schulte 2017:2).

The Chesapeake Bay oyster industry continued to expand until around 1860, as the Civil War had a significant impact on America's oyster fisheries. Although Maryland remained loyal to the Union, but many of the oyster fishers "enjoyed a thriving illegal commerce with the Confederacy" (Wennersten 2007:11). This resulted in a significant decline in the legitimate

oystering business because smuggling for the Confederacy was more lucrative (Wennersten 2007:15). Once the war was over, however, the smugglers returned to their original way of life.

The Peak Years

The oyster industry began to prosper again during the post-Civil War years due to the continued expansion of new railroads. The introduction of a dependable method for canning using steam increased longevity and allowed for oysters to be transported over longer distances (Wennersten 2007:15-16). As oysters were in high demand and dredging was legalized in deep water inaccessible to hand tongs. These new dredging laws forced oyster fishers to explore untouched oyster beds in deeper areas of the Chesapeake Bay that had untouched oyster beds (Wennersten 2007:15-16; Schulte 2017:3).

The Chesapeake Bay oyster fishery flourished in the 1880s when the supply and demand for oysters were at their peaks. During this time, over ten million bushels of oysters were caught in Maryland each year. Even though oyster houses employed hundreds of workers, oyster packers were always needed (Wennersten 2007:89). The increased demand influenced fishers to break the strict dredging laws to obtain more oysters. Oyster fishers even fought over territory in multiple incidents that were known as the Chesapeake Bay Oyster Wars (Wennersten 2007:89; Schulte 2017:4).

Even though the demand remained high, the supply of oysters did not last. The realization that the resource was limited occurred in 1879 and 1880 when the fishers were forced to find different oyster beds in the bay after many were depleted. And while the year 1884 was the most lucrative for the industry with 15 million bushels of oysters caught, the detrimental effects of dredging on the beds quickly impacted the fishery. By the end of the decade, the number of oysters harvested reduced to less than one million (Ingersoll 1881:159; Wennersten 2007:89).

Oystering Culture

The oystering communities around the Chesapeake Bay region were exceptional compared to other American communities. An oyster fisher was typically solely focused on the industry to survive and would only find recreation through "storytelling, fighting, and hard drink" (Wennersten 2007:7). Both men and women from the region were known to have gaunt appearances from years of this difficult lifestyle and most of them wore homemade clothing and no shoes (Wennersten 2007:11). Men spent most of their lives on the water and women were typically married at a young age and had multiple children (Wennersten 2007:8). Many African Americans engaged in the oyster industry and served as boat crewmembers and oyster shuckers at the packing houses (Ingersoll 1881:157; Wennersten 2007:25).

The oyster industry was highly lucrative and opportunistic in nature. Once the money from the previous catch ran out, they would fish or hunt for whatever was in season, such as duck, goose, or crab, to make another small profit. If a fisher had the equipment available to tong, they would often take advantage of the high price of oysters and fish in shallow waters. An oyster fisher could make a couple of dollars by simply tonging from shore. If there was a boat available, then a greater profit could be obtained by tonging or dredging in the bay (Ingersoll 1881:157).

Chesapeake Bay oyster fishers were regarded with disdain and seen as "one of the most depraved bodies of workmen to be found in the country" (Ingersoll 1881:160). Their small opportunistic profits were typically spent on alcohol and bare necessities which allowed them to live in basic comfort which made it "almost impossible to get them to do any steady farm-work" (Ingersoll 1881:157). It was suggested that many of the laws that restricted oystering "were really intended to have the effect of making the tongmen, especially the negroes, engage in other

occupations" (Ingersoll 1881:157). The African American oysterers were thought of as ignorant and meek, but an agricultural occupation would help them to "become more law-abiding and industrious" (Ingersoll 1881:157).

Oystering Laws

As the decline of the oyster beds became more noticeable, a variety of laws were enacted in Maryland and Virginia to prevent their complete destruction. These laws included the requirement of a license to tong or dredge, and these were only available during the oystering seasons. One law allowed oysters to be caught in public beds for personal use and was constantly used as a loophole to obtain oysters outside of oyster fishing season (Brooks 1905:224-225). The laws also determined which vessel types were allowed to be used, the number of oysters that could be obtained each day, and which areas oysterers could fish. Specific areas were not allowed to be fished for oysters; these included those that were noticeably overfished, and others used for planting oyster beds (Ingersoll 1881:173-176).

Breaking most of these laws resulted in heavy fines and misdemeanor charges, but some required a minimum amount of three months in jail with a maximum amount of three years (Ingersoll 1881:174). Enforcement proved to be very difficult because many laws could be broken without authorities ever knowing. For example, a culling law required oysterers to return undeveloped oysters to the oyster beds. The penalty for breaking this law was a heavy fine, imprisonment, or the confiscation of the vessel that was used. Even though the penalty was high, many oysterers would not waste their time culling the oysters to keep dredging (Brooks 1905:204).

Decline of the Chesapeake Bay Oyster Industry

By the late 1880s, the oyster industry was noticeably declining. Multiple scientific examinations of the oyster beds were undertaken to identify the cause of the decline (Goode 1881). The oyster tongers blamed the use of dredging as the main reason even though they themselves were exhausting areas that did not allow dredging. Similarly, the oyster dredgers blamed the tongers for taking too many oysters during the summer months (Brooks 1905:199). Comparable to other cultures that believed oysters to be an unlimited resource, the Chesapeake Bay oysterers believed that "that their natural beds were inexhaustible until they suddenly found that they were exhausted" (Brooks 1905:76).

The actual cause for the exhaustion, however, was simply that the natural supply of oysters was drastically outweighed by the demand. The beds were overfished by all oysterers to the point at which oysters could not reproduce. Many juveniles were accidentally caught with the adult oysters and discarded on land; never being able to reach full maturity. It was thought that the only way to avoid further unnecessary destruction was to enact stricter laws or attempt to cultivate oysters. Unfortunately, by this time, it was hypothesized that even if oysters could be cultivated in the Chesapeake Bay, it would only delay the inevitable exhaustion of the beds (Brooks 1905:198-199, 202-203). As less oysters were being yielded each season, many of the packing firms decided to expand outside of the Chesapeake Bay and establish packing houses out of state closer to other oyster beds.

North Carolina Oyster Industry

The Pamlico Sound contains a variety of edible aquatic creatures including fish, mollusks, and shrimps. Many of these sea creatures have been the focus of North Carolina's commercial fisheries. The fishing industries of North Carolina, however, are distinctive because

they were widespread and not concentrated to one area. While the fisheries of the northern states were focused around one main distribution center, such as Baltimore, Maryland for the Chesapeake Bay region. They were opportunistic in nature and many fisheries did not focus on one specific species of fish; whichever aquatic species was "in season" was the species of choice (Chestnut 1951:156-157).

The mild weather of North Carolina created an ideal environment for oyster growth. (Chestnut 1951:157). The Pamlico Sound, specifically, "has inlets from the Atlantic which make all its water, at least along its eastern half, thoroughly saline, and permits a luxuriant oyster-growth" (Ingersoll 1881:188). The vast availability and ease of catching oysters allowed for the mollusk to become a prominent food source for the early coastal communities of North Carolina. The North Carolina oyster industry, however, developed much slower compared to those of Maryland and Virginia.

There are multiple reasons why the North Carolina oyster industry was significantly smaller than some of the northern industries. There was a significant lack of fast and reliable shipping from the coastal markets to inner cities, thus oysters were not able to be transported to the inland portions of the state (Chestnut 1951:143). Maryland and Virginia both had large coastal cities that acted as central distribution areas for oysters. While both Baltimore and Norfolk had direct access to the ocean and were connected to multiple other states via railroad, the Outer Banks impeded the eastern coast of North Carolina. Thus, instead of one major distribution hub, multiple smaller cities eventually developed as oystering centers.

By the 1880s, Beaufort, New Bern, and Wilmington were North Carolina's main oystering cities. The city of Beaufort lies at the southern end of the Outer Banks between Core Sound and Bogue Sound. This made it an ideal location for offloading the catch of each sound.

In 1880, a Chesapeake Bay oystering company almost opened an oyster house there but instead chose New Bern. Out of the three main cities, Beaufort had the least amount of business during this time. New Bern sits on the Neuse River, which empties into the southwestern portion of the Pamlico Sound. Fishers from New Bern used multiple areas of the Pamlico Sound to obtain oysters including Bay River and Smith's Creek, as well as the marshes around the lower portion of the Neuse River (Ingersoll 1881:188).

Shipbuilding was also an integral part of these early coastal communities of North Carolina. During the colonial period, small vessels were built to traverse the local waters while large vessels were built to trade with colonies in the West Indies (Still 1981:27). Many different vessel types were in use throughout North Carolina in the decades following the Civil War. Barges towed by steamboats were commonly used to transfer large amounts of timber throughout major rivers. Wooden sailing ships, such as schooners and sloops, remained the preferred vessel for trading as they were less expensive to build than the large metal steamboats (Cox 1989:105-106).

Chesapeake Bay Influence

The North Carolina oyster industry boomed in the late 1880s when the over-fishing of oysters in the Chesapeake Bay caused fishers to travel to other states in search of pristine beds. Many Chesapeake Bay oyster-packing companies expanded into North Carolina and established branch houses in cities that were already used as local oyster hubs (Chestnut 1951:143; *Washington Progress* 1899:3). The sudden increase in Chesapeake Bay fishers had a significant "influence on oyster production in Pamlico sound through the introduction of the more efficient dredging and tonging methods used in Maryland and Virginia" (Chestnut 1951:143).

Even though oyster production increased because of the influx of Chesapeake Bay oysterers, illegal dredging activity also increased which negatively affected the beds. Shortly after coming to North Carolina, oysterers from "Virginia, Maryland, Delaware, and New Jersey were dredging Pamlico Sound for oysters to be shipped to Baltimore and labeled and sold as Chesapeake oysters" (Taylor 1992:27). North Carolina residents did not want oysterers from other states stealing from their oyster beds and a state law was enacted in 1891 that prohibited non-residents from dredging in North Carolina (Taylor 1992:27).

North Carolina Oyster Laws

Toward the end of the 19th century, the North Carolina government also realized that their oyster beds were not going to sustain forever. New laws were implemented that were like those of the Chesapeake Bay region which attempted to slow the destruction of the oyster beds. In 1895, a new oyster law significantly changed many practices related to oystering in North Carolina. These included limiting dredging to specific areas, restricting the sizes of the oysters, and applying severe penalties. The new oyster law was published in multiple North Carolina newspapers:

> All persons taking oysters must procure license from the clerk of the court of Hyde, Dare, Carteret or Pamlico counties [sic] and must make oath that they are citizens and residents of twelve months' standing. Clerk's fee is 25 cents. Dredging license requires the payment of a tax of $3 per ton from vessels of six tons and over, and of $1 per vessel for those less than six tons. Dredging is allowed only during the months of February, March and April and within the following limits where the depth of water is more than ten feet… The penalty for dredging contrary to law is from $1,000 to $5,000 and from one to five years imprisonment in the penitentiary and forfeiture of the boat (*Washington Progress* 1895:1).

These new penalties were more severe than in those implemented in the Chesapeake Bay region. With so many new procedures being implemented, a chief oyster inspector was elected to

oversee the changes. The chief oyster inspector was allowed to appoint as many deputy inspectors as deemed necessary to enforce the oyster laws of each county which gave them the power to arrest anyone violating the laws. They were also responsible for collecting taxes, fines, and distributing licenses (*Washington Progress* 1895:1; Coker 1905:30-32).

Even though some laws were broken while oystering on the water, this new law was not limited to the oyster fishers but also made new requirements for packers. These requirements included filing the exact number of bushels sold with the county clerk and paying a two-cent tax per bushel. Most importantly, if it was deemed necessary for the benefit of the oyster beds the governor had the "power to suspend dredging by proclamation for a period not exceeding one year" (*Washington Progress* 1895:1). Although the purpose of these new laws was to prevent the destruction of North Carolina oyster beds, the law implemented many new procedures that were not seen as beneficial to the oystering communities that relied on the industry for their livelihood.

Culture

It is important to note that North Carolina fishers became significantly dependent on oystering very quickly. Like the Chesapeake Bay region, some oysterers did not agree with the laws concerning the oyster industry and would illegally continue to dredge in areas of the Pamlico Sound. These areas include Gibbs Shoal, Gull Rock, and Wysocking Bay, which are all located near the mainland side of the sound and would have been easily accessible from the Pamlico River. Since the oyster fishers were breaking the law, they were referred to as oyster pirates. Unlike the Chesapeake Bay region, however, there were no recorded armed conflicts as a resulting from pirating activity though some folklore tales persist (*Washington Progress* 1895:1).

It is unknown how many oyster pirates were North Carolina residents or pirates from other states. It is also unknown how often pirating occurred, but some instances were reported to the government. One such occurrence indicated that over 7000 bushels of oysters were illegally taken from the Gull Rock area in a two-day period. The witness, Captain Cox of the schooner *Len*, reported that the oyster pirates were using dredging equipment for collection. Senator Parsons of Hyde County explained that no dredging licenses had been granted and that the activity was outside the legal dredging areas. It was presumed that the oyster pirates were an example of the Chesapeake Bay region encroaching on the North Carolina beds. These non-resident fishers would not obey North Carolina laws, dredge without a permit, and then take their catch back to their state (*Washington Progress* 1895:1).

The oyster beds were considered state property and the state oyster fishers were the only citizens able to obtain a dredging permit. Anyone that was caught violating this law was subject to a severe fine and faced imprisonment for as much as five years. Even though these repercussions were severe, there were not enough police to constantly survey the areas. It was likely that even if the police were alerted, the oyster pirates would be on their way back to their port of origin before police could intervene. Regardless, the citizens of North Carolina did not want their resources stolen by out of state fishers and asked for the trespassers to be caught. They proposed that "a few examples made of some captured ones would have a wholesome deterring effect" (*Washington Progress* 1895:1).

Within only a few years of the initial spike in the industry, oystering became an important part of North Carolina's maritime culture. Early North Carolina oysterers were opportunistic and subsisted on oysters because they lived close to the beds. There were only about 400 oysterers tonging in the Pamlico Sound in the early 1880s. It was originally thought that new oyster

packing houses would not succeed because “the general laziness and the improvidence of the oystermen [sic] are so great, that it is impossible to make a contract and expect it to fill” (Ingersoll 1881:189). It was also noted that many oysterers refused to work at all in cold and inclement weather. Once the industry began to expand, however, oystering became so important that oysterers often risked their lives to keep dredging in foul weather (Ingersoll 1881:188-189; *Washington Progress* 1900:1).

Another important aspect of the North Carolina oyster industry was the ethnicity of the oysterers. Like that of the Chesapeake Bay region, there were many African American oyster fishers working onboard North Carolina oyster vessels. A particular event occurred in the Pamlico Sound in which an oyster vessel capsized, and four men drowned. It was specifically mentioned that two of these men were African Americans though their names were not listed (*Washington Progress* 1900:1). It is suggested that the majority of oysterers working in the industry were African Americans and historic images depicting North Carolina oyster boat crews almost always feature African American crewmembers (FIGURE 9) (Ingersoll 1881:189).

Decline

Though the influx of Chesapeake Bay oysterers was quickly deterred, the initial introduction caused immediate changes to the North Carolina oyster industry. Many previously unknown beds were discovered in the Pamlico Sound and the rudimentary wooden tongs that were commonly used were replaced by iron tongs. The most significant change, however, was the introduction of the oyster dredge to the region which allowed more oysters to be caught with greater efficiency. This also resulted in the introduction of more vessel types, including some specifically designed to dredge under sail power (Taylor 1992:27).

FIGURE 9. Oyster boat unloading in Washington, North Carolina circa 1890s (Photograph courtesy of the NC Division of Archives and History).

Over the next decade, the North Carolina oyster industry grew significantly. The industry eventually "peaked in the season of 1898-1899, when 115 dredging vessels and 950 tonging boats landed 2,450,000 bushels" (Taylor 1992:27). The numbers of oysters caught in the Pamlico Sound quickly dwindled in the early 1900s from over harvesting. Although many oysterers blamed severe storms and unusually cold winters for depleting the oyster beds, it is without question that the introduction of dredging by Chesapeake Bay oyster fishers was the reason for the decline (Grave 1904:280; Thorson 1982:94).

Oyster Industry of Washington, North Carolina

Although Washington, North Carolina is located at the seemingly quiet start of the Pamlico River, the area has a significant maritime historical narrative. After nearly a century of early settler expansion inland from the coasts of the New World colonies, Washington was established in 1776 as the first town in America to be named after President George Washington (Paschal 1976:2). The town quickly became a prominent coastal trading center of the Pamlico River where goods such as tar, tobacco, and turpentine were exported to larger markets (Paschal 1976:3-4). Many of the early settlements in North Carolina were built on water ways which "made it inevitable that small craft-row boats, canoes, periaugers, and small sailing vessels would be built for local transportation" (Still 1981:27). Washington was no different and the main industry of the town after the Revolutionary War was shipbuilding (Still 1981:27).

By the late 19th century, Washington was a much larger distribution center focused on shipping and receiving goods by sailing vessels on the river. The town had a variety of small businesses, multiple sawmills, an iron foundry, and a shipyard (Worthy 1976:91-92). Clearly one of the largest industries in Washington, however, was the oyster fishery. The streets were surfaced with oyster shells, the town had multiple oyster saloons, and the canning factory "had a terrible sounding whistle, which blew early every morning, waking their employees and telling them it was time to come to work. It not only awoke their employees, but most everyone else" (Worthy 1976:92). A large lime kiln was built on an island in the river that disposed of the large amount of leftover oyster shells (FIGURE 10). To the townspeople, the lime kiln funnels looked like the towers of a medieval castle and the island was referred to as "The Castle" and is aptly named Castle Island today (*Washington Progress* 1895:3; Worthy 1976:480; Still 1981:34).

FIGURE 10. Oyster boats at port in Washington, North Carolina circa 1890s with Castle Island on the right (Photograph courtesy of the NC Division of Archives and History).

Oystering

Oysters were a prized food source in Washington, and it was common for townsfolk to buy bags full of oysters at the city dock to consume at home. (Worthy 1976:92). Washington also had a fish house operated by Swindell & Fulford Fish Company that would buy oysters directly from fishers and sell them locally (*Washington Daily News* 1909:2). The town's prominent oyster canning factory was located on Water Street next to the shipyard and was owned by J. S. Farren of Baltimore, Maryland (FIGURE 11) (*Washington Progress* 1898:3). In March of 1896, Farren suggested that the city discuss the possibility of using oyster shells to cover the streets of Washington. Although the townspeople were hesitant at first, the mayor hosted a town meeting to discuss the benefits of having shelled streets. It was ultimately decided that the town would purchase oyster shells from the factory to shell the streets (*Washington Progress* 1896:3). This was viewed as a significant improvement to the town and people looked forward to the streets being re-shelled during the oyster season (*Washington Progress* 1899:3).

Many of Washington's residents relied on the oyster factory for employment and at one point, it had over 150 employees (Harding 1976:506). It was not uncommon for the factory to shut down for an oyster season due to financial concerns of the owners, though this generally resulted in an outcry from residents. In one incident, one of Washington's physicians reached out to Farren to change his mind, even offering his personal boat to be used free of charge (*Washington Progress* 1896:3). Unfortunately, the canning factory burnt down during a fire that ravaged the town in 1900 and it took many years to reopen (*Washington Pro*gress 1902:3).

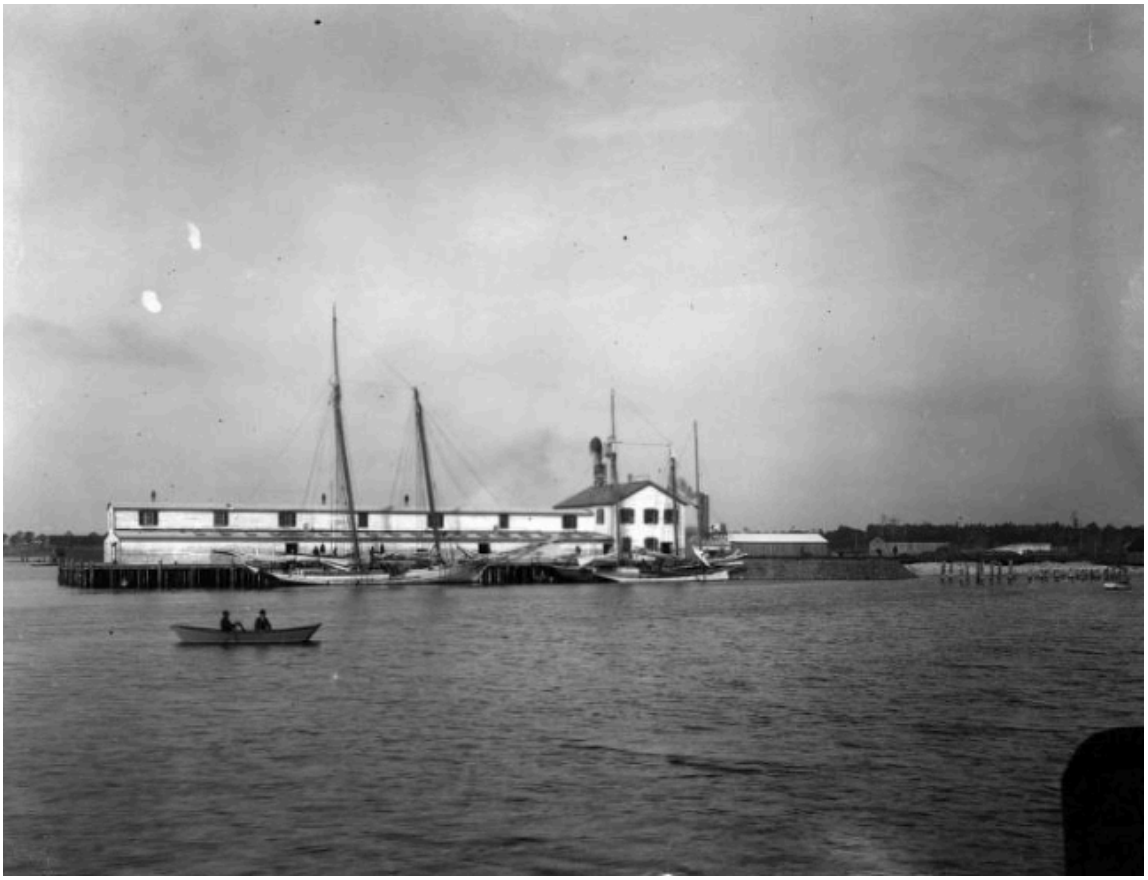

FIGURE 11. Oyster canning factory in Washington, North Carolina circa 1890s (Photograph courtesy of the NC Division of Archives and History).

The factory was closed once more around 1907 for an unknown reason. It can, however, be easily assumed that this closure was due to a lack of oysters. In 1909, an employee of the J. S.

Farren & Company visited Washington to inspect the facility with the goal of reopening. Even though many repairs were needed, the determining factor in reopening the factory was that the owners required "some assurance of securing enough oysters to keep the plant busy" (*Washington Daily News* 1909:1).

FIGURE 12. Washington oyster boats on the Pamlico Sound circa 1890s (Photograph courtesy of the NC Division of Archives and History).

Summary

The North American oyster industry experienced significant changes as the coastal communities of the United States developed. Oystering simply began as opportunistic fishing by Native Americans but eventually evolved into one of the most lucrative industries in the United States. The communities that developed around the Chesapeake Bay played a significant role in

the development of the industry. Fishing methods, equipment, and ship types eventually developed specifically for oystering in the region. These advancements were so effective that the Chesapeake Bay oyster beds were eventually depleted. Thus, Chesapeake Bay oysterers promptly moved to the unexploited oyster beds of North Carolina.

Even though the advanced methods and ship types used in the Chesapeake Bay were specifically built for that region, they were easily adapted to the similar environment of the North Carolina sounds. The small and opportunistic North Carolina oyster industry exploded only a few years after the introduction of northern oystering methods. Multiple branch houses of Chesapeake Bay canning factories were established in prominent coastal towns in the state. Eventually, however, the residents of the state realized that the profitable oyster beds were being exploited by northern oysterers and laws were put into place to limit outside interference.

Like the expansion of the Chesapeake Bay oyster industry, the construction of railroads helped maritime trade and ship building in the town "by linking the coastal region with the rail center at Washington" (Still 1981:41). Although small local railroads were built in the years prior, a collective railroad did not connect Washington to larger markets until 1892. This introduction significantly increased the exporting of timber, cotton, fish, and oysters (Cox 1989:138).

Though the railroad was beneficial to trade, it was also the downfall of the maritime based industries. Railroads were faster and more reliable than wooden sailing vessels and could transport products far inland. Shortly after the end of World War I, trains quickly replaced sailing craft as the preferred method of shipping. Although Washington was able to sustain a small population for over a century, the remote port city at the head of the Pamlico River "could

not sustain a growing population that spread into areas further away from the artery of trade" (Cox 1989:92).

The lucrative oyster industry became essential to the maritime infrastructure of North Carolina and many residents relied on it to survive. Instead of reverting back to their original oystering methods, North Carolina oysterers adapted the Chesapeake Bay methods to effectively exploit the oyster beds. The advanced fishing methods, however, were not the only Chesapeake Bay influence to be adapted. Using a dredge to fish for oysters "required considerable power, and the small boats used in North Carolina could not handle the task" (Taylor 1992:27). Many Chesapeake Bay ship types, including the bugeye, pungy, and skipjack were adapted for use in the North Carolina oyster industry (*Washington Progress* 1900:1).

Although multiple coastal communities were involved in the oyster industry, the Chesapeake Bay influence played a significant role in the development of Washington's maritime trade. Oystering in Washington began as an opportunistic fishing method that supplied the local area. After the influx of Chesapeake Bay oysterers, however, the town became reliant on the industry. The exact date of the local oyster canning facility's permanent closure is unknown, however, it is no longer depicted on insurance maps by 1916. A lack of oysters caused the facility to shut down multiple times in the first decade of the 1900s. It can be surmised that it was shut down prior to 1916 because there were not enough oysters available to make a profit.

Even after the oyster factory's closure, and the overharvesting of the oyster beds, the residents did not stop dredging. Oyster boats continued to frequent the Washington docks to sell the few oysters they could catch. Most of these catches were not culled and contained many juvenile oysters. One citizen exclaimed "that at the rate the oystermen [sic] were going at present, it

would not be long before the oyster beds would be entirely depleted" (*Washington Daily News* 1916:1).

The success and failure of the North Carolina oyster industry relied entirely on the advancements in oystering created in the Chesapeake Bay region. The innovations made to maritime tools, fishing techniques, and ship types in the 19th century allowed the Chesapeake Bay oyster beds to be harvested more efficiently. As the Chesapeake Bay oyster beds were being depleted, the fishers quickly moved to North Carolina and introduced many new oystering methods to the region. Their arrival caused a rapid expansion for the North Carolina oyster industry and many coastal towns became large distribution centers. The rapid expansion and advanced fishing methods introduced by the Chesapeake Bay fishers eventually led to the depletion of the North Carolina oyster bed.

Chapter 4: Oystering Watercraft and Tools of the Trade

The mid-Atlantic oyster industry of the United States utilized a variety of vessel types specifically designed for oystering. These vessels began as hollowed out log canoes but were eventually altered into complex frame constructed boats. As the builders of these vernacular watercraft modified the vessels, the equipment used to catch oysters also improved. The tools used initially in the oyster industry were simple hand tongs that allowed for a limited number of oysters to be collected. The advanced method known as dredging was introduced in the 19th century and allowed for a larger catch. That method, however, required more power from the boats and they in turn became larger, more intricate, and more expensive to build. Some coastal regions had vastly different environments that required vessels to be able to traverse shallow estuaries but maintain the ability to dredge in deep water. The different maritime cultural needs allowed for the creation of a variety of different oystering craft that had distinct hull designs. Many of the vessel types built in the Chesapeake Bay region were also used in North Carolina waters. This chapter examines the evolution of the oyster boats common to the mid-Atlantic region, the similarities between oystering environments, and the development of equipment used in the industry.

Shipbuilding at Washington, North Carolina

As discussed previously, the Pamlico River was home to an increasing number of small fisheries in the late 19th and early 20th centuries. As such, a variety of different vessel types were employed within the region both before and after the influence of the Chesapeake Bay oyster fishers. Many of the coastal communities that relied on maritime commerce had their own shipyards. Although the historical records for those yards, particularly in Washington, are scarce, they can provide insight into what type of ships were being built (Still 1981:33).

Washington was a prominent shipbuilding town throughout the 19th century where schooners, brigs, and full rigged ships were constructed in the town's multiple shipyards. Many ships were built at Washington for the War of 1812, including the famous privateer *Hawk* (Still 1981:33). After the war ended, shipbuilding in the town decreased until the first marine railway was built by Captain Hezikiah Farrow in 1830. Although the railway was originally used to retrieve vessels from the water for repairs, beginning in the 1840s it was used for vessel construction. Besides Farrow, there were three other known shipbuilders in Washington during the 1830s; these included Burton Shipp, William Tannahill, and an African American man named Hull Anderson (Hill 1984:8; Rodgers et al. 2006:18).

Washington in the 1840s was a budding maritime community often referred to as a delightful place (*Tarboro Press* 1845:1). The narrow Tar River quickly opened at the head of the Pamlico River directly above Washington's port. The river was wide and lined by many wharves that were often used by a variety of wooden sailing vessels. Castle Island, then owned by a man named Abner Neale Esquire, was already being used for a variety of maritime related industries and "covered with work-shops suitable for Ship building [sic]" (*Tarboro Press* 1845:1).

Washington became a major regional shipbuilding port in North Carolina by the mid-1840s. Most constructed vessels were used for local trade and included steamships, schooners, and a flat bottom boat type known as the "Tar Heel river boat" (Still 1981:30-33). Shipbuilding in Washington continued into the 1850s with the peak years being 1855 and 1856. The shipbuilding industry eventually slowed, however, with the commencement of the Civil War. The war entirely halted shipbuilding within the city, and it was not until 1875 that the industry restarted, though, only a few small ships were built at Washington in the subsequent years (Hill 1984:8). During the final 15 years of the century, however, "the industry rebounded, with twenty

motorized vessels, twenty-four barges, and seven sailing vessels being built even as wooden shipbuilding continued to decline elsewhere in the United States" (Still 1981:30-33).

There are many reasons for the thriving Washington shipbuilding industry during this period. It was during the final decades of the 19th century that Washington experienced many improvements to its infrastructure. Multiple railroad lines were built to connect Washington to other areas of North Carolina and other states. In 1875, the US Army Corps of Engineers dredged the river at Washington to make it more accessible to larger ships (Hill 1984:8). It was also during this time that Chesapeake Bay fishers began expanding into the North Carolina Sounds. By the 1890s, however, the only operating yard in Washington was the Farrow Shipyard, operated by Joseph A. Farrow, which was located next to the Farren oyster canning factory (Still 1981:30-33; Hill 1984:5).

Only seven sailing vessels were listed as being built in Washington from 1875 to 1900 (Still 1981:30-33). The exact vessel types are unknown, which makes the intended functions difficult to determine. It is also unknown whether these vessels were built to be used within North Carolina waters or elsewhere. The wooden ships that were built in Washington, and other coastal shipyards, are typically referred to simply as schooners. This generic term was given to most double masted vessels that carried a schooner rig. Thus, the term can describe a variety of vessel types and is not specific enough to describe the exact types of watercraft built in the town. Although some of locally constructed vessels were used within Washington's maritime industries, it is not possible to determine if these were specifically built to be used in the oyster fishery.

Chesapeake Bay Region Oyster Boats

During the 19th century, the Chesapeake Bay region was the center for the American oyster industry. Though other areas like Eastern Canada, Long Island Sound, and Delaware Bay were important, the Chesapeake Bay remained the prominent market into the early 20th century (MacKenzie, Jr. 1996:3). Encompassing both Maryland and Virginia, the Chesapeake Bay region has a significant shipbuilding history that started when settlers created small boats to traverse the many narrow inlets of the Chesapeake Bay. The conditions of the American coasts and estuaries influenced the need for small but fast vessels. A lack of skilled labor, however, also influenced the shipbuilders to keep the vessels relatively small. These small, single masted boats quickly developed into complex ship types built for specific needs such as fishing, carrying cargo, or simply traveling around the bay. Over time, it became necessary to create bigger vessels to carry more cargo and travel longer distances. As such Chesapeake Bay ship builders began to make larger, double masted vessels known as schooners. By the mid-18th century, a specific type of schooner known as the "Virginia-built" model was favored in the region (Chapelle 1982:10; Gillmer 1994:6; Burgess 2005:63).

Schooner designs continued to change in the mid-Atlantic region during the Revolutionary War. Ships needed to be sleek and fast to sail through blockades. The designs of regular trading schooners changed into sharply built, fast sailing vessels. These schooners became the favored blockade-runner and privateering vessel during the war. When the war ended, these schooner types operated as pilot boats within the region. The famous "Baltimore Clipper" type developed from the need for sleek blockade-runners and was important during the War of 1812. After the war, however, there was no longer a necessity for fast blockade-runners and schooner construction shifted to carry more cargo at the cost of speed. Although the sleek

blockade running schooners were no longer the favored vessel type by the mid-19th century, the new schooner types continued to carry similar features (Burgess 2005:63).

The construction process of most vessels in America during the late 18th century was rudimentary. The construction of a ship was limited to the availability of the timber that would allow for the specific dimensions of each piece. Since different types of wood have different characteristics, such as grain, density, and durability, the specific type of wood used for every piece was carefully considered (Crothers 2017:20).

At the beginning of the 19th century, shipbuilding in the United States steadily progressed. Timber was also readily available since logging was a leading industry. The wood type used to build the early boats in the Chesapeake Bay region, however, was primarily limited to white oak. In the case of cheaper built vessels, a variation of pine would be used, such as longleaf or pitch pine. It was inexpensive to produce ships in America and the vessels were highly desired by foreign countries (Chapelle 1982:10; Gillmer 1994:61; Crothers 2017:22).

During the construction process, many traditional tools were used including adzes, axes, and planes (Chapelle 1982:9). The early Chesapeake Bay schooners were made by shipwrights who had "an intuitive awareness of hull shape, who were not tied closely or at all to the dusty European shipping rules, customs regulations, measurement rules, and all of the other binding restrictions of their craft" (Gillmer 1994:18). Since the Chesapeake Bay shipbuilders were not required to follow any archaic shipbuilding regulations they were able to construct vessels that were best suited for the environment in which the vessel would be used (Gillmer 1994:18). In turn, many types of vernacular watercraft developed in the region.

Unfortunately, many of these vessel types were only briefly recorded in the historical record if at all. In depth studies of Chesapeake Bay vessel types typically focus on the well-known vessels tied to historical events, such as the Baltimore Clipper because of its evolution in the early wars of the United States. This means there is a limited amount of historical research focused on the vernacular watercraft of the Chesapeake Bay "even though their utility and length of service have been considerably greater" (Brewington 1963:*ix*). The hull design, however, of all the early ship types developed from the influences of the Chesapeake Bay environment.

Log Canoe

The first known watercraft constructed in the Chesapeake Bay region were the dugout canoes built by Native Americans. These were first recorded in the historical record by European explorers. The dimensions of the canoes varied by the size of the tree that was chosen and the needs of the shipbuilder. Historical records suggest that log canoe size could range from 3 m (9.8 ft.) in length and carry only a few people, to over 15 m (50 ft.) canoes capable of carrying 40 people. Native Americans in the Chesapeake Bay region likely used such canoes for hundreds of years before the European explorers brought new ships to the New World. The canoe is an understudied vessel type and until recently has unfortunately been viewed as "a device of stone age tools and intellects" (Brewington 1963:1-2).

The dugout canoe may appear as a simple watercraft, but the process to create the vessel was intricate (FIGURE 13). The first step was to pick the tree that would be used as the hull; this was an important process since the boat builder needed to choose a tree that would be best suited for the canoe. A controlled fire was placed at the base of the tree so that it was burned before it was cut down. The tree was laid on top of posts so that the builders could easily scrape away the

burnt bark with shells. The final part of the process was a rotation of hollowing out a long hole in the tree by means of scraping and burning (de Bry 1590; Brewington 1963).

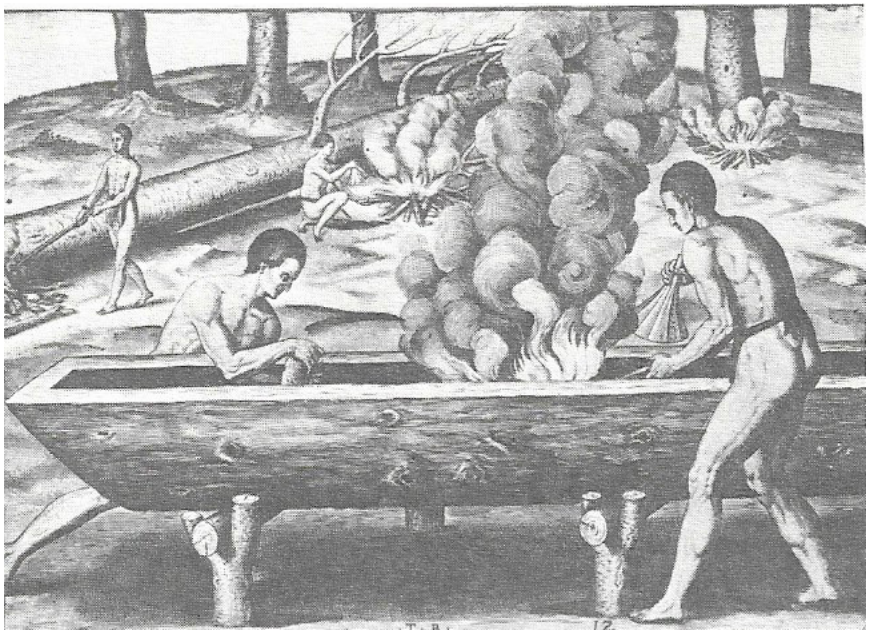

FIGURE 13. A depiction of a dugout canoe being constructed by Theodore de Bry circa 1590 (de Bry 1590; Brewington 1963:1).

Dugout canoes were the first vessels employed for oystering on the Atlantic Coast. They were commonly used for this purpose by Native American people and later were adopted by European settlers (Wennersten 2007:11; Brewington 1963:2). This watercraft provided an efficient means for traversing the shallow rivers of the east coast. The arduous building process of the dugout canoe, however, was not ideal and modifications were made to the craft (Parker 1993:2).

As the colonies in the New World grew, the use of the dugout canoe spread, and the watercraft was designed to fit specific needs. Colonists connected two canoes together to form a more stable vessel to transport heavy cargo. The canoes developed into specific types such as the Poquoson and Pocomoke canoes. These canoes were made of several logs which were shaped by

the builder (FIGURE 14). Some included a keel log that was cut to contain a centerboard (Brewington 1963:7; Burgess 2005:2).

FIGURE 14. Photograph of a shipbuilder constructing a Poquoson canoe out of multiple logs (Brewington 1963:9).

As more people came to the region, highly intricate canoes were the most common source of transportation for Chesapeake Bay inhabitants. The hulls of these vessels incorporated five specifically shaped logs as well as a stem, sternpost, rubbing strakes, and a centerboard. Although larger vessels became preferable for specific maritime trades, canoe use continued to be employed for both business and pleasure. Canoes are still employed in the Chesapeake Bay region for oystering and crabbing (Burgess 2005:3).

Sharpie

The sharpie was a small flat-bottomed skiff, which incorporated a centerboard and was either single or double masted. These shallow drafted boats were known for having their bottom planking placed perpendicular to the keel. Though typically built around 10 m (32 ft.) in length,

some sharpies were as long as 18 m (59 ft.) (Chapelle 1961:136-137). These vessels were first built in the 1830s or 1840s by oysterers in New Haven, Connecticut aiming to find a cheaper construction method for an oyster vessel than the dugout canoe (FIGURE 15). The type migrated to the Chesapeake Bay around 1868 and was used frequently though it never became as popular as other vessels due to its short length (Chapelle 1961:136-137, 1975:19).

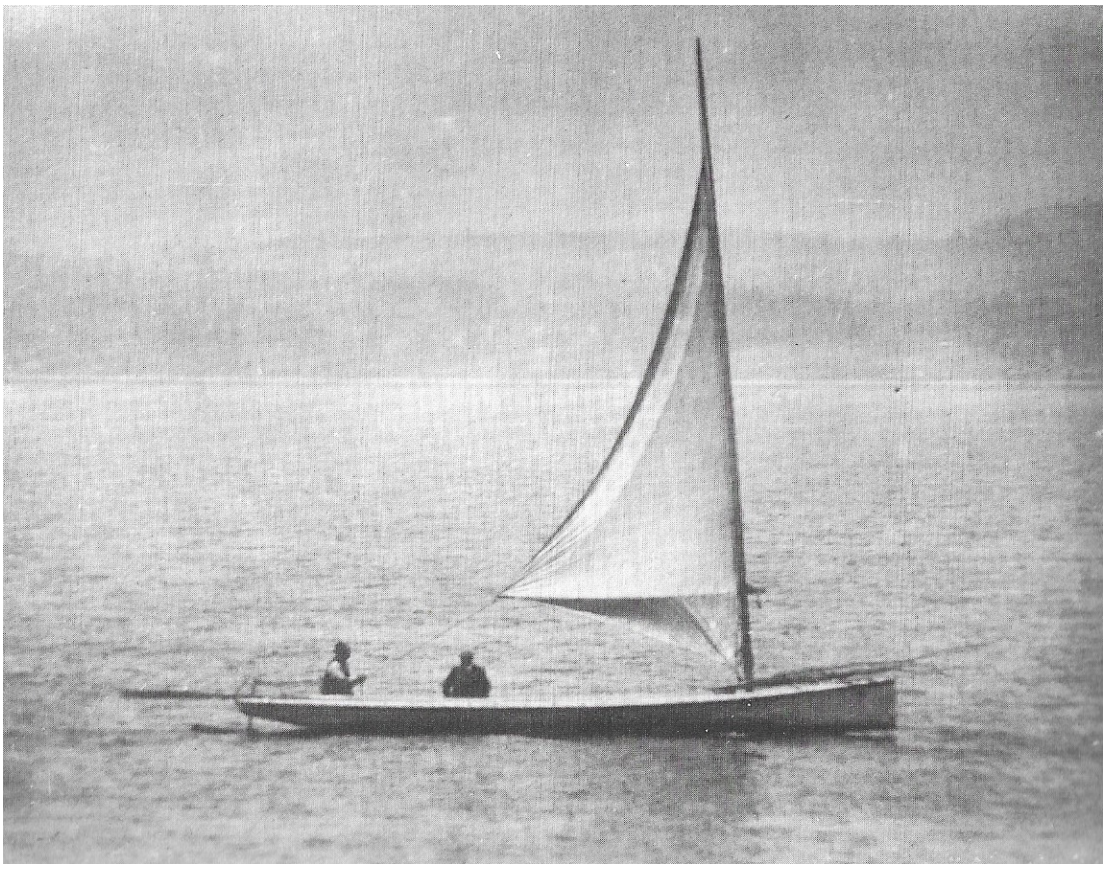

FIGURE 15. A photograph of a typical single masted New Haven sharpie (Parker 1994:94).

Since the sharpie was well suited for oystering and easy to build, the type was quickly adapted to different regions. As it spread, slight variations were made during the construction process and multiple versions of the vessel existed. In the Chesapeake Bay, a specific type of sharpie developed and was known as a "flattie" (Chapelle 1961:137-146). By the late 19th

century, these variants helped make the sharpie a favored oystering vessel along the Atlantic coast.

A local design for this type also developed in North Carolina waters by 1881 and quickly replaced the commonly used local workboats including the periauger vessel type (Alford 1990:5). The North Carolina sharpie was double masted and ranged from 12 to 15 m (40 to 52 ft.) in length (FIGURE 16). Although oyster tongers preferred the leg of mutton rig, some North Carolina sharpies were schooner rigged and were occasionally used for dredging (Parker 1994:17). Although the sharpie remained popular in North Carolina at the end of the 19th century, the type "never grew to enjoy the popularity of such prominent Tidewater vessels as the pungy, bugeye, or Chesapeake schooner" (Shomette 2009:334). Although it could be used for tonging, much larger ships were desired that could dredge deep waters to obtain more oysters (Chapelle 1961:150-151).

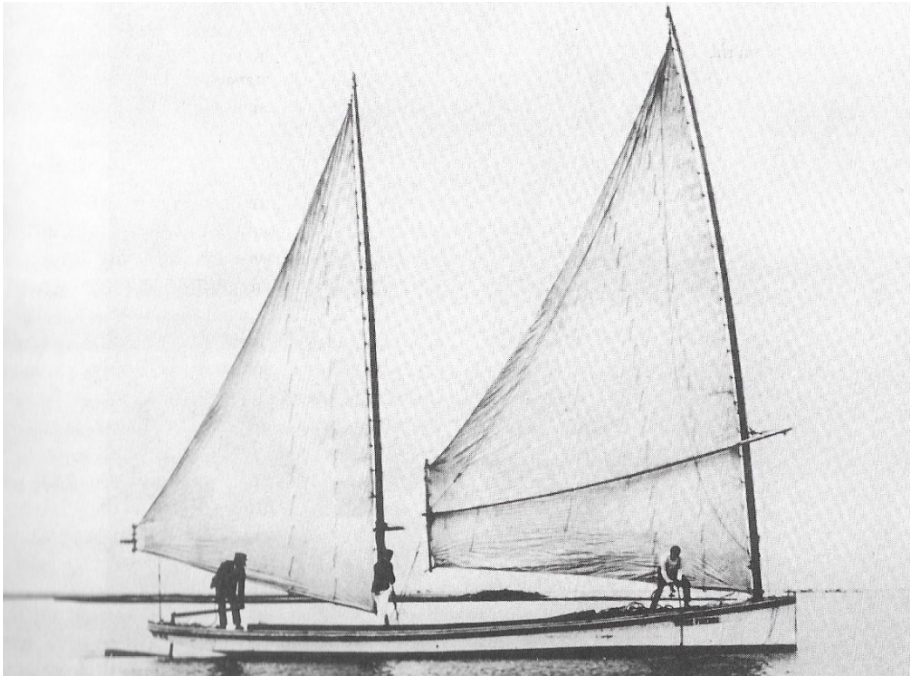

FIGURE 16. A photograph of a typical North Carolina sharpie (Parker 1994:13).

Pungy

One of the earliest vessel types adapted specifically for the Chesapeake Bay oyster industry was the pungy (FIGURE 17). The hull of the pungy was nearly identical to the Baltimore clipper though it was smaller in size. Appearing in the region in the early 19th century, pungies had sharply raked ends and a distinguished cutwater common in Chesapeake Bay vessels. Although it was rigged as a schooner, the ship type was distinct enough that they were commonly referred to by name and not the generic term of schooner (Snediker and Jensen 1992:47).

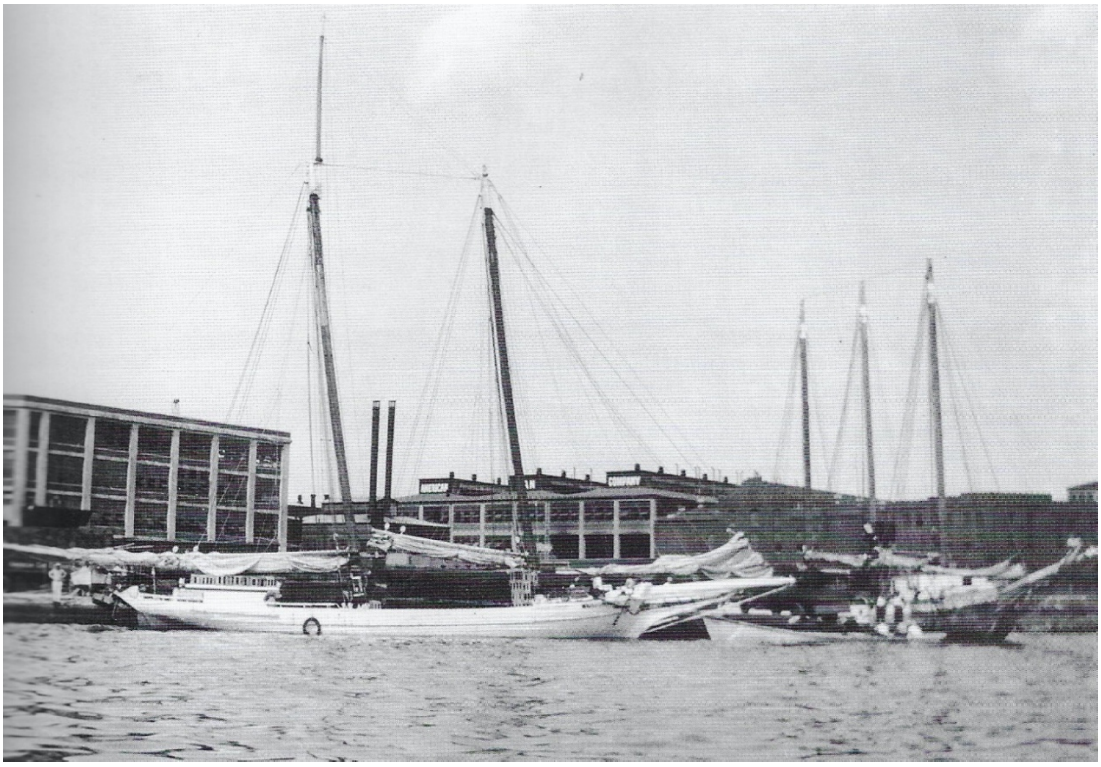

FIGURE 17. The Chesapeake Bay pungy *Amanda F. Lewis* (Burgess 2005:65).

Pungies were built with low log rails when used on the Chesapeake Bay but had higher built bulwarks if used in industries in different regions, such as New England's mackerel fishery or the West Indies pineapple trade (FIGURE 18). The pungy schooner was one of the first vessel

types to contain some of the specific construction features that are typically seen on Chesapeake Bay schooners built in the 19th century. These features include having a moderate sheer, a nearly vertical sternpost, a round tuck, a square stern, and a long cutwater. Like later schooners, pungies had a wide beam amidships that curved sharply to the sternpost (Chapelle 1973:89).

Though schooners were used to tong for oysters, the pungy was one of the first Chesapeake Bay vessels to be adapted for dredging. At first, the pungy was the prominent vessel used within the industry because of the large amount of deck space on which to work and it had enough sail power to dredge. Though the type was favored by New England oyster fishers, it was not well suited for northern waters and was primarily used within the Chesapeake Bay (Snediker and Jensen 1992:54).

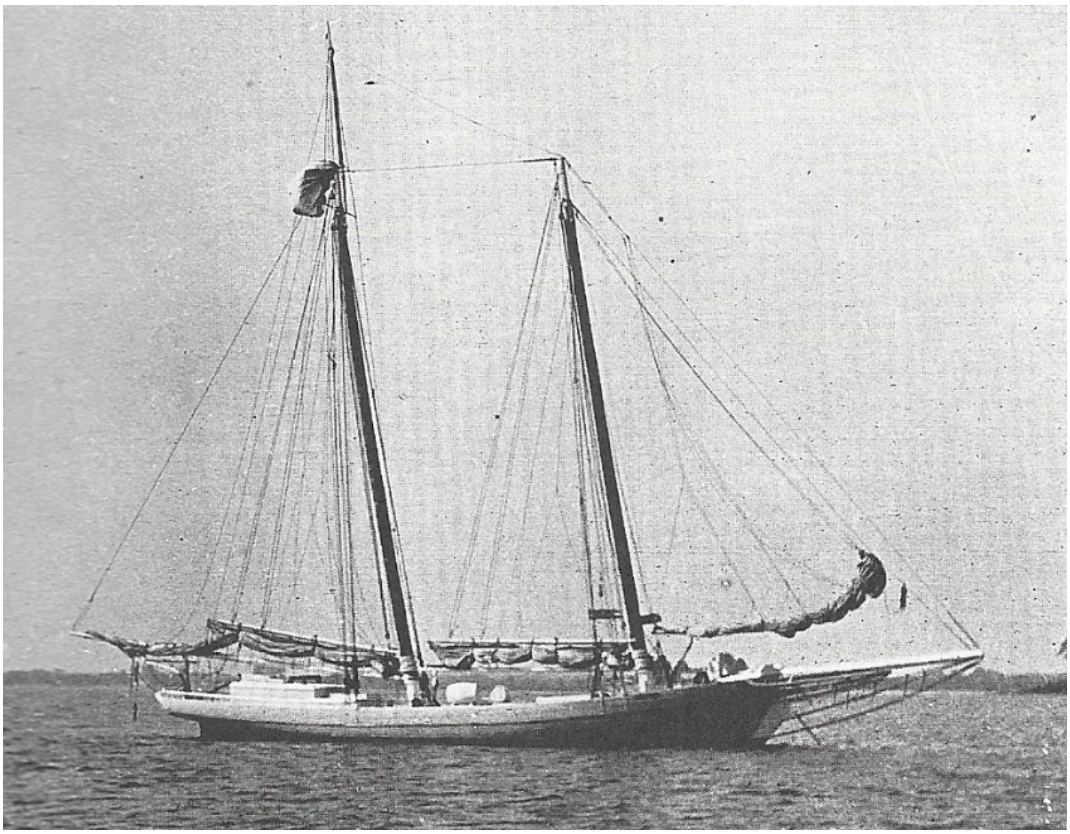

FIGURE 18. A photograph of the Chesapeake Bay pungy *Banshee* (Snedicker and Jensen 1992:49).

Since pungies were originally designed to work in deep-water, they were unable to traverse the shallow areas of the Chesapeake Bay. As the deep-water oyster beds were exhausted, Chesapeake Bay oysterers preferred to use other shallow drafted centerboard schooners such as the bugeye. To save the pungy type, a specific variation of the vessel was built that had a centerboard instead of a keel. This vessel type was known as a "she-pungy" or "square stern bugeye" and was built to be used in both shallow and deep waters. Though only a few of these vessels were built, the distinct features helped develop the type (Snediker and Jensen 1992:55). The adoption of less expensive vessel types eventually led to the pungy being replaced as the preferred dredging vessel though some were still used within the industry during the early 20th century (Brewington 1963:78; Snediker and Jensen 1992:54-55).

Chesapeake Bay Schooner

Out of all the vessel types that sailed the waters of the Chesapeake Bay the traditional schooner was the most prominent. Double masted Chesapeake Bay schooners were so abundant that they could be seen in every port, landing, and creek in the region (FIGURE 19). These schooners have been compared to modern day semitrucks because they were primarily used as freight boats that were capable of transporting cargo all over the Chesapeake Bay. The schooners were used in nearly every maritime industry alongside other vessels built for individual trades. It is reported that Captain Tom Webster owned over 50 schooners, bugeyes, pungies, and skipjacks, which were all used within the oyster industry (Burgess 2005:85).

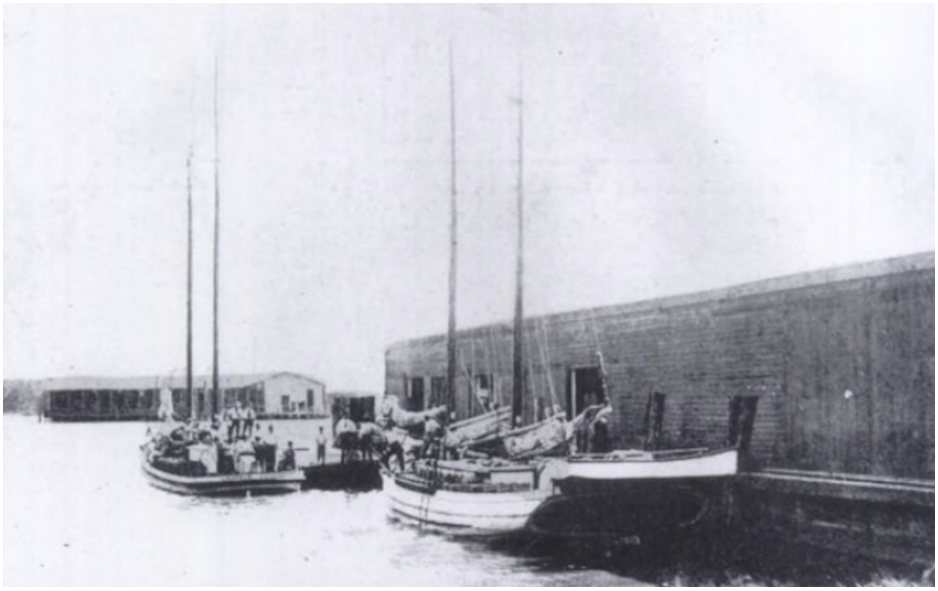

FIGURE 19. Chesapeake Bay schooners docked at an unknown canning factory (Brimley Collection State Archives of NC).

The lumber industry, which stretched from the western shores of the Chesapeake Bay to the coastal communities of North Carolina, is where the schooner dominated. One example of the type was the lumber schooner *Bohemia* that was built in 1884 at St. Michaels, Maryland by famous Chesapeake Bay shipbuilder T. Kirby (FIGURE 20). This vessel was owned and operated by Captain Edgar B. Riggin for over three decades and though the vessel was eventually sold, it continued to be used as a freighter in the Chesapeake Bay region. *Bohemia* carried its last cargo of lumber in 1948 and sank on the Elizabeth River in 1950. It was raised to be converted to a powerboat in Virginia, however, the conversion never took place, and the vessel now lies abandoned in Sarah Creek, Virginia (FIGURE 21) (Burgess 2005:90). Schooners continued to be used throughout the 1950s as buy boats in the oyster industry. Even though the Chesapeake Bay schooner was integral to the maritime communities of the region, the expansion of roads, trains, automobiles, and powerboats eventually replaced the need for these large wooden sailing vessels altogether (Burgess 2005:83-85).

FIGURE 20. The Chesapeake Bay Schooner *Bohemia* docked in front of The MacLea Lumber company (Burgess 2005:91).

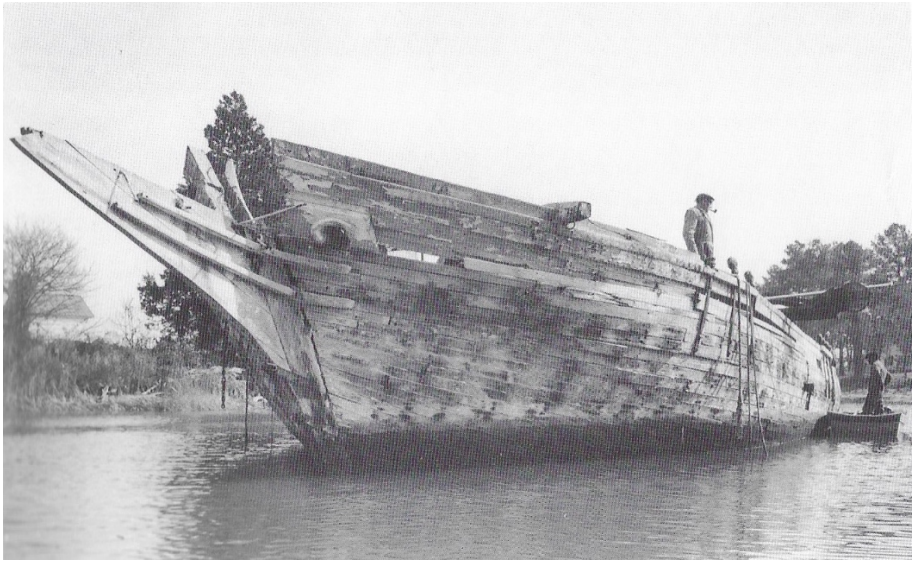

FIGURE 21. A photograph of the abandoned schooner *Bohemia* (Burgess 2005:95)

Historical photographs of *Bohemia* indicate that the vessel has obvious Chesapeake Bay construction elements including a slow rising stem, low freeboard amidships, and flat rounded hull. The schooner was equipped with two masts, with the mainmast offset of the keel. Interestingly, the vessel also contained a centerboard, which was offset on the opposite side of the keel as the mainmast (FIGURE 22). These construction features can be attributed to the shipbuilding traditions that developed in the Chesapeake Bay region (Burgess 2005:92-93).

FIGURE 22. A photograph of the interior of *Bohemia*. The centerboard case can be seen slightly offset from the keelson (Burgess 2005:93).

Brogan

As oystering became more lucrative for Chesapeake Bay fishers, larger vessels were needed to travel longer distances to sell oysters at central markets such as Baltimore. The log canoe was unable to hold a substantial number of oysters, and it was dangerous to take over long distances. A variation known as the “coasting canoe” developed which was 10 to 12 m (35 to 40 ft.) in length and included two masts and a small cabin. Once dredging was legalized in

Chesapeake Bay waters in the 1870s, the coasting canoes became larger to adapt to new equipment and eventually became a distinct vessel type altogether (Brewington 1963:36-38).

The Chesapeake Bay "brogan" was the name given to the type of vessel that developed from the coasting canoes. Although there is much information on log canoes and variations of Chesapeake Bay schooners, little is known about the brogan vessel type. These vessels differed enough from the traditional log canoe to be referred to by a specific name, yet it seems they were only used for a short period of time (Brewington 1963:38; Burgess 2005:13).

The construction of the brogan type was like that of log canoes and coasting canoes (FIGURE 23). The only differences were that the brogan was larger and fully decked. Brogans stepped two masts and carried the traditional leg of mutton rig like the canoes (Brewington 1963:38). The hulls of Chesapeake Bay log canoes, brogans, and the early versions of bugeyes were constructed using multiple cut logs. The keel log and garboard logs were curved to fit the shape of the stem and stern. The upper logs, also known as "wing logs", were chosen from naturally curved trees and were difficult to obtain since they needed to match the curve of the previous timbers. Although some versions of the log canoe contained centerboards it is unknown if any of the brogan vessels carried this feature (Brewington 1963:17-18).

Like the canoes from which the brogan developed, the vessel type was often used to harvest oysters (FIGURE 24). This type spread throughout the Chesapeake Bay region and was favored in Maryland waters. In the late 19th century, dredging for oysters was legalized in Maryland waters deeper than 4.5 m (15 ft.) and the log constructed brogans were best suited for that purpose. Although not much is known about the brogan, the use of the type as an oyster boat is significant to the region's maritime history. The watercraft represents a step in the evolution from log canoes to the much larger and favored vessel type, the bugeye (Burgess 2005:13).

FIGURE 23. A rare image of a Chesapeake Bay brogan (Courtesy of the Chesapeake Bay Maritime Museum).

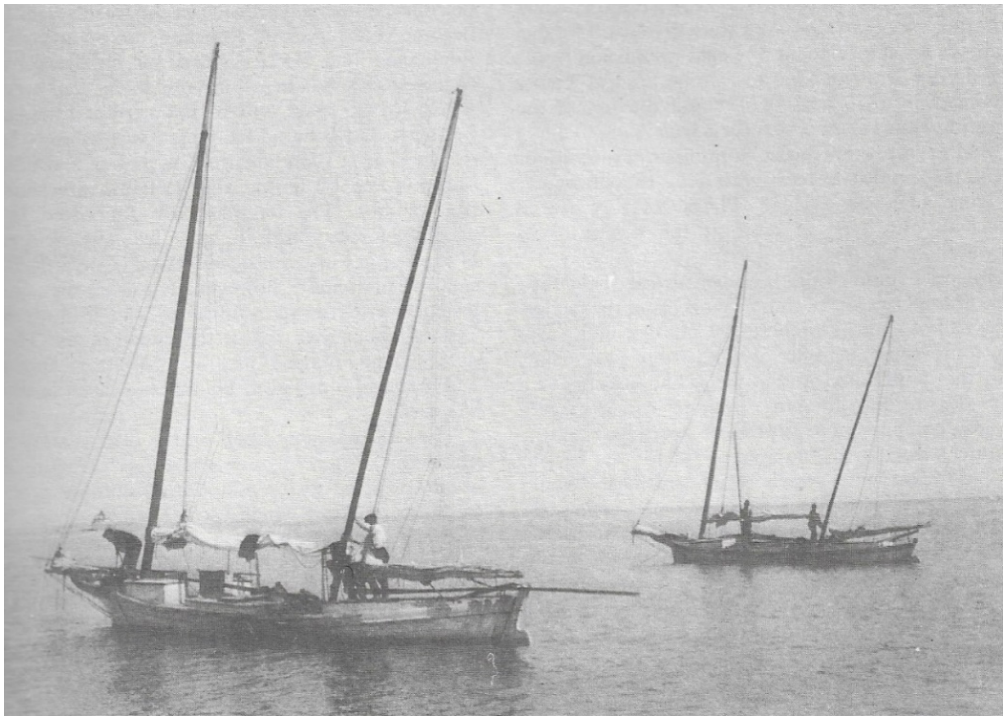

FIGURE 24. A picture of two Chesapeake Bay Brogans. Note the crewmember (right) tonging for oysters (Chapelle 1963:37).

Bugeye

Although a variety of different vessel types were used to tong and dredge for oysters, many of them had disadvantages when employed for oystering. Chesapeake Bay sloops, schooners, and canoes were all built and used for a variety of maritime needs. Once the dredging technique was permitted in the Chesapeake Bay after the Civil War, larger vessels were quickly adopted (Brugger 1996:787). None of these types, however, were built specifically to dredge for oysters and they all had similar disadvantages; they were either not powerful enough to use dredging equipment or their construction features, such as a lack of deck space, high bulwarks, or deep hull, made it too difficult to use a dredge. A specific type of vessel, known as the "bugeye", was therefore created to dredge for oysters and traverse the shallow inlets of the Chesapeake Bay (Burgess 2005:13).

The bugeye was the favored vessel for the rivers leading into the Chesapeake Bay because it had a much shallower draft than those of the local sloops, schooners, and pungies (FIGURE 25). The bugeye became popular in the Chesapeake Bay area in the 1860s and was built to lengths of approximately 18 m (59 ft.) Early bugeye vessels were made from "five or more logs with framed topsides, carvel planked up to the deck. The last three or four strakes were heavier than the running plank, forming wales" (Brewington 1963:40). Above the hull logs the vessel was planked on frames. The frames connected to the keel log though the midships frames stopped at the centerboard case (Brewington 1963:39-40; Chapelle 1982:257).

FIGURE 25. A traditional bugeye under sail on the Chesapeake Bay (Courtesy of the Chesapeake Bay Maritime Museum).

Many improvements were made to the bugeye throughout the 19th and 20th centuries and typical construction methods varied from builder to builder. As timber became scarce and more expensive toward the end of the 19th century, building bugeyes through the traditional log construction method was not ideal. At some point in the 1880s, Chesapeake Bay builders began to construct bugeyes using only planks and frames and by the early 20th century, some bugeyes were built to 25 m (82 ft.) in length (FIGURE 26). The design of the bugeye fixed the problems oysterers had with the pungy; the bugeye was not only easy to maneuver, but it could traverse shallow water, dredge in deep water, and had plenty of working deck space (Brewington 1963:40-44).

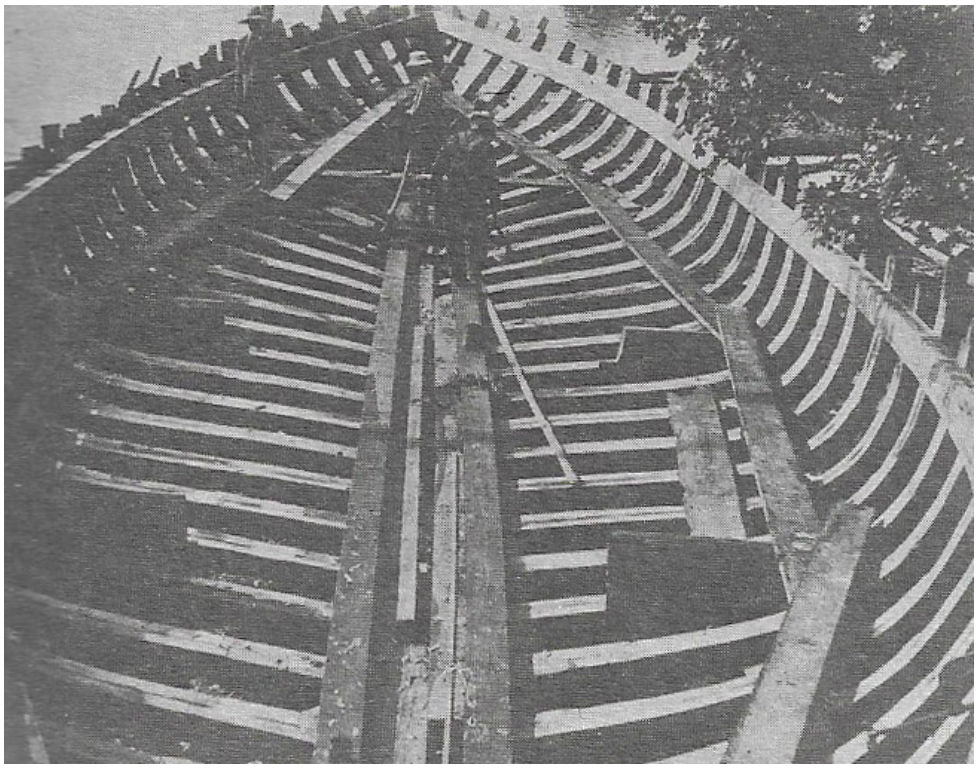

FIGURE 26. Interior looking aft of the fully framed bugeye *Nora Phillips*. Builders can be seen examining the frames (Brewington 1963:45).

Even though all bugeyes were built to have similar features, the final product depended on the shipbuilder and slight variations in bugeye design developed throughout the Chesapeake Bay. Typically, bugeyes had two masts and were often rigged with a leg of mutton sail configuration. There are, however, exceptions to this documented in the historical record. One masted bugeyes did exist though they were rare (FIGURE 27) (Brewington 1963:78; Snediker and Jensen 1992:54-55).

FIGURE 27. The single masted bugeye *Sallie L. Bramble* (Courtesy of the Chesapeake Bay Maritime Museum).

Interestingly, a specific type of bugeye, known as a "square rigged" bugeye developed in the region (FIGURE 28). The "square rig" refers to the established gaff rig which was the typical rig carried on two-masted schooners (Brewington 1963:78). To even experienced local oysterers, the square rigged bugeye was indistinguishable from the she-pungy vessel type. The only difference between the two types was that the bugeye had a much flatter bottom and contained a centerboard which was difficult to ascertain from above the waterline (Snediker and Jensen 1992:54-55). This specific type of bugeye was rarely recorded in the historical record. Only a few photographs of exist of the type and no known lines drawings or ships plans were identified. It has been suggested that the square rigged bugeyes required their main mast to be much farther

forward along the keel to carry a gaff rig. This would have interfered with the placement of the centerboard case and both features would need to be offset to either side of the keel (Pete Lesher 2021 pers comm.).

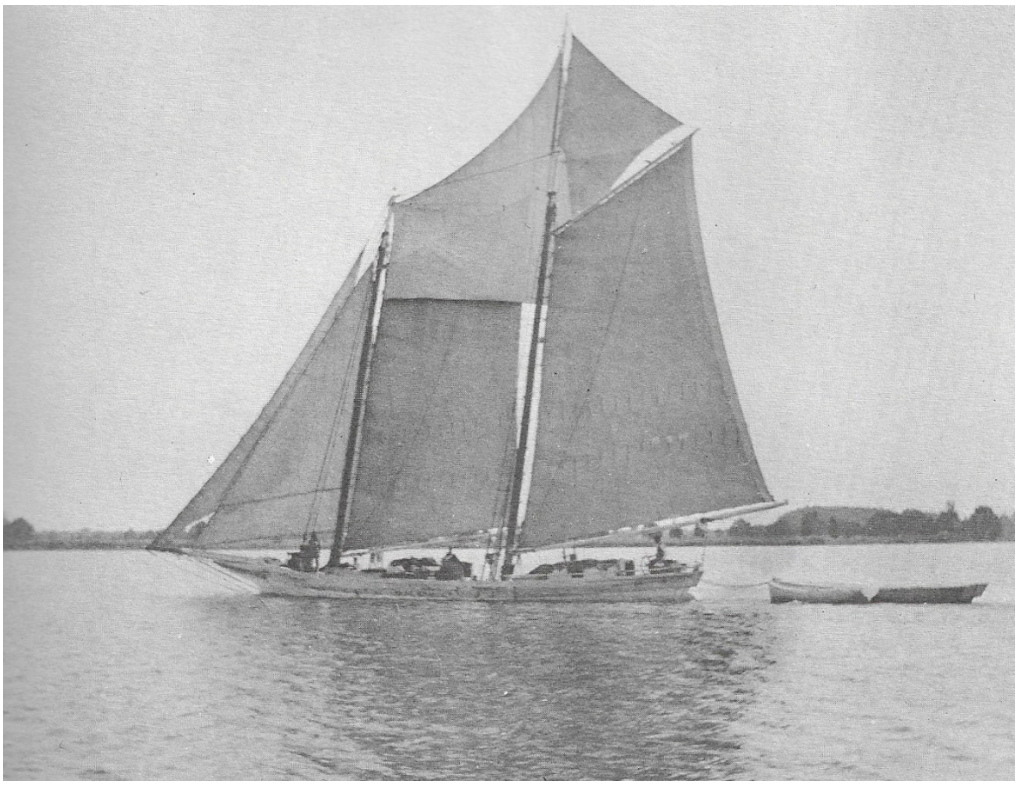

FIGURE 28. A photograph of a "square rigged" (gaff rigged) Chesapeake Bay bugeye *George T. Phillips* (Brewington 1963:65).

Bugeyes were the preferred oystering vessel from their first construction until shortly after the turn of the 20th century. Even though bugeyes were no longer being made with log hulls at that time, the vessel type was still time consuming and expensive to build. Furthermore, round bottom vessels were highly complicated to construct because of the specific curves needed for the wood (FIGURE 29). Every frame and plank had to be specifically shaped to fit the hull designed by the builder. Only highly skilled builders could design a ship, shape the wood, and

create a round bottom vessel (Chapelle 1982:257; Alford 1990:18).

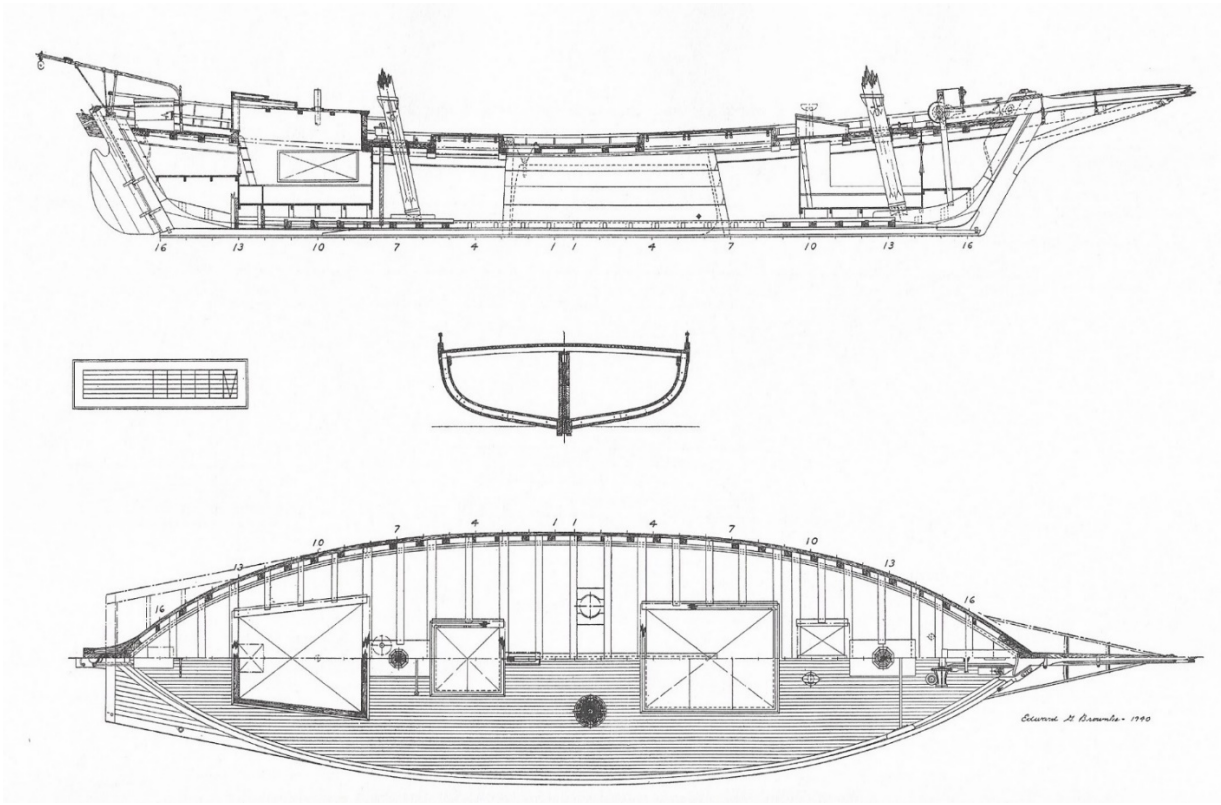

FIGURE 29. The ships plan of the bugeye *Lizzie J. Cox* that shows the complicated hull design. Note the rounded bottom, raking masts, and clipper bow (Brewington 1963:152).

Round bottom boats were highly desired because they were easier to sail in rough waters than flatbottom boats. Another benefit that round bottom boats provided was the ability to "be "fine-tuned" to specific conditions or applications more so than can the boats of simple geometry like flatbottom and deadrise types" (Alford 1990:18). Even though bugeyes were the preferred vessel type for the oyster industry, new ship designs developed to reduce construction costs. No records exist to suggest bugeyes were built after 1918 and there were less than 50 in use in 1938. Many of the bugeyes were abandoned, lost, or converted into motorized yachts. The bugeye fell out of popularity because of the growing use of gasoline powered boats as well as the introduction of the less expensive skipjack vessel type (Brewington 1963:79; Alford 1990:18).

Skipjack

Another vessel type employed in the oyster industry was known as the “skipjack”. The skipjack design did not develop from the traditional canoes of the Chesapeake Bay, however, it had similar construction features to the boats that dominated the region. Incorporating the recognizable sharp rising and raking stem, a large beam, and low draught amidships, the skipjack was a v-bottom vessel with a hard chine instead of the rounded hulls typically built in the region (FIGURE 30). The skipjack is a descendent of the previously mentioned flat bottom sharpie and was created to have a much larger hull for more displacement and cargo capacity (Chapelle 1975:19).

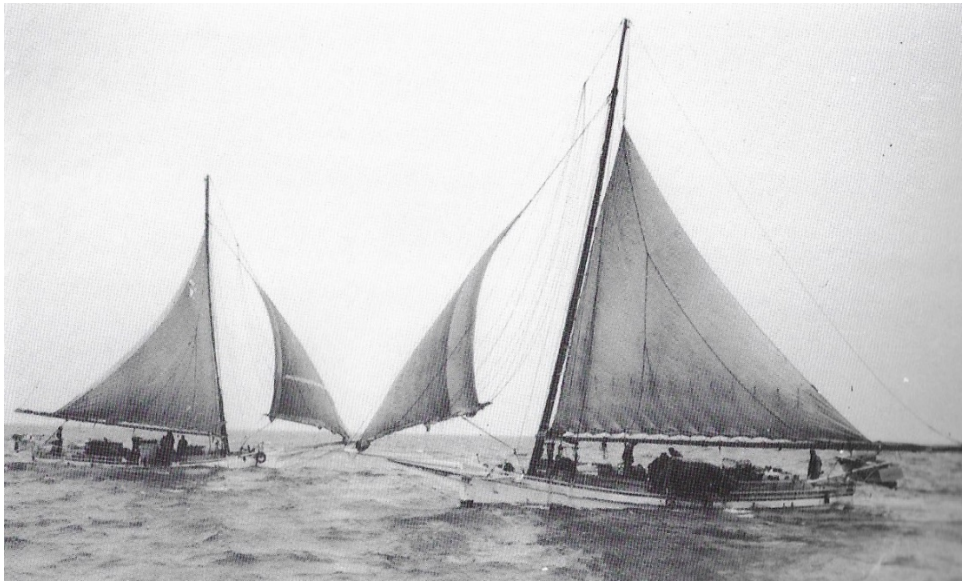

FIGURE 30. A photograph of two Chesapeake Bay skipjacks: *Ethelyn Dryden* (left) and *Dorothy* (right) (Burgess 2005:230).

The sharpie was not an ideal oyster boat for the Chesapeake Bay region because it was too small to traverse the long distances between oyster beds and ports. There was already a need for larger vessels that could dredge oyster beds located in deeper waters. Even though the bugeye was a popular oyster dredging vessel, it was expensive, difficult, and time consuming to build. A

need developed in the Chesapeake Bay region for a large and inexpensive vessel capable of traversing the shallows while still able to dredge in deep waters. Thus, it was inevitable that the skipjack would quickly develop from the simple and inexpensive construction design of the sharpie (Chapelle 1975:20-21).

The skipjack does not appear in historical records until a couple of years before the turn of the century. Traditional Chesapeake Bay skipjacks ranged in length from 8.5 to 18 m (28 to 60 ft.). The larger boats were used in the oyster industry while local farmers typically used the smaller skipjacks to ship crops around the Chesapeake Bay. The single masted rig was easily controlled and was often piloted by one person though a two-person crew was typical. The ship was sailed so that it would be angled onto the chine to avoid being pounded by waves (Chapelle 1975:22-27).

Chesapeake Bay skipjacks have multiple construction features that separate them from other vessel types built in the region. Chesapeake Bay schooners, pungies, and bugeyes were all known to have rounded hulls and, more often than not, were double masted. The skipjack was a single masted, v-bottom vessel constructed with a hard chine. Unlike other boats from the region, the skipjack also had a flat transom that extended to the keel and sides (FIGURE 31). One of the most telling construction features of the skipjack was the striking herringbone style bottom planking. Early Chesapeake Bay skipjacks were built with their bottom planking laid perpendicular to the keel, like the sharpie, but this was quickly changed to an angled bottom planking (Chapelle 1975:24-27).

Even though the skipjack's design was unlike traditional Chesapeake Bay boats, the vessel type did share some regional construction features with other vessel types. The mast was heavily raked, meaning it leaned back toward the stern instead of standing straight in the air, like

the masts of the bugeye. Though this is likely a regional custom, it also provided more deck space and better performance when sailing directly into the wind. The stem of the skipjack is also built in a traditional style having a "long cutwater and the head rails are typical of nearly all of the Bay types, but the reason for them is not apparent" (Chapelle 1975:23). A specific need for such a strong cutwater may not be apparent but it is likely this was included into the skipjack design because the shipbuilders were already familiar with it (Chapelle 1975:23-27).

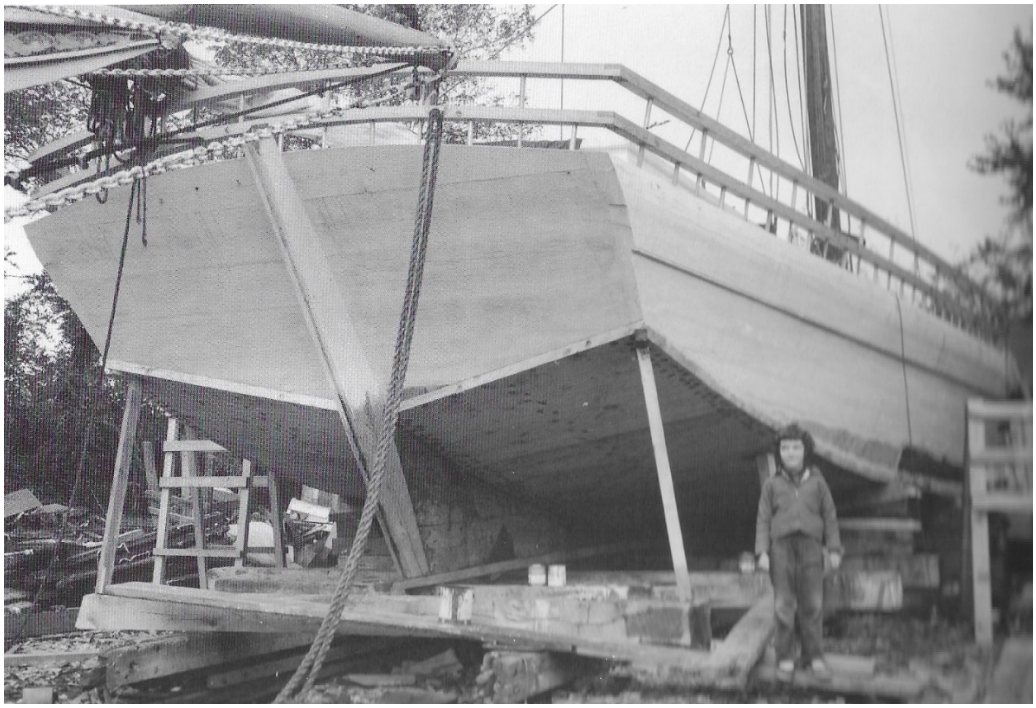

FIGURE 31. A photograph of the transom of the skipjack *Mamie A. Mister*. The v-bottom, sharp chine, and perpendicular bottom planking can also be seen (Burgess 2005:248).

The skipjack was a favored oyster dredging vessel on the Chesapeake Bay because it had all the benefits of the bugeye while being less expensive to construct. The introduction of the skipjack directly led to a decrease in numbers of bugeyes being built in the region and it was one of the final oyster dredging boats to be created within the Chesapeake Bay during the late 19th and early 20th centuries (Brewington 1963:79).

Chesapeake Bay Oyster Boats in Washington, North Carolina

Although a variety of ships were built in Washington, there is no direct reference indicating that the schooners constructed there were made specifically for oystering. While it is possible that these schooners were used in the fishery at some point, it would be difficult to determine from the scarce historical record. It is more likely that vessels from the Chesapeake Bay region were the primary boats used in North Carolina's oyster industry. Chesapeake Bay vessels commonly traveled to North Carolina waters through the Dismal Swamp Canal which connected the lower portion of the Chesapeake Bay to the Albemarle Sound. Although oysters became an important cargo in the late 19th century, Chesapeake Bay schooners previously traveled to North Carolina before the oyster boom to obtain lumber. Lumber was a primary export in small river towns in North Carolina (especially Washington) which could easily be transported on sailing vessels (Burgess 2005:*xvii*).

A variety of local newspapers directly discuss the vessels used in the Washington area. The boats are typically referred to by the generic term of "oyster boat". One article, entitled "Many Oyster Boats", explains that the Washington docks were full of oyster boats from the surrounding counties of Dare, Pamlico, Hyde, and Beaufort (*Washington Daily News* 1909:1). Some historic newspaper articles, however, use the specific type and even the exact name of the vessel.

As early as the 1890s, the precise name of the bugeye vessel type was used by Washington newspapers. Many of these articles are advertisements for owners selling their vessels. One advertisement lists three boats referred to generically as schooners and provides their respective tonnages and draughts. Two boats, however, are referred to by their exact type; one was a 22-ton pungy and the other was a 7.5-ton bugeye. The bugeye is also noted as being

able to carry 300 bushels of cargo and comes complete with a dredge system (*Fisherman and Farmer* 1899:2).

This advertisement is important because even though three boats are listed generically as schooners, the pungy and bugeye vessels are referred to by their exact vessel type. The reason for using the name of the oyster boat type infers that both vessel types were likely well known in the region and were separate types from traditional schooners. Another important aspect about this advertisement is that the vessels being sold are in Baltimore, Maryland. This means that the seller, C. W. Woolford, knew there was a market for the vessels in the Pamlico Sound region (*Fisherman and Farmer* 1899:2).

A similar advertisement for the bugeye *Ruba Sterling* was also given in 1894. The vessel was originally built in Pocomoke City, Maryland and was being sold in Berkeley, Virginia (*The Washington* 1894:3). The advertisement again targeted the oysterers of Washington and indicates that shortly after the turn of the century, bugeyes were being sold in North Carolina waters. An unnamed 18 m (60 ft.) long bugeye was advertised in a Washington newspaper in 1902. The vessel was being sold in Swan Quarter, North Carolina which is located close to Washington at the mouth of the Pamlico River (*Washington Progress* 1902:3).

A bugeye that was specifically named within Washington newspapers was *A. L. White* and is noteworthy because it gained the attention of many Washington townsfolk when it capsized close to the town on March 1, 1900. The bugeye had recently unloaded a cargo of oysters at Washington's canning factory when it was caught in high winds not far downriver at Chocowinity Bay. A strong wind filled the jib sail, capsized the vessel, and threw Captain J. J. White overboard. His wife and child were still in the vessel as it sank, but Captain White was able to rescue them shortly before help arrived at the scene. Although the sinking of this bugeye

is close to the proximity of the Centerboard Wreck's location, *A. L. White* was eventually raised and used once more. The article, however, provides strong evidence for not only bugeyes being used in Washington but also being used so frequently that the readers of the newspaper would know what the vessel type is by name (*Washington Progress* 1900:3).

Even though the bugeye type is typically only examined within the vicinity of the Chesapeake Bay in secondary historical sources, it seems to have been used extensively throughout the major rivers of Eastern North Carolina during the late 19th and early 20th centuries. They were primarily used by the oyster industry but were adapted to other local needs, such as ferrying passengers and cargo, when not being used for dredging. An example of this can be seen in a newspaper article from 1891 which explains that one of Washington's residents, "Mr. E. S. Hoyt, Jr., left Monday night on one of the Bugeyes [sic] for a cruise around Ocracoke, Portsmouth and other seaports. Ed, we wish you a most charming voyage" (*Washington Gazette* 1891:3). The bugeye referred in the article was *Preston Lewis* and was built in 1902 in Inverness, Maryland. Converted for use as a motorboat in 1942, it was sold to an unnamed individual in Washington, North Carolina in 1953, but is listed as abandoned in 1955 (MVUS 1955:748); Burgess 2005:28).

Though Chesapeake Bay oyster boats were commonly found in the Pamlico River region, it is unknown if any local adaptations were created. Brewington (1963:75) states that only two bugeyes were built outside of Virginia and Maryland. The bugeye *M. T. Richardson*, was built in Delaware from a design by a Maryland shipbuilder. A second bugeye, *Lacey*, was built in Wit, North Carolina by another Maryland shipbuilder. Brewington (1963:75) explains that the bugeyes used in Delaware Bay, Albemarle Sound, or Pamlico Sound were not built locally in

those regions. Despite no direct reference being found in the historical record, however, some historians argued that these vessels were built in North Carolina.

> Skipjacks, equipped with dredges, were the most popular oyster boats. Introduced in the 1880s in the Chesapeake Bay area, the type migrated to North Carolina. There were two types of oyster dredgers introduced into North Carolina waters, the two-sail bateau or skipjack, and the three-sail vessel or bugeye. Most of them were located and probably built in the Pamlico River area (Still and Stephenson 2021:256).

Although Still and Stepheson (2021:256) suggest that the Chesapeake Bay vessel types were built in North Carolina, there is little evidence of this occurring within historical sources. Before this case study, there was only one bugeye known to have been built in the state (Brewington 1963:75).

Upon researching the historical newspapers, however, it seems that there was at least one other bugeye built in North Carolina. A newspaper editorial states that three men who "were on their way ashore from the bugeye *Flossie D. Lee*, which was laying at anchor, were up-set, but happened to be in shallow water and waded out. They were met at the water's edge by a large crowd to join in a hearty laugh" (*Washington Progress* 1903:3). The bugeye, *Flossie D. Lee*, is identified by both name and vessel type in the editorial. This bugeye, however, is not listed in Brewington's list of known bugeye vessels but is listed in the MVUS (1902:64) records and has the official designated number 121005. The vessel is listed as being 14.3 m (47 ft.) long and 4.5 m (14.9 ft.) wide. Most importantly, it is stated that the vessel was built in Dunham's Creek, North Carolina in 1895 and its homeport was New Bern, North Carolina (MVUS 1902:64). The lack of *Flossie D. Lee* from Brewington's list supports the possibility that there may be other bugeye vessels listed in the *MVUS* records and that some of these may have been built in North Carolina.

Even though only two bugeyes are historically listed as being built in North Carolina, the archaeological record may give evidence that some of the Chesapeake Bay vessel types were adapted by North Carolina shipbuilders. For example, the North Carolina shipwreck *Helen C.* has striking similarities to a Chesapeake Bay skipjack. When the wreck was thoroughly investigated in 2020 multiple construction features were documented on the wreck that were not typically found on traditional Chesapeake Bay skipjacks. There were certain differences noticed between the keels, centerboards, and planking. Chesapeake Bay skipjacks are known to have an angled herringbone style bottom planking. *Helen C.*, however, had a simple cross planked bottom planking which was not angled and laid perpendicular to the keel (Barbery 2020:103-107). While it is argued that this could be a type of regional construction difference between Chesapeake Bay and North Carolina shipbuilders, the first skipjacks built within the Chesapeake Bay region did not yet incorporate the herringbone pattern and instead laid bottom planking perpendicular to the keel (Chapelle 1975:27).

Some sources indicate that multiple single masted bateaux were built near Pamlico Beach, North Carolina. According to Alford (1990:23), even though those built in the region had differences "in the way the mainsail was rigged and some structural variations, these vessels remained true to their Chesapeake Bay counterparts". If *Helen C.* is indeed a local variation of the Chesapeake Bay skipjack, then it is the only known type so far documented in the archaeological record. The possibility also provides evidence that shipbuilders saw the benefits of the Chesapeake Bay vessel types and realized they could be easily adapted to the Pamlico River region.

A strong piece of evidence that supports the claim that bugeyes were not typically built in North Carolina is given in a Washington newspaper article from 1920 that discusses Capt. Bill Thomas' bugeye.

> The "bugeye" has become popular in the Eastern Carolina waters. The Craft [sic] of this kind have been looked upon with suspicion heretofore, and few if any true "bugeyes" have been seen. Three handsome boats have been brought to Ocracoke from Maryland waters. The sharpness of the sterns is relieved by the patent platform decks built onto the vessels. They are rigged as schooners without topsails and carry auxiliary motors. The tremendous increase in the passenger business is proving profitable to the boatmen (*The Daily Free Press* 1920:5).

The article describes the boats coming straight from the Chesapeake Bay area to Ocracoke and claims the type is popular in the region. It is unknown, however, what the author meant by claiming that few "true" bugeyes have been seen. It is easy to infer that by this time North Carolina shipbuilders were copying the Chesapeake Bay bugeye design and that the craft they produced were therefore not "true" bugeyes. Yet, by the 1920s, there would have been no need for new oyster dredging boats since the oyster industry severely declined. During the first few decades of the 20th century, many of the vessels were actively being abandoned in both the Chesapeake Bay region and North Carolina (MVUS 1931:947).

Oystering Cultural Material

Like other fishing vessels, oyster boats carried specific tools implemented to capture their quarry. Oysters, however, are not like other aquatic life and the tools used to catch these creatures are distinct compared to traditional fishing equipment. Since oysters spend their entire lives attached to a bed, the tools used to catch them typically involve scraping them from the sea floor. Since these tools were specifically designed to catch oysters and were not used for any other purpose, finding them on a shipwreck suggests the vessel was used to harvest them.

The first tool used for gathering oysters were hand tongs. A hand tong is the simplest device needed to harvest oysters from the seabed, but it is also the longest lasting tool since they are still in use. Though a variety of hand tongs were made during the historic period, the first traditional design used by Native Americans were long forked sticks. This style was used and recorded by early settlers, but the mid-17th century, the single pole hand tongs were replaced by double-poled hand tongs. This type contained a long iron rake at one end of each pole (Brewington 1963:92).

Tongs could be used in shallow water without the need of a vessel; however, they were commonly used in conjunction with wooden canoes. The canoe allowed the fisher to traverse water that was too deep to wade into, but shallow enough for the fisher to scoop up the oysters from the sea floor. Though tongs worked well on small boats in shallow water, however, a much more complex piece of equipment was needed to capture a significant number of oysters (Brewington 1963:92)

Like many fishing vessels, oyster boats were distinctive in that they were designed to be used in tandem with a specific piece of equipment. As the demand for oysters grew, fishers needed to be able to catch more oysters to make a larger profit. The oyster dredge quickly developed from this specific need. The oyster dredge was a type of metal basket containing a toothed rake that would be thrown over the side of a vessel to scrape oysters from the seabed. The dredge basket was connected to a cable supported by a roller system that would raise and lower the basket as needed. At first, hand powered winches were used to retrieve the dredge basket, but those were eventually replaced by small engines (FIGURE 32). Not only was the dredge necessary to catch oysters in deeper water, but the oysterers also required larger vessels capable of supporting the tool and traversing the environment. Because the oyster boats, such as

the bugeye and skipjack, were designed specifically to be used for dredging they were often referred to colloquially as “dredgers” (Brewington 1963:90-95).

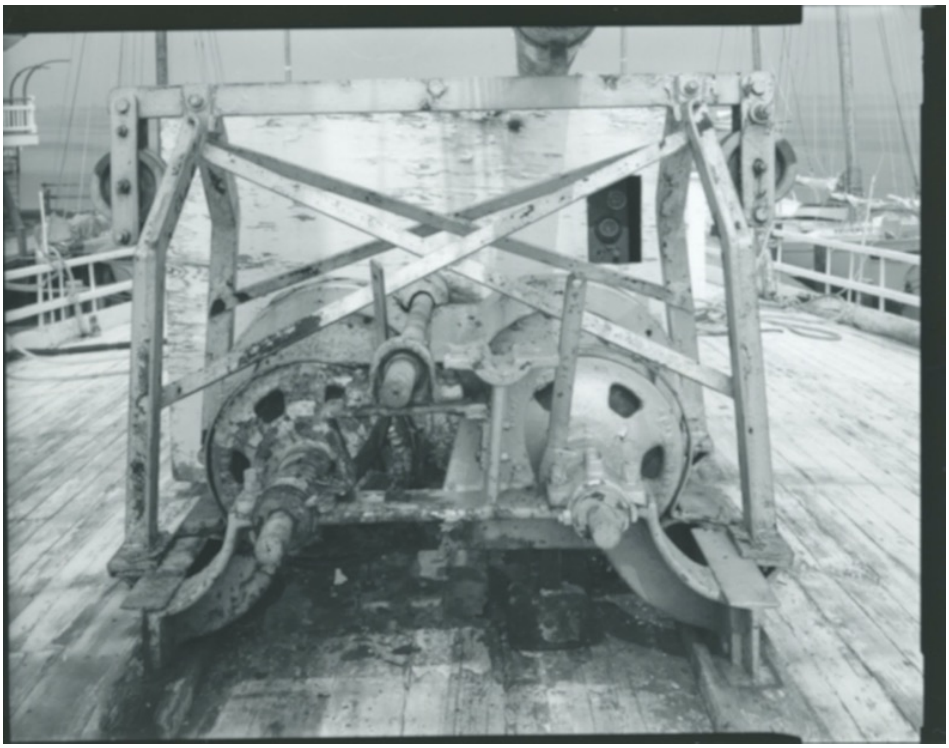

FIGURE 32. An engine used to raise dredging equipment on board *E.C. Collier* circa 1988 (Courtesy of the Chesapeake Bay Maritime Museum).

While the equipment used to obtain oysters was critical for the vessel, oyster boats also carried other specific tools onboard. A variety of measuring tools were used to make sure that the oysters being caught were in the legal adult stage. Although shucking took place at the canning house, it was common to find knives and shucking tools onboard because crews would eat oysters as they fished. A galley that included a small stove and kitchenware were also commonly found on oyster boats (FIGURE 33) (Brewington 1963:92-96).

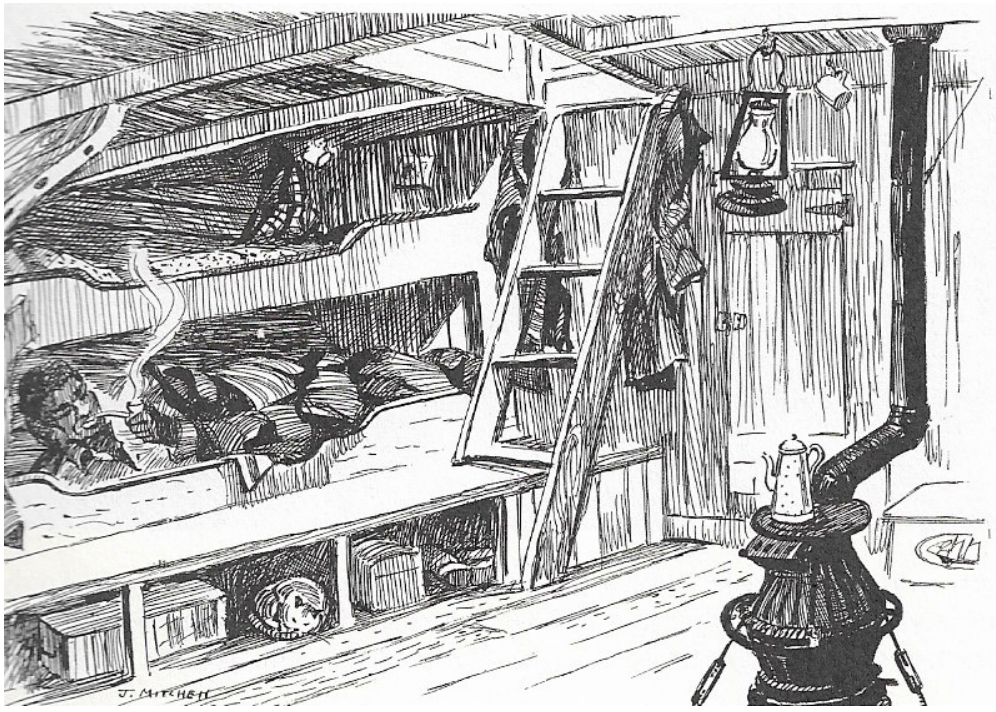

FIGURE 33. A depiction of the gally in a Chesapeake Bay oyster boat (Snedicker and Jensen 1992:107).

The largest and most important tool used in the oyster industry was indubitably the boat itself. Many fishing vessel types are designed with the purpose of catching a specific species, which means that the ship is built for the specific needs of the fisher. Once the fisher's needs change, typically, so too does the design of the boat. Oyster boats are no different in that multiple design features changed as different tools were implemented. Small oyster boats were used when tonging, but these boats became much larger out of necessity to operate the dredge.

The design of a vessel is only slightly affected by the tools to be used, however, as the most significant factor influencing a vessel's construction is the environment for which it is intended to operate. As pungies, for example, could not operate in shallow waters, the need for a new vessel type arose. Shipbuilders then adapted the construction features that kept the advantages of the pungies while replacing the disadvantages. The vessel then developed into the bugeye which was able to operate the same way as a pungy yet could traverse shallow waters.

To build the ships for a specific purpose, shipyards needed to be in an area that allowed shipbuilders access to the tools, material, and environment necessary for construction. It is important to note that the shipyards that were constructing oystering vessels were located directly on the water, which allowed the shipbuilder to easily launch a vessel once it was completed. This shows that "human settlement is a behavioral adaption to the cultural and natural environments" (Ford 2001:56). This also allowed the shipwright to be in constant communication with the operators of the vessels they built. The shipbuilders knew the advantages and disadvantages of certain vessels for each maritime industry. Thus, within the Chesapeake Bay, the proximity of the shipyards to the oyster beds allowed shipbuilders to quickly adapt new vessels to the needs of the oysterers (Ford 2001:56).

The significance of the location of the shipyards is significant to the study of the interaction between Chesapeake Bay boats with the environment of North Carolina. The shipyards in North Carolina were also located directly on the water, however, it is unknown if the shipbuilders adapted a Chesapeake Bay vessel type. A possible reason for this is that the waters of Eastern North Carolina were so like those of the Chesapeake Bay that there was no need to adapt the vessels for the new environment. Both the Chesapeake Bay and North Carolina sounds experienced similar weather, open water conditions, and shallow rivers. The sailing conditions of these two regions "can be very rough and uncomfortable, and both are very shoal in places, particularly on the oyster beds. Thus, the demand for light draft boats existed in both" (Chapelle 1975:20). The design of the Chesapeake Bay vessels, therefore, was perfectly suited to the sounds of North Carolina due to the similarity between the two environments (Chapelle 1975:20).

Summary

Although a variety of Chesapeake Bay oyster boats were employed in the mid-Atlantic oyster fishery during the late 19th and early 20th centuries, each type has design features that make them distinct. The Centerboard Wreck shares many construction features to some of these Chesapeake Bay vessels. Along with this, multiple recorded artifacts are known to be items commonly found on Chesapeake Bay oystering vessels. The lack of historical records to describe similar vessel types being built in North Carolina also supports the conclusion that the Centerboard Wreck was built in a different region. Finally, the similar environment to both regions suggests that vessels from the Chesapeake Bay region were perfectly suited to the North Carolina sounds. This concept, along with the many historical records that prove Chesapeake Bay vessels were commonly used in Washington, provide strong evidence that suggests the Centerboard Wreck was built in the Chesapeake Bay before being used in Washington's oyster industry.

Chapter 5: Archaeological Investigations at the Centerboard Wreck (PMR0062)

Although the Centerboard Wreck was not completely surveyed prior to 2020, the site has been known to residents for decades. During low tide, the upper portion of the centerboard case is exposed, and the entirety of the wreck can be uncovered during blowouts. The earliest description of this site is from the 1980s by a former professor from ECU, Dr. William Still, who reported seeing two centerboard vessels during a pedestrian survey of the area (Rodgers et al. 2006:129-130).

Student volunteers from the Institute for International Maritime Research documented several wrecks in the waters surrounding Washington in 1997 (Watts 1997:1). The survey area included the Centerboard Wreck, but details of this wreck were not included in the project report (Watts pers. comm. 2020). Staff from ECU imaged the wreck using sidescan sonar and it was later inspected by students during the 2004 ECU field school during a quick exercise in recording blackwater sites (Seltzer 2004; Richards 2005). Though a short report was created for the exercise much of the data recovered through the survey was inaccurate (Seltzer 2004). For example, the stem assembly was erroneously thought to be the stern assembly and the stern assembly of the vessel was not identified. The first extensive survey of the Centerboard Wreck was undertaken in 2020 during ECU's Fall field school. Multiple survey days were dedicated specifically to the Centerboard Wreck which allowed students to obtain accurate data at the site.

Site Description

The Centerboard Wreck site is located off the south bank of the Pamlico River across from the historic port of Washington, North Carolina. The wreck is completely submerged in blackwater at high tide and the top of the centerboard case is exposed at low tide. The site is positioned within a small cove which also contains the remains of at least one historic pier and a

second shipwreck. The remains of the pier are noted on historic charts as early as 1872 and can be partially seen at low tide (FIGURE 34). The second shipwreck is disarticulated and has not been previously surveyed.

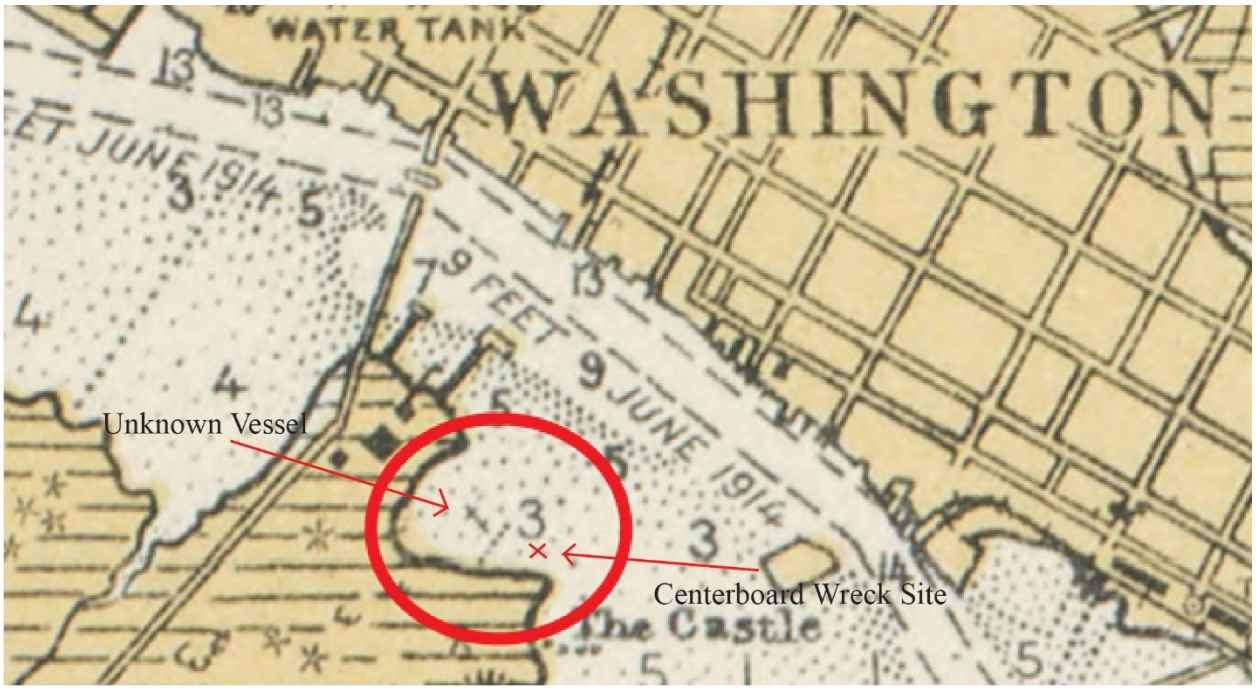

FIGURE 34. A 1915 Chart of Washington waterfront showing an abandoned pier and an unknown vessel. Note the Centerboard Site is located on the opposite side of the pier remnants and the shipwreck icon (Amended from U.S. Coast and Geodetic Survey 1915).

The Centerboard Wreck site is also located approximately 365 m (1198 ft.) west of Castle Island, around which the remains of at least 11 shipwrecks are located. This ship graveyard was documented over the course of three field seasons beginning in 1998 by staff and students from ECU. At least two of the wrecks are likely related to North Carolina's historic oyster industry and one, vessel number 10, shares similar features to the Centerboard Wreck. The detrimental effects of Hurricane Floyd in 1999, however, caused significant changes to the underwater environment and only a few of the sites could be relocated. Unfortunately, vessel number 10 was likely reburied and could not be relocated for the purposes of collecting new data for this case study (Rodgers et al. 2006).

Site Environment and Conditions

North of Morehead City, North Carolina's rivers flow into either the Pamlico or Albemarle sounds. The Outer Banks, a series of barrier islands, form the eastern border for the two sounds. The Pamlico Sound is the largest in North Carolina and is approximately 128 kilometers (80 miles) long and varies between 24 to 48 km (15 to 30 miles) wide. Water depth in the sound varies between 4 to 7 m (14 to 24 ft.). Many of the Pamlico Sound's environmental factors, including tide and saltwater inflow, are carried through the Pamlico River and directly affect the Centerboard Wreck site (Marshall 1951:3-6).

Fresh water from the Tar River eventually meets the salt water of the Pamlico Sound at Washington and becomes the Pamlico River. The Tar River widens as it reaches the head of the Pamlico River -. Algal blooms are also a common occurrence in the Pamlico River and are attributed to high levels of nitrates within the runoff water from the coastal plain (Giese et al. 1979:112-113). Visibility within the Pamlico River is frequently restricted by algae, turbidity from storms, suspended particulates, and tannins. Salinity in the Pamlico River fluctuates with tidal currents and the amount of freshwater flow, however, a brief influx of saltwater from the Pamlico Sound during rising tides is common on the Pamlico River at Washington (Giese et al. 1979:122-128; Rodgers et al. 2006:8). Up to approximately 15 cm (6 in.) changes in visibility were noticed on the Centerboard Wreck site as the tide came in from the Pamlico Sound.

The most significant factor on both the Pamlico River and Pamlico Sound is wind which can create significant fluctuations in water depth in the sounds and connected rivers. These fluctuations can cause tidal changes greater than 1.2 m (4 ft.) with a direct westerly or easterly wind on the Pamlico River at Washington. Locally known as a "blowout", prolonged westerly winds are known to push water out of the river causing abnormally low tides of the Pamlico

River at Washington. Blowouts typically expose many of the submerged wrecks located near the riverbank, including the Centerboard Wreck, for a limited time. Blowouts can be beneficial for archaeologists to locate and examine the wrecks, however, they also expose submerged archaeological sites which can exacerbate deterioration and expose the site to looters. The direct effects of these blow-outs and non-archaeological interaction on the wreck sites are unknown. Due to the scarcity and transient nature of blowouts, they are not used as an ideal opportunity to fully survey the shipwrecks (Marshall 1951:10-11; Rodgers et al. 2006).

Besides the occasional blowout from westerly winds, hurricanes can cause extreme variations in the water height of the river. For example, the Pamlico River rose 2.1 m (7 ft.) above the low tide line at Washington from the effects of Hurricane Hazel in 1955 (Rodgers et al. 2006:7). The forces of hurricanes can have detrimental effects on shipwrecks which include severe damage, complete relocation, and reburial of previously exposed wrecks. Although it is likely that these environmental factors have affected shipwreck sites in unknown ways, the shipwrecks in the study area seem to have little damage from hurricanes (Rodgers et al. 2006; Jones 2012).

Methodology

Collecting data from the Centerboard Wreck site involved multiple teams of divers in the water at one time operating according to ECU's Office of Diving and Water Safety protocols. Although the wreck site is shallow enough to stand, SCUBA was used to provide teams time underwater to collect more accurate data. An ECU vessel transported divers to and from the site each day and a dive safety officer was present for all data collection.

Nonintrusive survey methods were implemented for data collection during the Centerboard Wreck investigation. To obtain accurate data from the wreck site a variety of

archaeological surveying and recording methods were employed including baseline offset survey, measured sketches, hand fanning, and artifact photography. Traditional methodologies were chosen based on the shallow environment, limited visibility, and small number of team members. Limited advanced methods were used to obtain data because of the isolated area in which the wreck site is located. A GPS point was taken at the site to establish the shipwreck location for ease of finding the location each day. The wreck was imaged in 2021 using an Edgetech 4125 Side Scan Sonar through an Advanced Archaeological Methods course and provided precise geodata at the site (FIGURE 35).

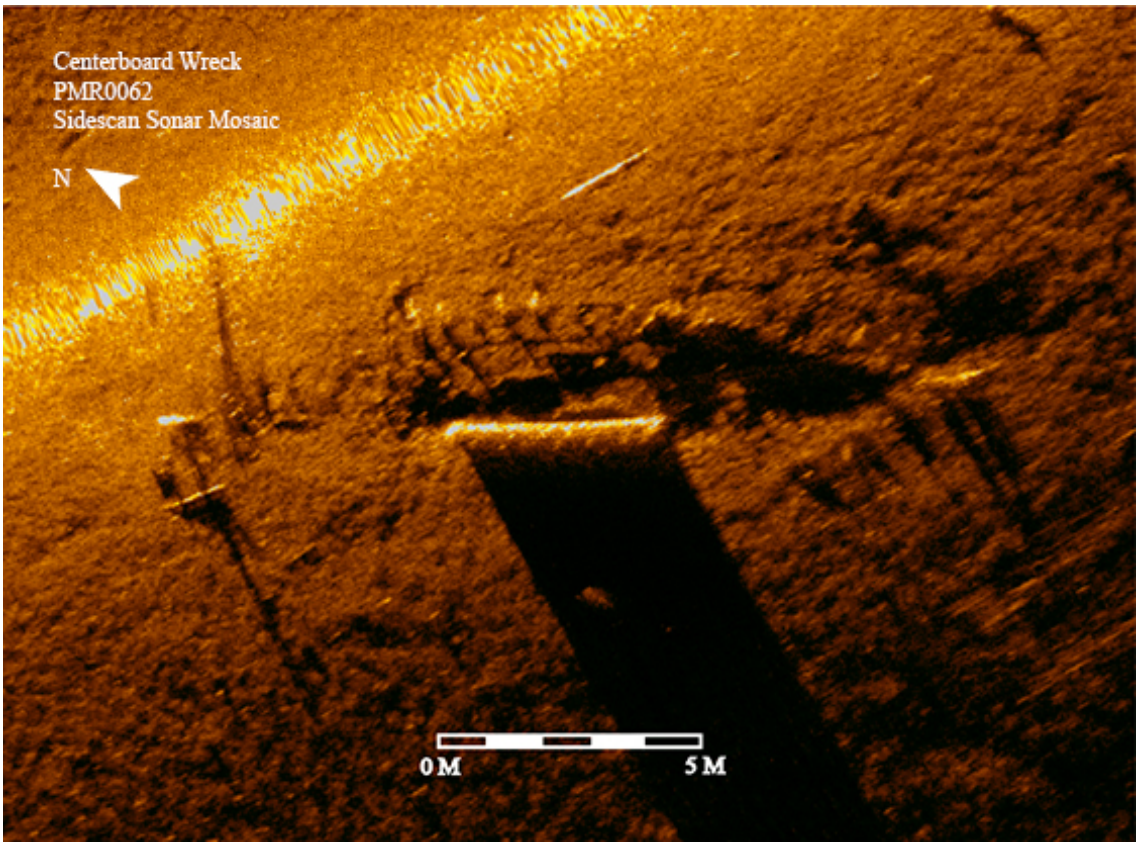

FIGURE 35. A 1600 kHz side scan sonar mosaic image of the Centerboard Wreck (Image Courtesy of ECU Program in Maritime Studies).

Since many features of the Centerboard Wreck's lower timbers are intact, methods for obtaining spatial data included taking offset measurements from a baseline. The zero end of the

baseline was placed directly aft of the stern while its opposite end was placed directly in front of the stem. Researchers used a measuring tape and a stadia rod to take offset measurements from the baseline to data points, which included framing stations, artifacts, large timbers, and the inner and outer hull planking. Separate teams using traditional measuring methods recorded the stem and stern assemblies, as well as the centerboard case. These features were later drawn to scale and digitized.

Processing Data

Since the Centerboard Wreck is submerged in black water and partially covered by sediment, traditional survey methods were implemented instead which relied on fixed datum points along the baseline of the shipwreck. Although measuring 90° angle distances from the baseline to an object provides information, even slight changes to the underwater environment can have a negative impact on the accuracy of the data. This means that there will always be some level of inaccuracy when using traditional survey methods to collect data (Adkins and Adkins 1989:83-84).

The scale drawings of timbers and artifacts, along with the baseline measurements taken on the site, were used to hand draw a scaled site plan of the Centerboard Wreck. A high-resolution image of the site plan was imported into Adobe Illustrator to create a vectorized site plan. Consisting of multiple changeable layers, the site plan was then compared to historic images, lines drawings, and similar shipwrecks.

Vessel Construction

Although the centerboard case is the most defining feature of the wreck, river sediment preserved many of the vessel's backbone construction features. A vessel's hull is a composite structure comprised of timbers that provide strength and integrity. The backbone typically

consists of a keel, stempost, sternpost, and frames (Greenhill 1988:112). Along with these timbers, traditional wooden vessel components also include deck beams, knees, breasthooks, and clamps. The strakes of outer hull planking start at the keel and continue up the frames to the deck. The remains of the Centerboard Wreck, however, only include the components from the centerboard well down to the keel. There are no identified deck beams or knees remaining on the vessel (Greenhill 1988:112).

The lower portion of the hull structure of the Centerboard Wreck is well preserved within the mud of the Pamlico River. The wreck measures approximately 15.6 m (51 ft.) in length and is roughly 5.2 m (17 ft.) abeam. The vessel has a moderately flat bottom with no hard chine. Although both the port and starboard sides of the vessel remain intact, the starboard side aft of the centerboard case is disarticulated. Construction features recorded on the site include the stem assembly, stern assembly, centerboard case, and frames. The lower portions of both the stem and stern assemblies are present and remain attached to the keel. The most noticeable extant portion of the wreck is the intact centerboard case which measures 4.15 m (13.6 ft.) long. Twenty-six paired frame configurations were counted on the vessel. Other recorded features include the forward and aft mast steps, the main mast stump, and the rudder.

Keel

An integral piece of the backbone, the keel is the most important construction feature of a wooden vessel and is typically a single timber that spans its entire length of the vessel. Frames are placed on top of the keel to provide more durability and a keelson is placed on top of the frames to further hold the frames. A small groove, known as a rabbet, is cut directly into the length of the keel, which continues into the stem and stern assemblies. The rabbet is used to receive the ends of the planks (Greenhill 1988:104). The keel of the Centerboard Wreck is

submerged within the mud and is covered by the keelson and ceiling planking. Just aft of the centerboard case, however, there is a missing plank that exposes frames, outer hull planking, and the top of the keel. The top portion of the keel is rounded and measures roughly 20 cm (7.9 in.) in width.

Keelson

As an integral timber to the backbone of a wooden vessel, the keelson would often be one long single timber. Sometimes, however, when an ideal tree could not be found to create the timber, it would be constructed in two pieces and connected by a scarf joint. The keelson was placed directly on top of the floor timbers. Larger ships would sometimes have another timber called a rider keelson placed on top of the first keelson or sister keelsons placed on the sides of the keelson (Greenhill 1988:126). These are lacking from the Centerboard Wreck which only has one keelson.

The keelson is almost entirely exposed throughout the wreck site though it is partially submerged by sediment amidships. It is roughly 15 m (49 ft.) long and ranges in width from 18-20 cm (7.1-7.9 in.). The port side of the keelson becomes significantly narrow, measuring roughly 12 cm (4.7in.), where it meets the centerboard case. Though it was not possible to ascertain on site because of the deep sediment and concealing ceiling planking, the narrowing suggests that the centerboard case is notched into the starboard side of the keel and keelson. The keelson continues into the stem and stern assemblies where it connects to other timbers. In the stem, however, the forward mast step is placed directly into the keelson.

Frames

Multiple frames are placed over the length of a wooden ship, directly bolted to the keel, to give the hull shape and provide overall integrity. Paired frames consisting of multiple futtocks were commonly used on round bottom 19th century wooden vessels and are key diagnostic construction features of the Centerboard Wreck (Greenhill 1988:103-109). While multiple paired frames were recorded amidships, singular frames were documented at both ends; the single frames at the stem transition to paired frames at the fourth frame toward amidships and the final two frames at the stern are single frames. Because of the degradation of the wreck, the ceiling planking, and covering sediment, it is unknown how many more futtocks were used to build the frames of the vessel. Also due to the limiting environmental and structural factors, the exact number of frames is unknown. Although it was possible to determine that the wreck was double framed throughout, however, only one frame end was typically exposed at each framing station. 26 frame ends were recorded on the port side of the wreck as opposed to 21 on the starboard side (FIGURE 36).

The frame ends measured on average 8 cm (3.1 in.) sided and 10 cm (3.9 in.) molded. A small gap between exposed futtock ends varied due to deterioration but this measured on averaged to roughly 7 cm (2.8 in.). There is approximately 30 to 40 cm (11.8 to 15 in.) of space between frames. The baseline offset and scantling measurements of recorded frames are listed in Appendix A. Notably, a concreted tar substance is present between frames in the aft part of the vessel. The substance appears to be formed to the dimensions of the frames, which means it was likely poured into the space. A detached portion of the substance was recovered for documentation and later returned to the site. The concretion varied in size but is 24 cm (9.4 in.)

long and contains an outline of a frame that measures 15 cm (5.9 in.) long and 6 cm (2.4 in.) wide.

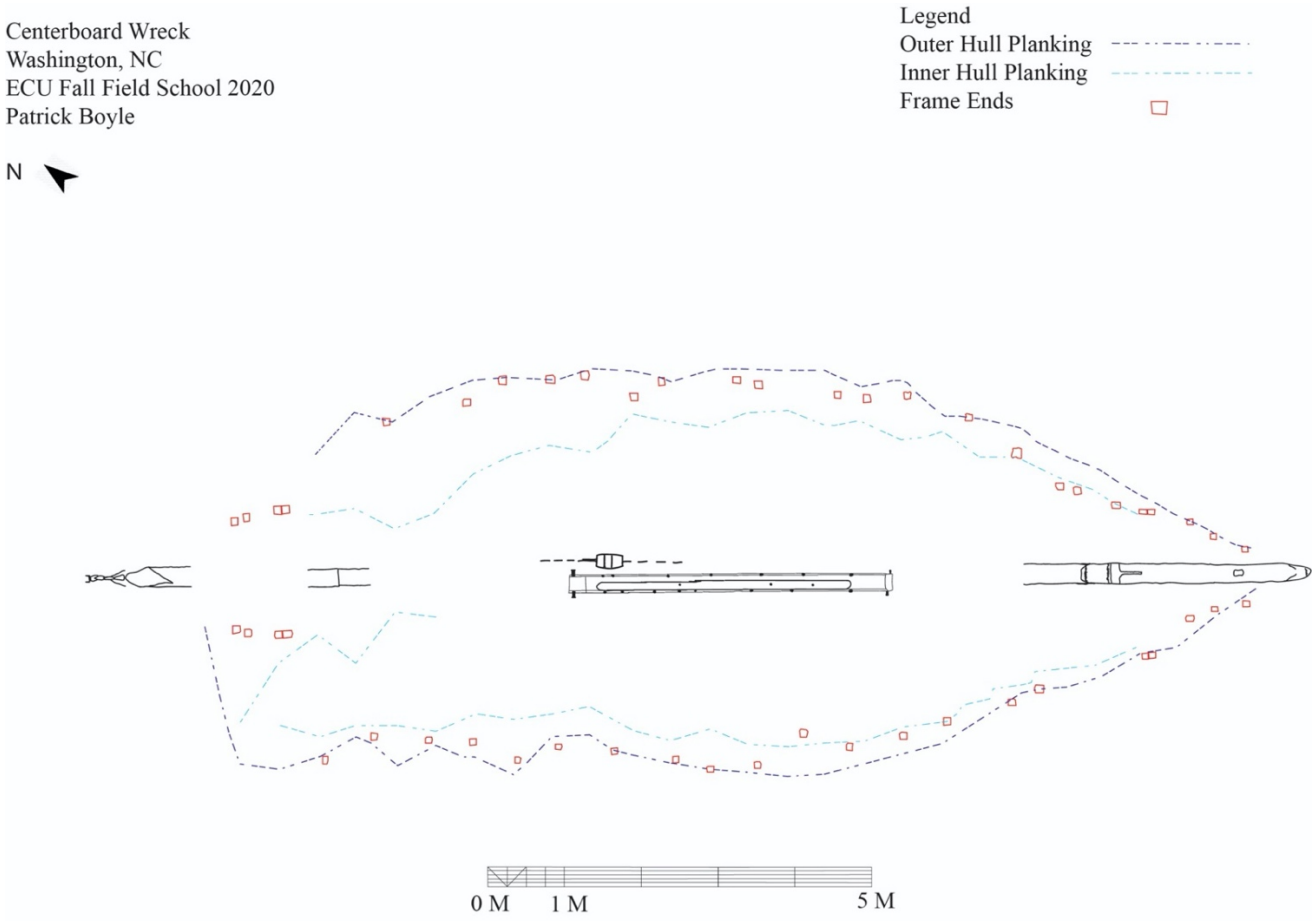

FIGURE 36. Highlighted depictions of the outer and inner hull planking as well as frame ends on the Centerboard Wreck. Note the inner hull planking is colored light blue while the outer hull planking is colored dark blue. The frame ends are colored in red (Drawing by author).

Hull Planking

Because the wreck is almost completely buried in sediment, the outer hull planking could only be examined in a few areas around the wreck site. At least two strakes of outer hull planking can be felt at the framing station ends, but a third strake was noted amidships at the top of the sediment. The sided dimensions of these planks were 2 to 3 cm (0.8 to 1.2 in.) and the

molded dimensions ranged from 12.5 to 26 cm (4.9 to 10.2 in.). Hull planking extends throughout the vessel and its hooded ends terminate at the rabbet of the stem and stern.

Ceiling Planking

Seven ceiling strakes are located on the starboard side of the vessel with at least five ceiling planks on the port side. These consistently measure to approximately 25 cm molded (9.8 in.) and 3 cm (1.2 in.) sided. The ceiling planks are broken and missing near the stem but can be felt 50 cm (19.7 in.) from the stem on the starboard side and 1.5 m (4.9 ft.) on the port side (FIGURE 37). The aft portion of the vessel has sustained heavy damage and the disarticulation made it difficult to determine which components are ceiling planking. It is possible, however, to feel the planks terminate at the stern within the rabbet of the keel.

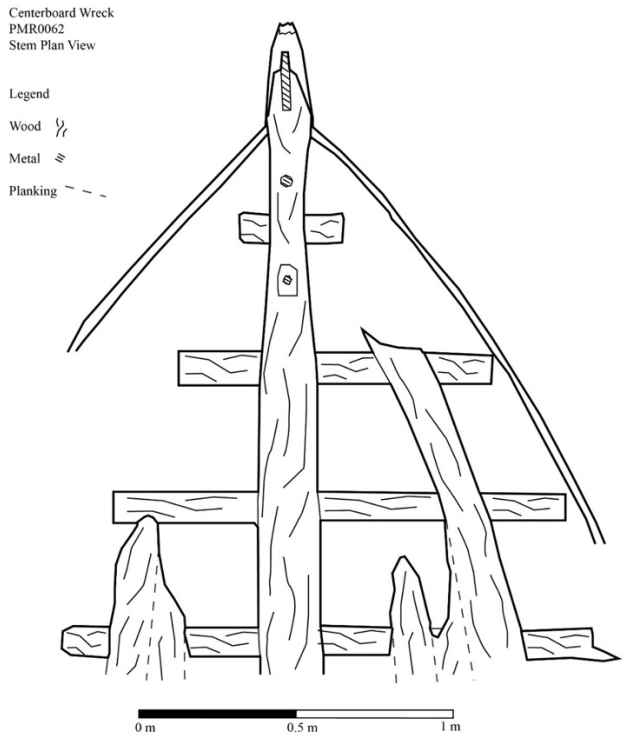

FIGURE 37. Plan view of the stem section of the Centerboard Wreck (Drawing by author).

Stem Assembly

Both the stem and stern assemblies of wooden boats are constructed out of multiple timbers which are connected to the ends of a keel. Although these timbers are common on all wooden vessels, they are highly diagnostic features since they vary from ship to ship and from builder to builder (Greenhill 1988:104). Though much of the vessel is buried within river sediment, roughly 55 cm (21.7 in.) of the stem feature is exposed above the seabed (FIGURE 38). The vessel's stem is composed of three timbers that are connected by a bolt measuring approximately 60 cm (23.6 in.) long 3 cm (1.6 in.) in diameter. The aft timber is likely the apron which is placed to reinforce the middle timber which is the stem. The forward timber is likely the lower portion of a cutwater (Brewington 1963:41). These timbers are angled at approximately 60° which is consistent with the stems of Chesapeake Bay vessels. One frame is positioned on either side of the stem assembly and serves as the first frame of the vessel. They are instead connected directly to the stem assembly or keel (Greenhill 1988:101-103).

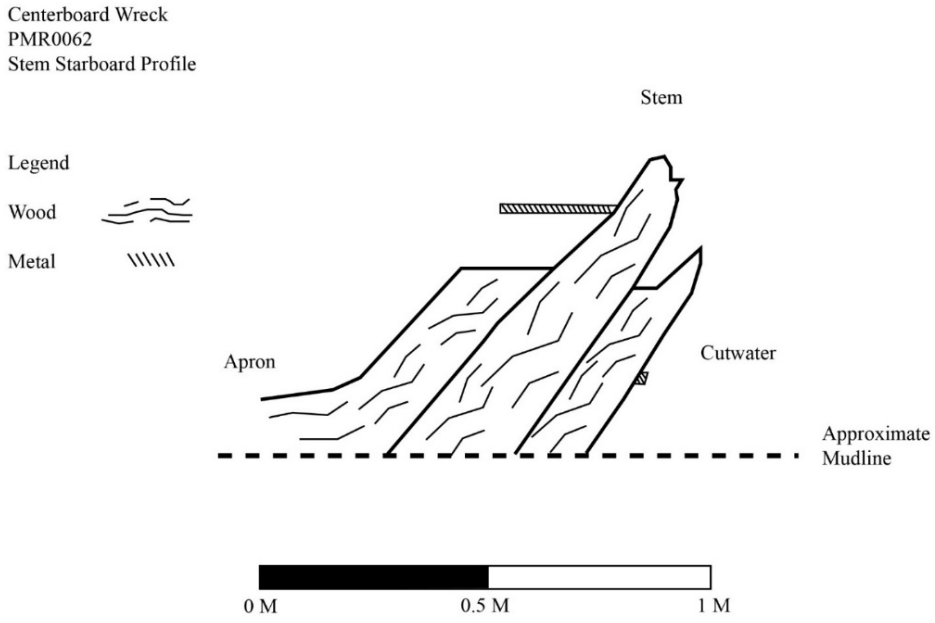

FIGURE 38. Plan and profile drawings of the Centerboard Wreck stem (Drawing by author).

Stern Assembly

Like the stem feature, much of the lower stern assembly is intact and protrudes approximately 90 cm (35.4 in.) from the sediment (FIGURE 39). The stern assembly is comprised of two large timbers connected by a through bolt. The outer timber is likely the sternpost while the inner timber is either an inner stern post or the upper arm of a stern knee (Greenhill 1988:104). The vessel's keelson connects to the base of the stern assembly where a deadwood timber joins the two timbers. The deadwood timber measures about 70 cm (27.6 in.) in length.

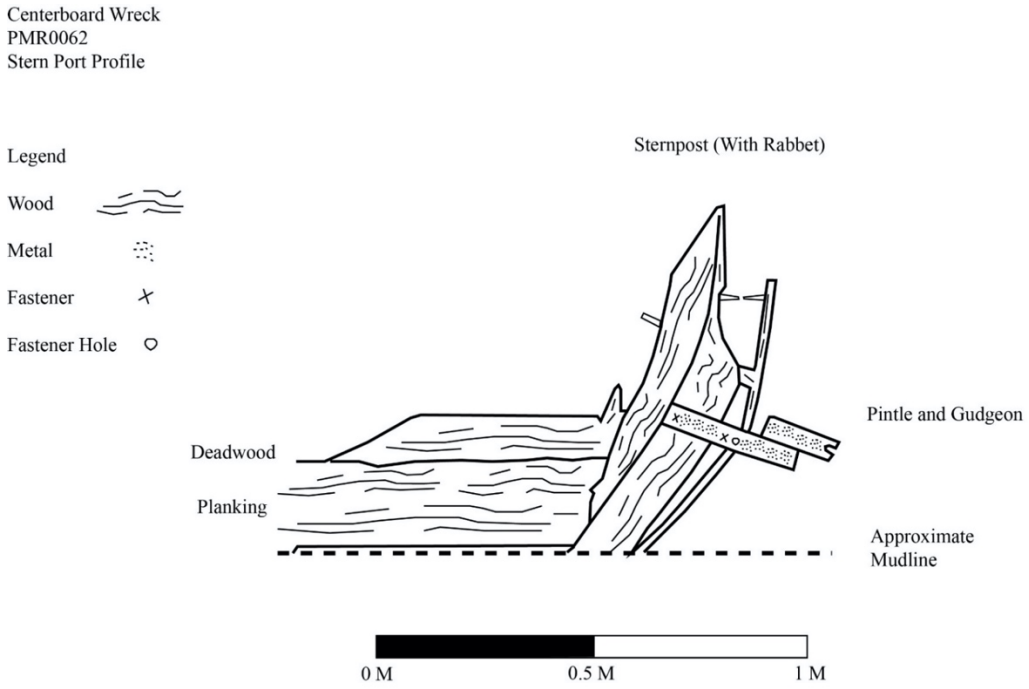

FIGURE 39. Drawing of the Centerboard Wreck sternpost with detail of deadwood, planking, rabbet, pintle, and gudgeon (Drawing amended from Robbins 2020).

Three fasteners were noted on the stern feature; however, their precise measurements were not recorded. The two smaller fasteners are likely to have been one single bolt but eroded into two separate pieces. Like the stem feature, there is one large bolt connecting the two stern timbers. The pintle and gudgeon remain connected to the sternpost by two fasteners. The pintle is made from a copper alloy and measures 24 cm (9.4 in.) long and 5 cm (2 in.) wide while the fasteners are both 3 cm (1.2 in.) in diameter. The sternpost has a 15º rake of stern which is also consistent with some Chesapeake Bay vessel types (Chapelle 1975:131).

Centerboard Case

Centerboards were a common feature on small boats and large schooners in the mid-Atlantic region. The centerboard acted as a retractable extension of the keel and was housed inside a large box, known as the centerboard case or well, which was built directly into the keel of the ship. When the centerboard was lowered in deep water, it would counteract the heavy lateral force that wind put on the sails. In turn, the vessel would be able to maneuver better when heading into the wind. The centerboard could also be retracted to allow the vessel to travel in shallow areas. The centerboard was a groundbreaking invention because a shallow drafted vessel could have many of the sailing benefits as a deep drafted vessel yet still be able to traverse shallow areas (Chapelle 1941:154-157).

Centerboard slots were either cut straight through the keel and keelson or were placed offset to the keel and reinforced by sister keelsons to avoid weakening the overall structure (FIGURE 40). Offset centerboards were a common variation in the later bugeye types that were fully framed and planked (Brewington 1963:45). Centerboard cases are typically rectangular and contain a large pivot pin at the lower forward end from where the centerboard pivots. The

centerboard is lowered by a rope that is connected to a metal plate at the upper aft end of the board (Chapelle 1941:154-157).

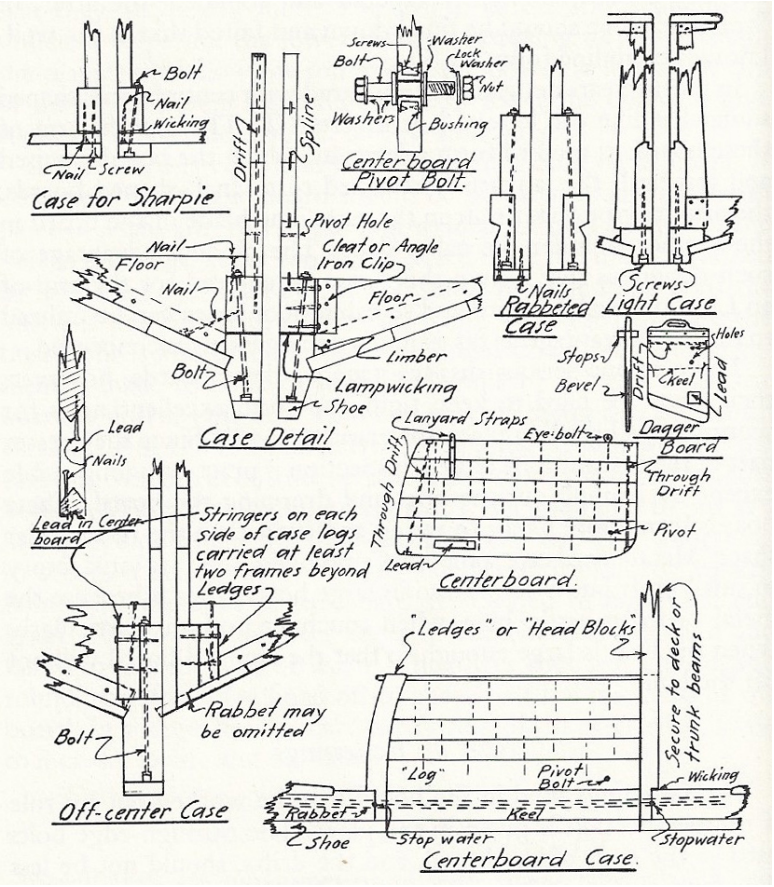

FIGURE 40. Depictions of commonly built centerboard cases. Note the pivot bolt depiction in the upper center. The bottom left depiction shows the construction of an offset centerboard case (Chapelle 1941:156).

The centerboard case is the most prominent feature of the Centerboard Wreck (FIGURE 41). It is located amidships, is offset to the starboard side of the keel, and measures 4.15 m (13.6 ft.) in length. Sister keelsons were not recorded on site; however, it is possible that these were mistaken as ceiling strakes. The forward section of the centerboard case is 1.15 m (3.78 ft.) high while the aft height measures 1.05 m (3.4 ft.). The starboard side contains four planks, measuring 20 cm (7.9 in.) in width, while one is missing from the port side leaving only three. The aft sections of the uppermost planks are damaged on both sides.

Two vertical timbers are placed at the ends of the case and are approximately 75 cm (29.5 in.) long and 15 cm (5.9 in.) wide. There are twelve exposed vertical copper or copper alloy bolts protruding from the upper planking of the case and range from 12 to 14 cm (4.7 to 5.5 in.). They are inconsistently spaced from 50 to 60 cm (19.7 to 23.6 in.) on both sides and have diameters ranging from 2 to 2.5 cm (0.79 to 0.98 in.). The centerboard itself is present within the case measures 9 cm (3.5 in.) in thickness and 3.25 m (10.7 ft.) in length.

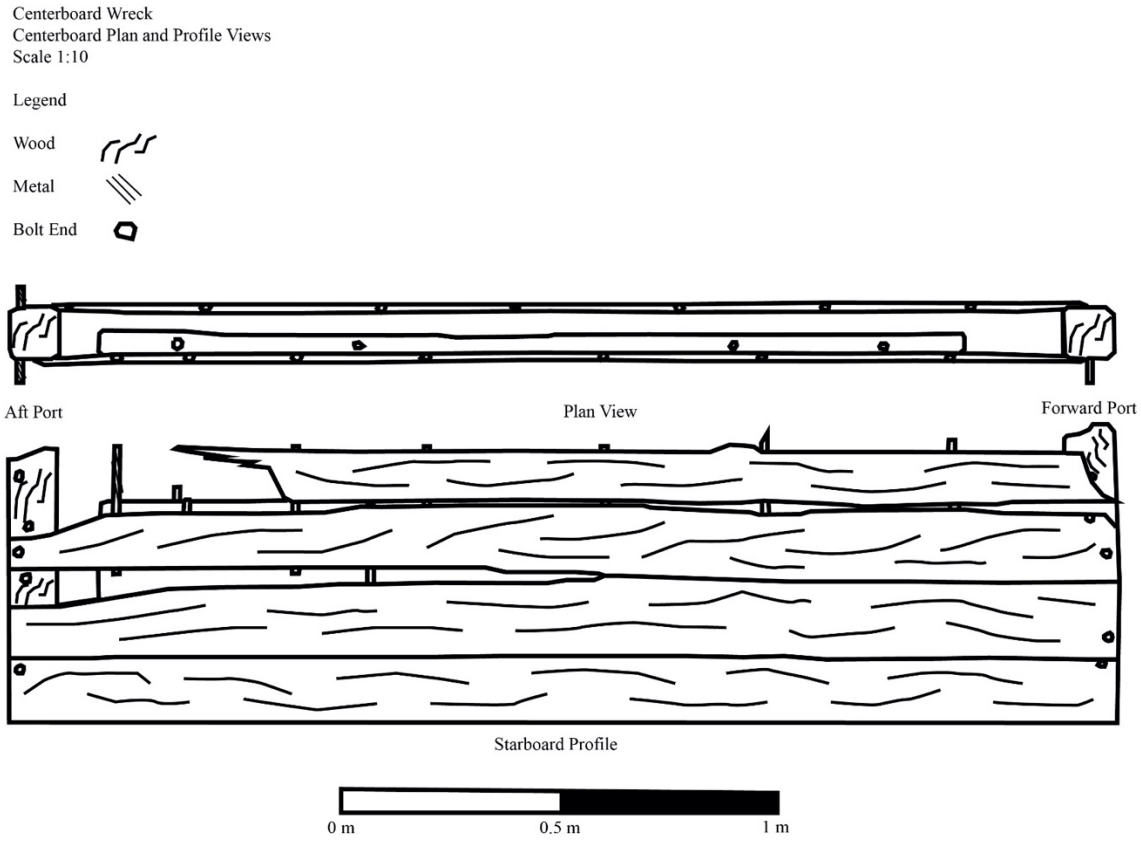

FIGURE 41. Plan and profile drawings of the Centerboard Wreck's centerboard case (Amended from Robbins 2020).

Mast Stump

The lower portion of the mainmast was found lying along the centerboard case on the port side of the wreck. This portion of the mast contains the remains of a tenon that measures 30

cm (11.8 in.) long and 8 cm (3.15 in.) wide and 10 cm (3.9 in.) deep. No tool marks are present on the upper end of the mast stump, and it appears to have been broken off rather than cut. The overall length of this timber is 1.32 m (4.3 ft.) from the base of the tenon to the uppermost extant edge and it measures 30 cm (11.8 in.) in diameter. The lower portion of the mast is eight sided and the octagonal shape is a distinct feature of wooden masts created by squaring a cylindrical timber and trimming the corners with an adze (Greenhill 1988:166-167). Though finding a mast on a shipwreck site is uncommon, the Centerboard Wreck mast stump was likely preserved because it is mostly suspended in the mud and is protected by the centerboard case and surrounding exposed frame stations.

Mast Steps

A mast step is typically a heavy block of hardwood in which a mortise is cut to receive the bottom of the mast. The steps are usually placed on top of the floor timbers and either connected directly to them or to the keel using bolts, spikes, or nails. The mast step mortise runs fore and aft which allows the tenon from the mast to be adjusted. This also allows the mast to be raked, or angled slightly aft, if needed (Chapelle 1941:406).

The Centerboard Wreck features two mast steps. These are not separate blocks of hardwood but are instead large gaps cut into the keelson. The forward mast step is located 2 m (6.6 ft.) aft of the stempost and is centered on the keelson. Rectangular in shape and measuring roughly 12 cm (4.7 in.) by 30 cm (11.8 in.), it is placed directly over a set of single frames that do not have a floor timber. The main mast step is located 8 m (26.2 ft.) along and 17 cm (6.7 in.) off the port side of the baseline. The step measures 36 cm (14.2 in.) long and 13 cm (5.1 in.) in width in the center but tapers to 10 cm (3.9 in.) at the ends. This mast step, or gap in the keelson, is noticeably situated over one of the frames. The location of this mast step is notable in that it is

not in line with the forward mast step and is slightly offset to port. It is also only halfway cut into the keelson. The other half of the main mast step is cut into a timber running parallel to the keelson. Though this latter timber was originally thought to be a ceiling plank, it could potentially be a sister keelson.

Rudder

Rudders allow a vessel to steer when underway and are typically constructed from multiple pieces of wood and shaped to a specific size and profile. A variety of different rudders were used on historic wooden boats and were built to the specifications of the shipbuilder. The rudder is connected to the aft side of the sternpost with pintles and gudgeons and is controlled by either a hand tiller or a mechanical steering system (FIGURE 42). Typically, specific rudders were used on each vessel type, and they varied largely by region (Chapelle 1941:160-163).

The Centerboard Wreck's rudder is present but is detached from the sternpost and buried underneath sediment directly aft of the stern assembly. The rudder consists of three different timber pieces, which are fastened together. The rudder itself measures 1.66 m (5.45 ft.) long and varies in width from 1.01 m (3.31 ft.) at the base to 72 cm (28.3 in.) in the middle and gradually curves at the top which measures 13 cm (5.1 in.). The rudder is equipped with pintles that were used in conjunction with a gudgeon to connect the rudder to the sternpost of the vessel (FIGURE 43). A pin was typically used to run through the pintles and gudgeons so that the rudder could move freely without straining itself (Chapelle 1941:160). The overall design of the rudder is like the rudders used on Chesapeake Bay oyster boats.

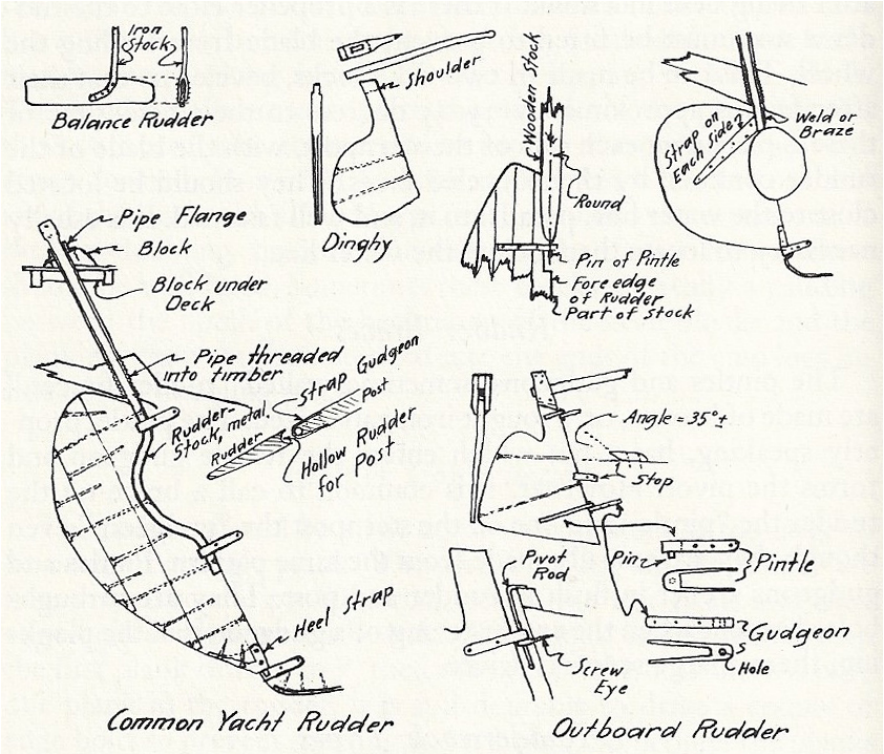

FIGURE 42. Depictions of yacht and outboard rudders (Chapelle 1941:162).

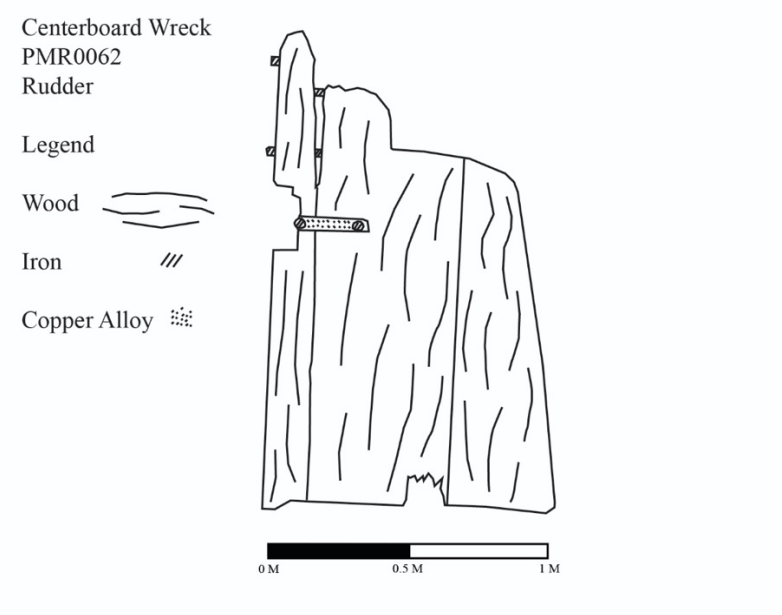

FIGURE 43. The rudder found detached on the Centerboard Wreck (Drawing amended from Raupp 2020).

Construction Features Summary

The centerboard wreck contains a significant amount of diagnostic evidence from which a determination of hull form, and use, can be made. The offset centerboard case, placement of the mast steps, and the style of the rudder show that the Centerboard Wreck has many similar construction features from the Chesapeake Bay region. Examining just one of these features can provide information about the vessel, however, examining all features together can provide evidence to determine the type of vessel and which environment it was built (FIGURE 44). Construction of watercraft often depict clear technological advancements of maritime cultures. It is therefore essential to examine the remains of the wooden vessel to understand the shipwreck (Muckelroy 1978:3).

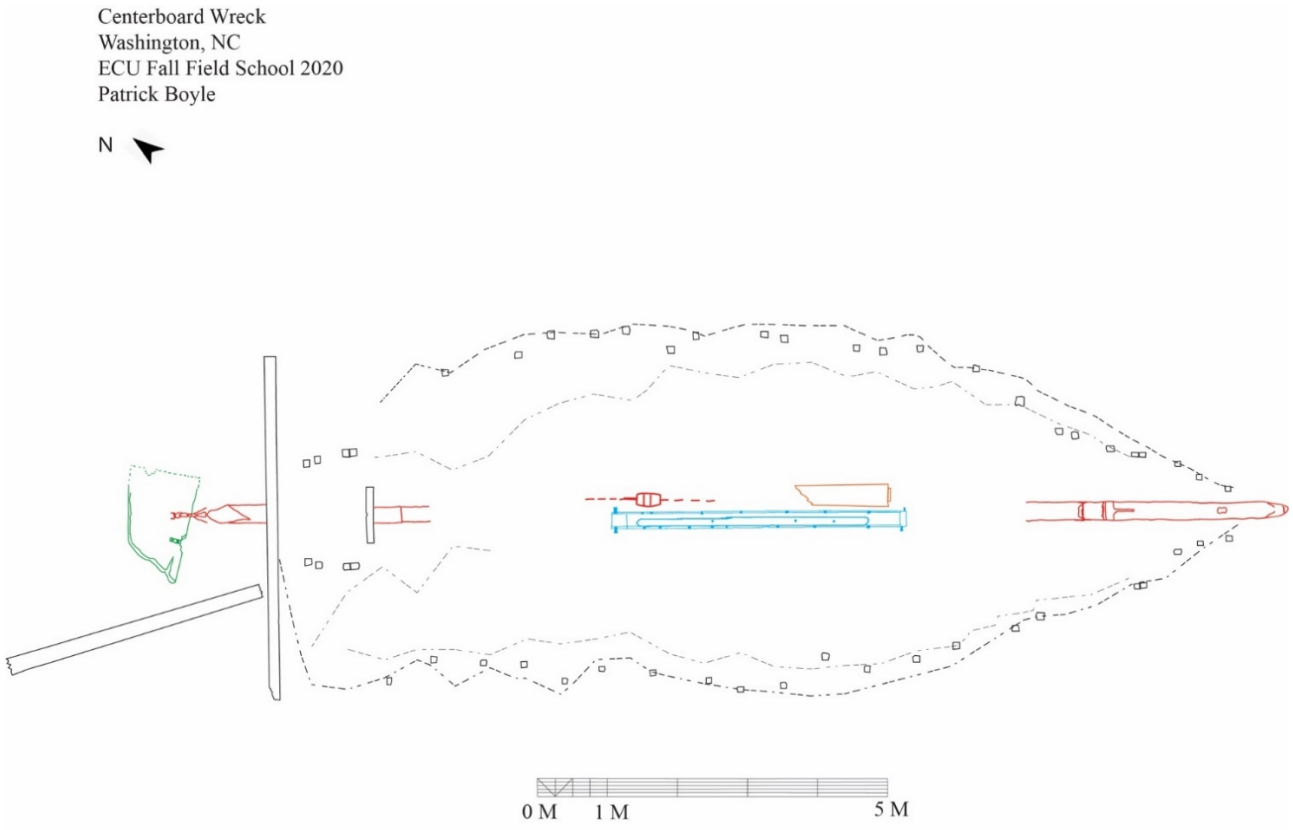

FIGURE 44. Highlighted depictions of the keelson (red), mast steps (red), centerboard case (blue), and rudder (green) on the Centerboard Wreck (Drawing by author).

Artifact Analysis

Thirty-six artifacts were discovered and recorded at the Centerboard Wreck site (FIGURE 45). The position of each artifact was recorded *in situ* and temporarily removed for documentation. Each artifact was individually drawn, measured, and photographed before being replaced at their original location on the site. Many of the artifacts are not identifiable and possibly intrusive. Although not each artifact is analyzed within this section, a complete inventory of the recorded artifacts and accompanying photographs can be found in Appendix B. Identifiable artifacts directly related to ship construction, rigging of the vessel, and oystering tools are discussed within this section.

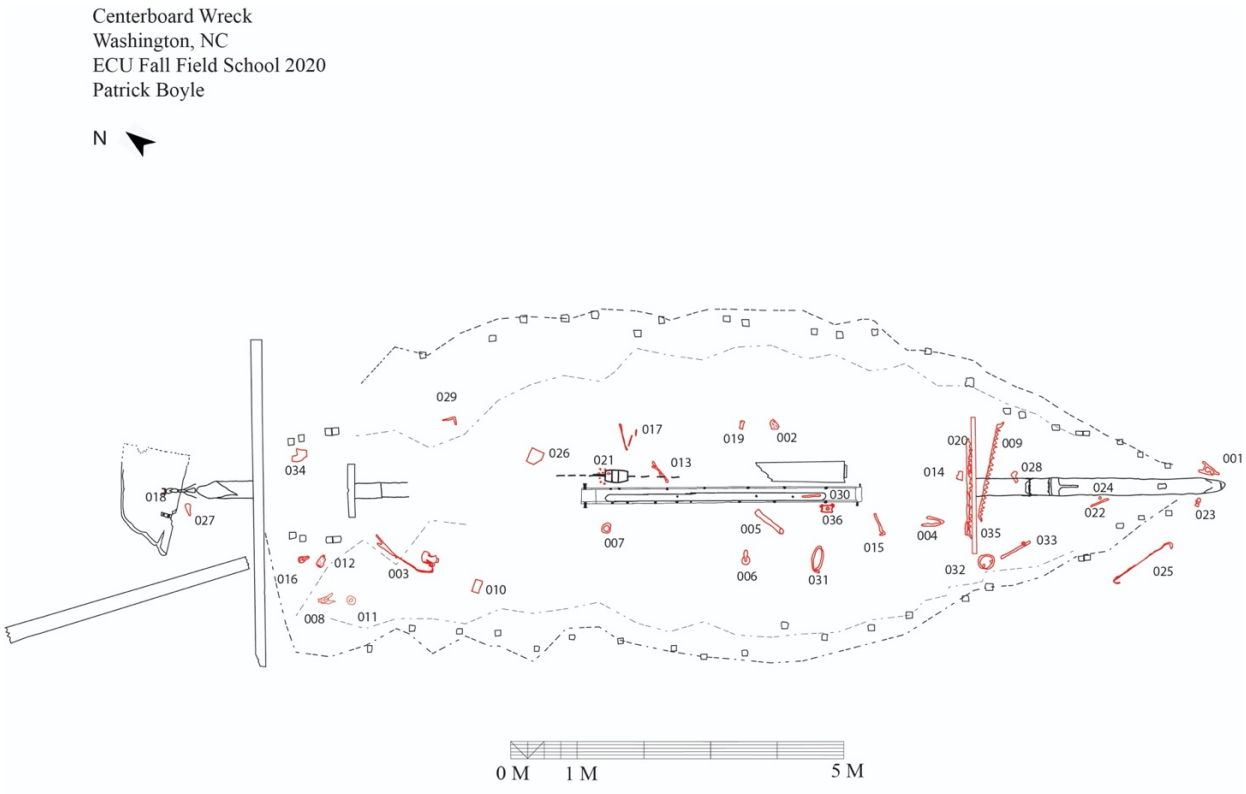

FIGURE 45. Centerboard Wreck site plan with artifacts labeled and highlighted in red (Drawing by author).

Copper-alloy Bolt (62.20.030)

A copper-alloy bolt was found on top of the centerboard case (FIGURE 46). The bolt is slightly bent near the head and measures approximately 25 cm (9.8 in.) in length and 1.5 cm (0.6 in.) in diameter. Though no threads are evident, a square 4 cm (1.6 in.) fastener is still attached to the bolt. Copper-alloy bolts were often used for constructing centerboard cases because they were more resistant to corrosion (Chapelle 1941:241).

FIGURE 46. A copper bolt found on the centerboard case of the Centerboard Wreck (Photo by author).

Bulkhead Timber (62.20.035)

A single bulkhead timber was found on the Centerboard Wreck site (FIGURE 47). It runs perpendicular to the keelson and is situated 1.65 m (5.4 ft.) forward from the centerboard case. The bulkhead timber measures 2 m (6.6 ft.) in length and 7 cm (2.8 in.) in width. No bolts, nails, treenails, or screws were found on the timber and did not seem to be directly attached to the keelson. The ends of the timber are angled slightly and fit against the inner hull planking,

suggesting that it was purposely fit in this area. It was likely used as a strengthening timber and was kept in place by ceiling planking.

FIGURE 47. A bulkhead timber found aft of the forward mast step on the Centerboard Wreck (Photo by author).

Bobstay Fitting (62.20.001)

One of the first artifacts to be found on the site was a bobstay fitting, which was located just forward of the stem assembly outside of the wreck (FIGURE 48). The fitting is highly corroded measures roughly 37 cm (14.6 in.) in length and 5 cm (2 in.) in width. The eyelet of the bobstay is still intact, and the diameter of the hole measures 3 cm (1.2 in.). Bobstay fittings served as part of a system of stays in the head rig of sailing vessels (Chapelle 1941:543). They were positioned at the forward end of the stem post and a rope or chain connected the eyelet of the fitting to the forward end of the bowsprit (FIGURE 49).

FIGURE 48. A bobstay fitting found near the stem assembly of the Centerboard Wreck (Photo by author).

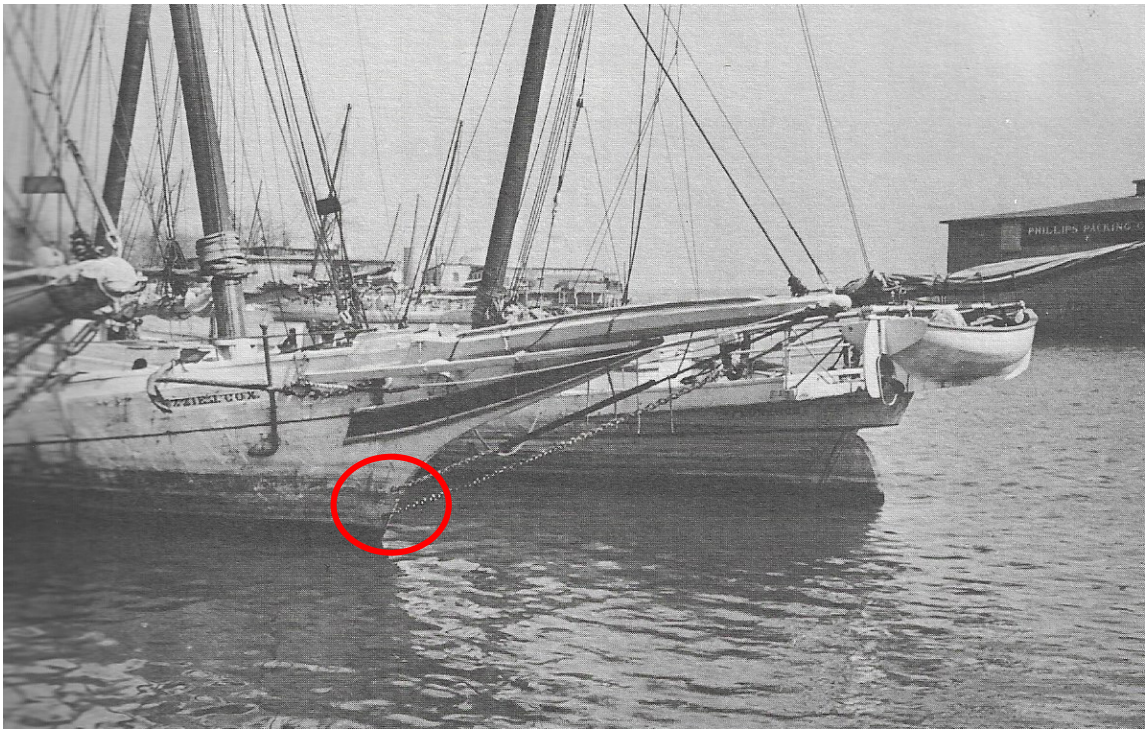

FIGURE 49. The Chesapeake Bay bugeye *Lizzie Cox* that has two bobstay fittings connected to the stem. Note the chains connected from the bobstay fittings to the forward end of the bowsprit (Adapted from Brewington 1963:41).

Wire Rope Pieces (62.20.017)

Three sections of wire rope were recorded on the site (FIGURE 50). Although they were slightly concreted, some exposed sections that showed the inner twisted strands of the cable. The largest piece of cable measured 52 cm (20.5 in.) in length and 3 cm (1.2 in.) in diameter. Strong wire rope first developed in Great Britain in the early 19th century and quickly replaced manilla line due to its higher tensile strength and versatility (Chapelle 1941:575; Martin 1992:101). The wire rope found on site was likely used in the rigging of the vessel, however, it may also have been used to for dredging.

FIGURE 50. Wire rope pieces found on the Centerboard Wreck (Photo by author).

Iron Pulleys (62.20.006 and 62.20.016)

Two iron pulleys were recorded at the Centerboard Wreck site (FIGURE 51). Though all identified artifacts were slightly corroded, the general structure of these objects was still recognizable. One of the pulleys appears to have a wheel which would have spun while a rope or cable was put through it (FIGURE 52). Pulleys and blocks were used for a variety of different purposes on board wooden ships. Oyster boats specifically used pulleys for rigging, dredging, and even lifting the centerboard (Brewington 1963:64). Although it is unknown what these

pulleys were used for specifically, it is likely they were part of the rigging of the vessel (Brewington 1963:64).

FIGURE 51. An iron pulley found on the Centerboard Wreck (Photo by author).

FIGURE 52. A different type of iron pulley found on the Centerboard Wreck (Photo by author).

Possible Deadeye (62.20.002)

A possible deadeye, measuring 11 cm (4.3 in.) in length and 8 cm (3.1 in.) in width, was found near the mast of the Centerboard Wreck. The object is highly eroded and only half of it remains intact, however, it shares a strong resemblance to a wooden deadeye (FIGURE 53) (Chapelle 1941:542). Deadeyes were an important piece of the rigging used on wooden ships that helped guide ropes, lines, and cables (FIGURE 54). Deadeyes were built from wood and contained three holes or slots and were commonly used on chain plates. They were sometimes used in conjunction with a second deadeye to create a lanyard (Brewington 1963:65).

FIGURE 53. A piece of a possible deadeye found on the Centerboard Wreck. Note that only half of the object remains (Photo by author).

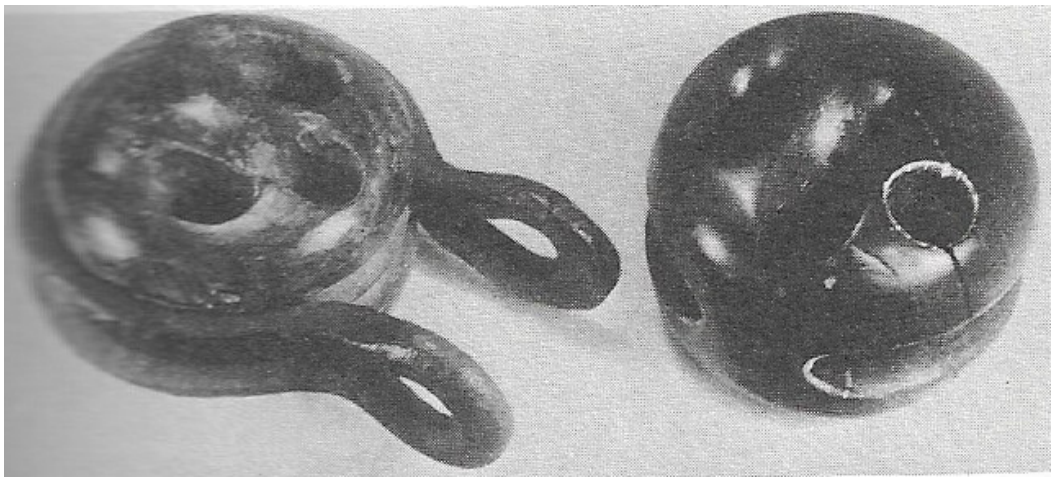

FIGURE 54. A photograph of a deadeye used on a Chesapeake Bay oyster vessel (Brewington 1963:65).

Purchase Link (62.20.015)

A seemingly unidentifiable iron object was located on the forward port side of the centerboard case. It consists of a horseshoe shaped link, measuring 11 cm (4.3 in.) long and 7 cm (2.8) wide, which is concreted to an iron shaft, which measures about 30 cm (11.8) long and 1.5 cm (0.6 in.) in diameter. (FIGURE 55). The link appears to have passed through an eyelet on the shaft and is now permanently corroded to it.

The opposite end of the shaft splits into two shafts with one having an eyelet. It is likely that the other split end contained an eyelet; however, this no longer remains. The object is likely a purchase link which was a small iron piece of the windlass which was used to lift heavy objects such as an anchor. The purchase link was used to connect the purchase arm to the gear in the windlass assembly which allowed the purchase arm to act as a ratchet for the gear to (FIGURE 56) (Chapelle 1975:675-680).

FIGURE 55. A possible purchase link found on the Centerboard Wreck (Photo by author).

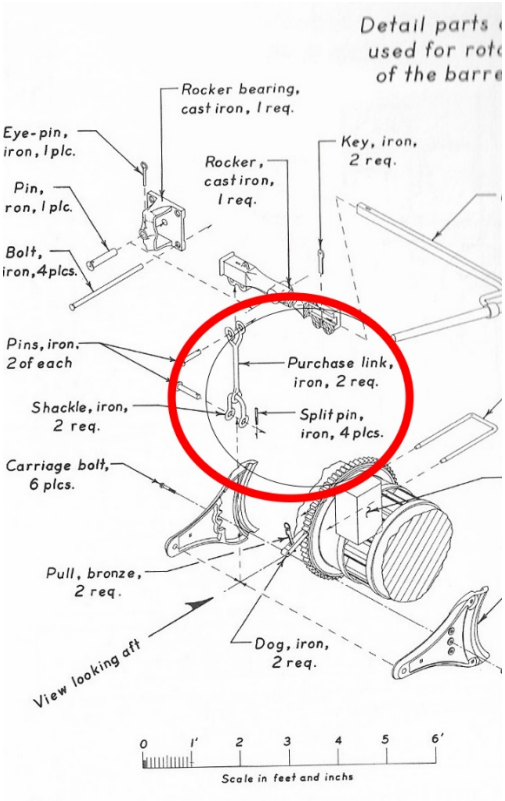

FIGURE 56. An illustration of a windlass assembly. Note the labelled purchase link that is stated to be iron (Adapted from Chapelle 1973:672).

Hatch Cover Piece (62.20.033)

A possible piece of a hatch cover was discovered on the forward end of the site. The artifact consists of a plank and an iron eyebolt which are both well preserved (FIGURE 57). The plank measures 67 cm (26.4 in.) long, 6 cm (2.4 in.) wide, and is 3 cm (1.2 in.) thick. The diameter of the iron hoop measures 7 cm (2.8 in.) and is 1.5 cm (0.6 in.) thick. Although small iron eyebolts were likely used throughout the vessel for different purposes, the plank, iron eyebolt, and rounded corner resemble a section from a deck hatch covering (FIGURE 58). The hatch covering was used to cover the hatch, which was the access to the hold of the vessel. The cover was sturdy enough to walk on and kept water out of the hold (Chapelle 1941:264).

FIGURE 57. A piece of a hatch cover found on the Centerboard Wreck. Note the curved corner by the iron eyebolt (Photo by author).

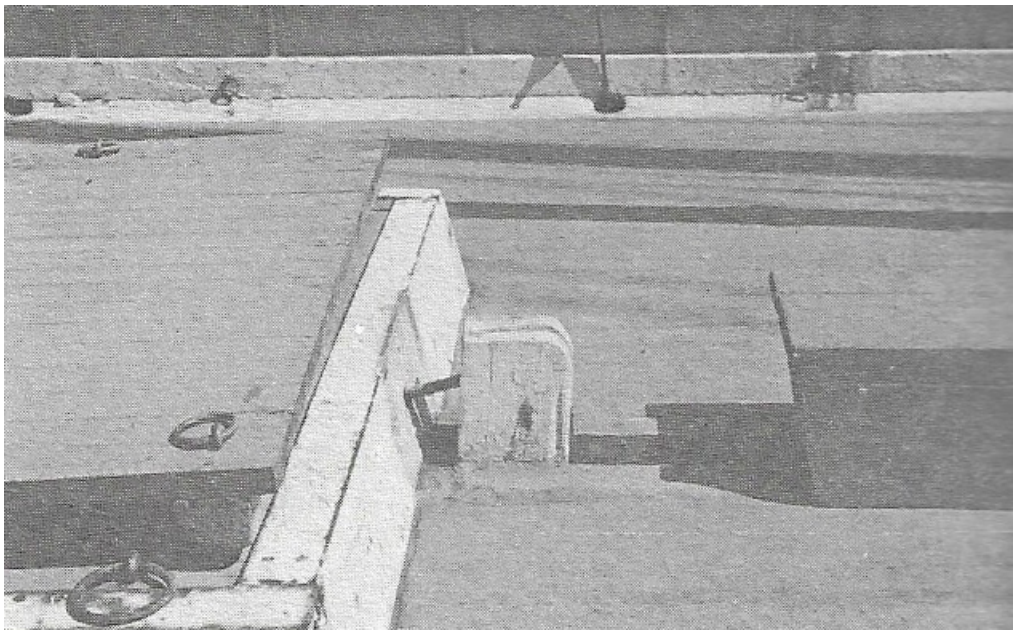

FIGURE 58. A photograph of a deck hatch covering on a Chesapeake Bay bugeye (Brewington 1963:42).

Dredge Rake (62.20.009)

Three iron rakes that likely formed part of an oyster dredge were identified just forward of the centerboard case. Two rakes were heavily concreted, and one of which is missing all the teeth. A separate rake that is more preserved than the other two measures 1.25 m (4.1 ft.) long and has 20 teeth that are 2 to 6 cm (0.8 to 2.4 in.) in length and are spaced at 5 cm (2 in.) intervals (FIGURE 59). The ends of the rake have holes on each end measuring 2 cm (0.8 in.) in diameter, which were used to bolt the rake to the dredge. These rakes are most likely the bottom pieces of an oyster dredge. Oyster dredges were typically made of an iron or steel frame covered by metal rings or netting and most incorporated a wide metal rake with teeth that would aid in digging up, or dredging, buried oysters. Variations of oyster dredges developed but they all served the same purpose. The dredge was dragged along the sea floor behind a vessel to pick up oysters. Oysters were caught within the metal frame and the dredge was lifted back onboard the

boat by using a hand powered or machine powered winch (Ingersoll 1881:244-247; Brewington 1963:93-94).

FIGURE 59. One of three dredge rakes found on the Centerboard Wreck site. Note the holes on either end which were used to attach the rake to the dredge (Photo by author).

Vertical Roller (62.20.005)

A vertical roller, used in conjunction with a dredge, was found amidships of the Centerboard Wreck (FIGURE 60). The cylindrical roller is slightly concreted and measures 50 cm (19.7 in.) in length. One end of the object has a diameter of 6 cm (2.4 in.), while the diameter at the opposite end measures 4 cm (1.6 in.). A small, concreted slab is connected to the side of the object which appears to contain pieces of wood.

Although this artifact was unidentifiable initially, researching the material culture of the oyster industry revealed that it shares a strong similarity to the vertical dredge rollers used on board oyster vessels of the late 19th and early 20th centuries (FIGURE 61). As the dredge was towed, the attached cable would rub against the side of the vessel, thus protection was needed to keep the cable from damaging the cap rail and hull exterior. Two rollers were therefore placed amidships where the dredge was deployed overboard. One of these rollers was laid perpendicular to the hull while the other stood vertical on the aft side of the first. Both rollers were free to spin

to reduce strain on the dredge cable. The roller found on the Centerboard Wreck is a significant diagnostic piece of evidence because these were only found on board fishing vessels capable of dredging (Brewington 1963:95)

FIGURE 60. A vertical dredge roller found on the Centerboard Wreck (Photo by author).

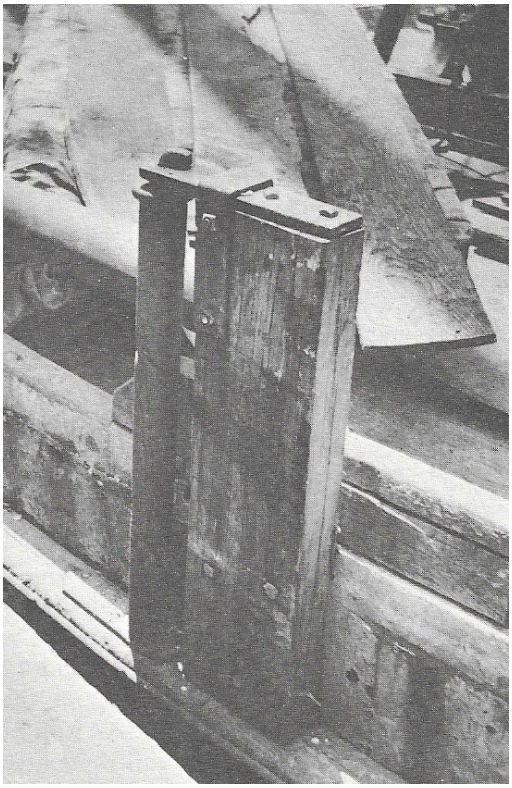

FIGURE 61. A vertical dredge roller on a Chesapeake Bay bugeye (Brewington 1963:95).

Mechanical Gear (62.20.011)

Artifact 62.20.011 likely represents the remains of a sprocket, or gear, that was part of deck equipment aboard the vessel. Though heavily worn, the object measures 14 cm (5.5 in.) in diameter and is roughly 5 cm (2 in.) thick. It is circular in design with a void in the center and has 31 grooved teeth along the outside (FIGURE 62). A variety of gears were employed on sailing vessels as parts of machinery such as windlasses, capstans, and steering mechanisms (Chapelle 1941:670-675).

FIGURE 62. An iron gear found amidships on the Centerboard Wreck (Photo by author).

Although this object could have potentially been used for any of these equipment pieces, it resembles a gear commonly used on the hand winder of an oyster dredge system (FIGURE 63). Before gasoline engines were used to lift the dredges, oyster fishers relied on hand winding

systems which were bolted directly to the deck of the vessel and used in conjunction with a wire rope wound onto a spool. A long handle was used to rotate the spool to wind the cable around the spool to pull in the dredge (Brewington 1963:93-94).

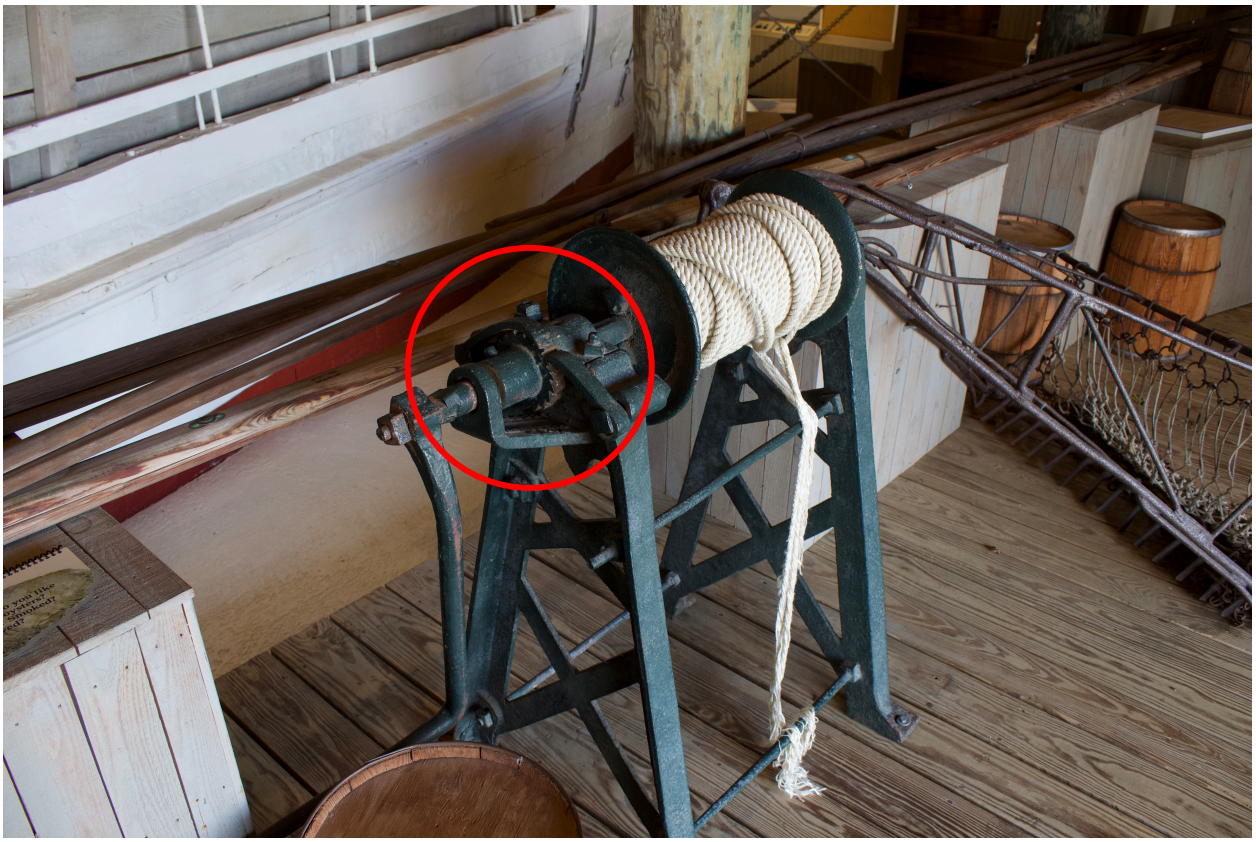

FIGURE 63. A photograph of a hand winder used as part of an oyster dredge system on display at the Chesapeake Bay Maritime Museum. Note the gear piece at the base of the handle (Photo by author).

Tongs (62.20.031)

A set of iron tongs measuring 46 cm (18.1 in.) in length were discovered within the wreck. Though missing handles, the teeth of this tool are still intact and suggest that it was used to move blocks of ice for an icebox. Ice was commonly used on fishing vessels in 19th century and is still used today to keep fish fresh on the journey back to port. Iceboxes were such an integral piece of a fishing vessel many boats were designed with iceboxes before the ship was even built. Typically, a simple insulated container with a hinged top, they varied drastically

between vessels (FIGURE 64). Since iceboxes were specifically designed to each vessel it is suggested that “no part of a boat is more revealing of the owner’s and designers’ sea experience” (Chapelle 1941:516). Although no icebox was identified at the Centerboard Wreck, it is highly likely the vessel contained one because of its potential involvement in a fishing industry and the discovery of these ice tongs offer support (Ingersoll 1881:198; Chapelle 1941:516-518).

FIGURE 64. Ice tongs found on the Centerboard Wreck juxtaposed with a set taken from a Chesapeake Bay oyster boat (Photo courtesy of the Chesapeake Bay Maritime Museum).

Oyster Shells (62.20.021)

Eighteen eastern oyster (*Crassostrea Virginica*) shells and shell fragments were recorded on the Centerboard Wreck (FIGURE 65). These were identified next to the centerboard case at a point where a portion of ceiling planking is missing; thus, they were found in the space between frames in between the ceiling planking and hull planking. Oysters do not grow in the Pamlico River at Washington due to insufficient salinity. As oysters were caught using a dredge, they were dumped onto the deck for the fishers to cull, then placed below deck in the hold for storage. Since oysters were not stored in containers, it is possible that some found on the Centerboard Wreck were originally caught by the operators of the vessel and became lodged underneath the ceiling planking (Brewington 1963:92-96).

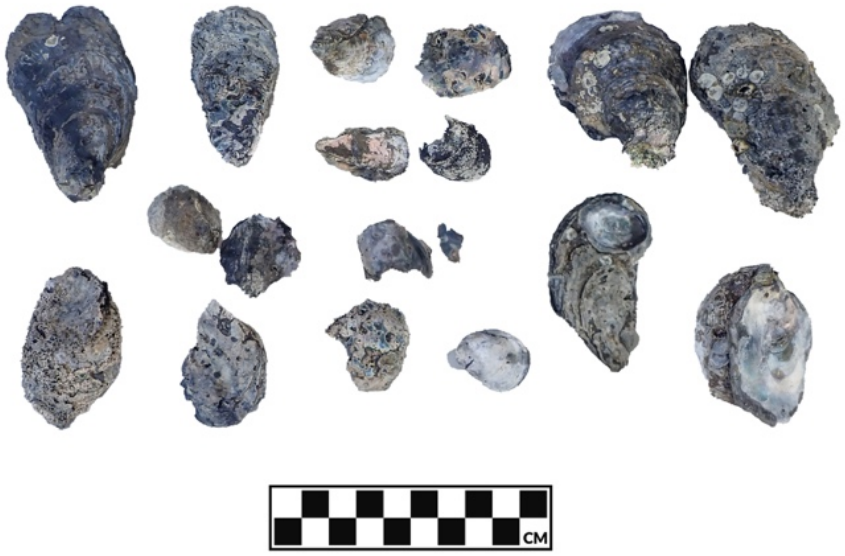

FIGURE 65. Eastern oyster (*Crassostrea Virginica*) shells and shell fragments found on the Centerboard Wreck (Photo by author).

Stove Leg (62.20.021)

An iron object measuring approximately 15 cm (5.9 in.) in length was found in the forward section of the vessel and appears to be the leg of a small cooking stove (FIGURE 66). The object is 3 cm (1.2 in.) thick and is 12 cm (4.7 in.) wide at one end, which tapers to 4 cm (1.6 in.) at the opposite end. A caboose was a term given to a compact iron stove used on smaller vessels of the 19th and early 20th centuries (Hamersly 1884:101). Iron stoves were commonly found on fishing vessels as the crew needed to cook meals while out at sea for long periods of time (FIGURE 67). The object is broken at the top portion where it most likely connected to the base of the stove. No other identifiable pieces of a stove discovered.

FIGURE 66. A broken leg from a small iron stove found on the Centerboard Wreck (Photo by author).

FIGURE 67. A photograph of an iron stove used on a Chesapeake Bay oyster boat (Image courtesy of the Chesapeake Bay Maritime Museum).

Wreck Assemblage

Remaining features of the Centerboard Wreck, along with the variety of recorded artifacts, are indicative of a sail powered wooden oyster boat from the late 19th and early 20th centuries. The sharp rakes of the bow and stern are specific to the vessels constructed by Chesapeake Bay shipbuilders. The centerboard was also a common feature on Chesapeake Bay oyster boats because it allowed them to dredge in deep waters and traverse shallow rivers. The wide double ended hull, paired framing stations, and significant mast step features are also diagnostic features of a Chesapeake Bay oyster boat (FIGURE 68).

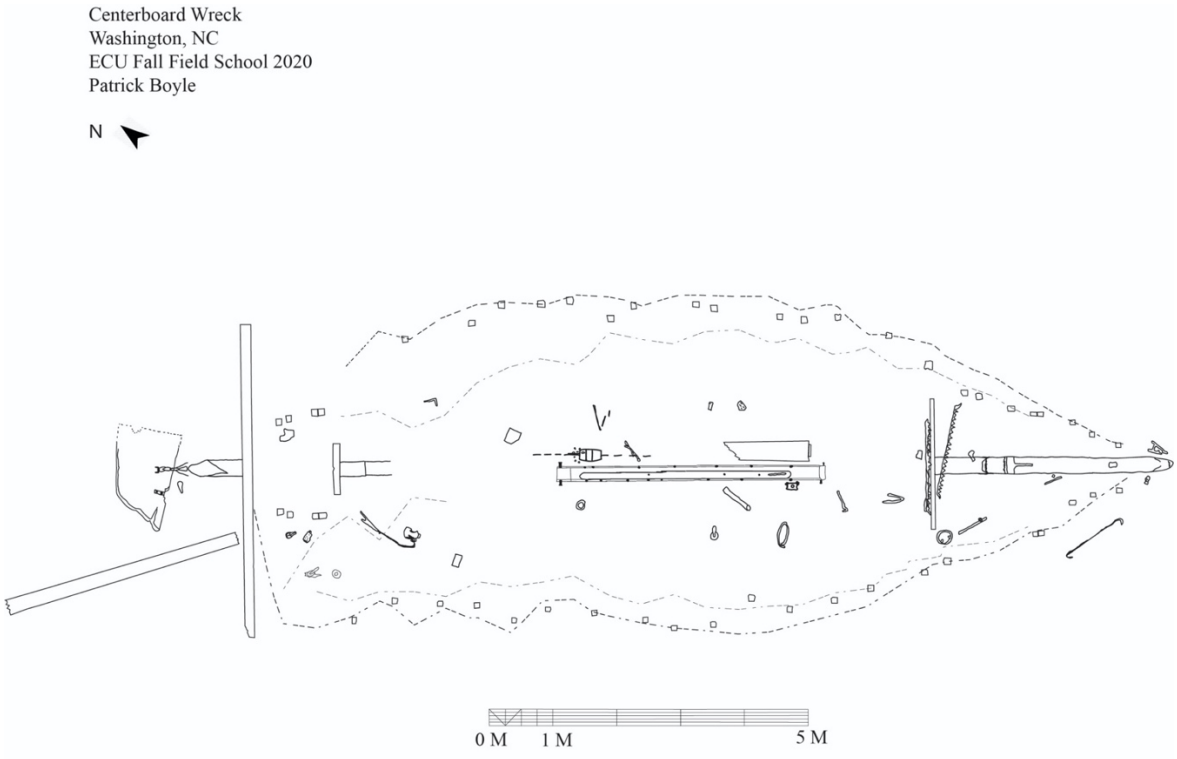

FIGURE 68. A detailed site plan of the Centerboard Wreck illustrating the position of all recorded features and

Artifacts found on the Centerboard Wreck site provide direct evidence that the vessel was used in the oyster industry. Multiple artifacts are related to the use of dredging to obtain oysters which was the preferred method of harvesting them in the mid-Atlantic region from the 1880s to

the 1920s (Wennersten 2007:89). Although some of the artifacts related to dredging are fragments, the presence of oyster dredge rakes suggests this vessel was employed in the fishery. Since dredging was accomplished by towing a dredge along the seafloor and relied on sail power, the remnants of a mast, mast steps, and centerboard suggests the vessel was dependent on sail for propulsion. Thus, evidence obtained from the Centerboard Wreck provides ample information to narrow down the possible vessel types of the shipwreck.

Chapter 6: Discussion

Many shipwrecks lie along the banks of North Carolina rivers near communities that are unaware of their historical significance. Without a critical examination of such sites, however, the historical narrative of the community is incomplete. A significant portion of Washington's maritime history was revealed during the investigation of the Centerboard Wreck. The previous chapters of this thesis discussed the various evidence that suggests the remains of that vessel are those of a Chesapeake Bay oyster fishing vessel. Historical documents such as newspapers, journals, and photographs indicate that Chesapeake Bay oyster vessels were commonly employed in the North Carolina oyster industry during the late 19th and early 20th centuries. The extent to which those vessels were used, however, seems to have been forgotten. Modern historical examinations of Chesapeake Bay oyster vessels generally focus on area in which they were built and do not examine their uses outside of this region. The use of such vessels in North Carolina, however, is a significant part of the state's maritime heritage and was more widespread than previously thought.

Washington-Chesapeake Bay Oyster Industry

Even though there was an established oyster fishery in North Carolina before the 1880s, it was isolated and serviced small coastal towns. Only after Chesapeake Bay oysterers began to fish the waters of North Carolina did the state's industry grow. For the Pamlico Sound, the oyster fishery that developed at Washington was reliant on the J. S. Farren oyster canning factory which operated on the city's waterfront. It was only after the factory was established that the town's oyster industry, not only flourished, but became an integral part of the community which created over a hundred of jobs for residents (Harding 1975:506).

Perhaps the most important aspect of the J. S. Farren canning factory was its ownership by a gentleman from Baltimore, Maryland (*Washington Progress* 1898:3). Oyster packing operations were established in Washington due to its recognized maritime community and position as a prominent port with easy access to the oyster beds of the Pamlico Sound. As such, the city became connected to the Chesapeake Bay in a way that previously did not exist; oysters caught in North Carolina waters, by Chesapeake Bay fishers using Chesapeake Bay boats, were packaged, and shipped to Baltimore, Maryland. Those oysters were then marketed as Chesapeake Bay oysters even though they were caught in the sounds of North Carolina (*Washington Daily News* 1909:1).

The resulting influx of new boat types, fishing tools, and oyster houses created an oyster boom within North Carolina. The decade of the 1890s was the most lucrative for the NC oyster fishery and many oyster boats were seen in the town. Highly preferred for dredging, Chesapeake Bay oyster vessels were commonly used in the towns of New Bern, Wilmington, and Washington. During the last decade of the 19th century, Washington's oyster industry developed so much that the town was referred to as the "Oyster Metropolis of North Carolina" (*Washington Gazette* 1893:1). And while it was true that wooden vessels were being built in Washington during that time, the lack of information regarding their use is noteworthy as it suggests that they were generic schooners intended for a variety of purposes. Even though many were likely used in the oyster industry, primary sources suggest that Chesapeake Bay vessels were the preferred fishing vessels (Worthy 1976:92; Still 1981:30-33).

There is a notable difference in the terms used for schooners and other specific vessel types mentioned in newspapers of the period. Many of the Chesapeake Bay oyster boats are named by an exact vessel type; for instance, one newspaper account uses the term bugeye, while

the more generic type names of schooner, cutter, and gas freight boat were also mentioned. Multiple newspapers refer to the vessels used within the oyster industry broadly as oyster boats, by specific vessel type, and even directly by name. Some sources reference the boats by name, such as the bugeye *Hamlet*, in advertisements for services while other boats are referenced during specific incidents (*The Daily Journal* 1913:8). One such example is an article referencing the capsizing of the bugeye *A. L. White* at Chocowinity Bay which included not only the name of the vessel reported, but the exact ship type (*Washington Progress* 1900:3). These periodical references provide strong evidence to support the suggestion that at least Chesapeake Bay bugeyes were commonly used around Washington during North Carolina's oyster boom.

Wilde-Ramsing and Alford (1990:27) explain that during the Late Industrial Period, between 1910 and 1929, the waters of North Carolina saw a significant increase in the number of vessels from the Chesapeake Bay and that local shipbuilders copied the types. As previously discussed, however, Chesapeake Bay ship types were used in North Carolina much earlier than 1910. An article in the *Washington Gazette* (1891:3) mentions that one of Washington's residents took "one of the Bugeyes for a cruise around Ocracoke, Portsmouth and other seaports". Not only was the vessel type bugeye referred to directly, but the article also suggests that there were multiple bugeye vessels in the port of Washington in 1891. This provides further evidence that the bugeye was a commonly used vessel type on the Pamlico River and that the influx of Chesapeake Bay ship types to North Carolina occurred earlier than 1910 (Wilde-Ramsing and Alford 1990:27).

Even though a variety of primary historical sources document the use of Chesapeake Bay vessel types in North Carolina, this fact is not typically examined in secondary historical sources. Brewington (1963:75), for instance, explains that while it might have been common to see

bugeyes in North Carolina sounds they were not built locally; instead, they "are the product of Maryland shipyards transplanted into water, wind, and working conditions similar to those of the Chesapeake". Not only does Brewington's statement suggest the bugeye was perfectly suited for North Carolina's maritime environment, it also indicates that he knew of the vessels being used outside of the Chesapeake Bay area. Instead of including this significant part of the historical narrative, he chose to omit it for unknown reasons.

Similarly, maritime historian Howard Irving Chapelle (1982:257) explains that bugeyes were the preferred vessel type for oystering and that the type spread north from the Chesapeake Bay. Chapelle does not state that the vessel type spread south of the Chesapeake Bay, neither do the secondary historical monographs that focus on these vessel types discuss their uses outside of the regions in which they were built. As such, there is a significant lack of knowledge regarding the full historical narrative for these types. This also means that there is a significant lack in the historical narrative of North Carolina's maritime industries. Even though the significance of the state's oyster industry is well established, the fact that the industry flourished from the influx of Chesapeake Bay vessel types has not been thoroughly examined.

Archaeological Evidence

While the Centerboard Wreck has likely been known to ECU staff since the 1980s, the site was not thoroughly investigated until 2020 (Rodgers et al. 2016:129-130). It was only after archaeological data was collected and interpreted that a possible Chesapeake Bay connection was theorized. While centerboard vessels were common in both the Chesapeake Bay and Pamlico Sound regions, multiple construction features of the Centerboard Wreck suggest that the vessel was not built locally but was instead a specific Chesapeake Bay built fishing vessel known as a square rigged bugeye (FIGURE 69) (Rodgers et al. 2016:129-130).

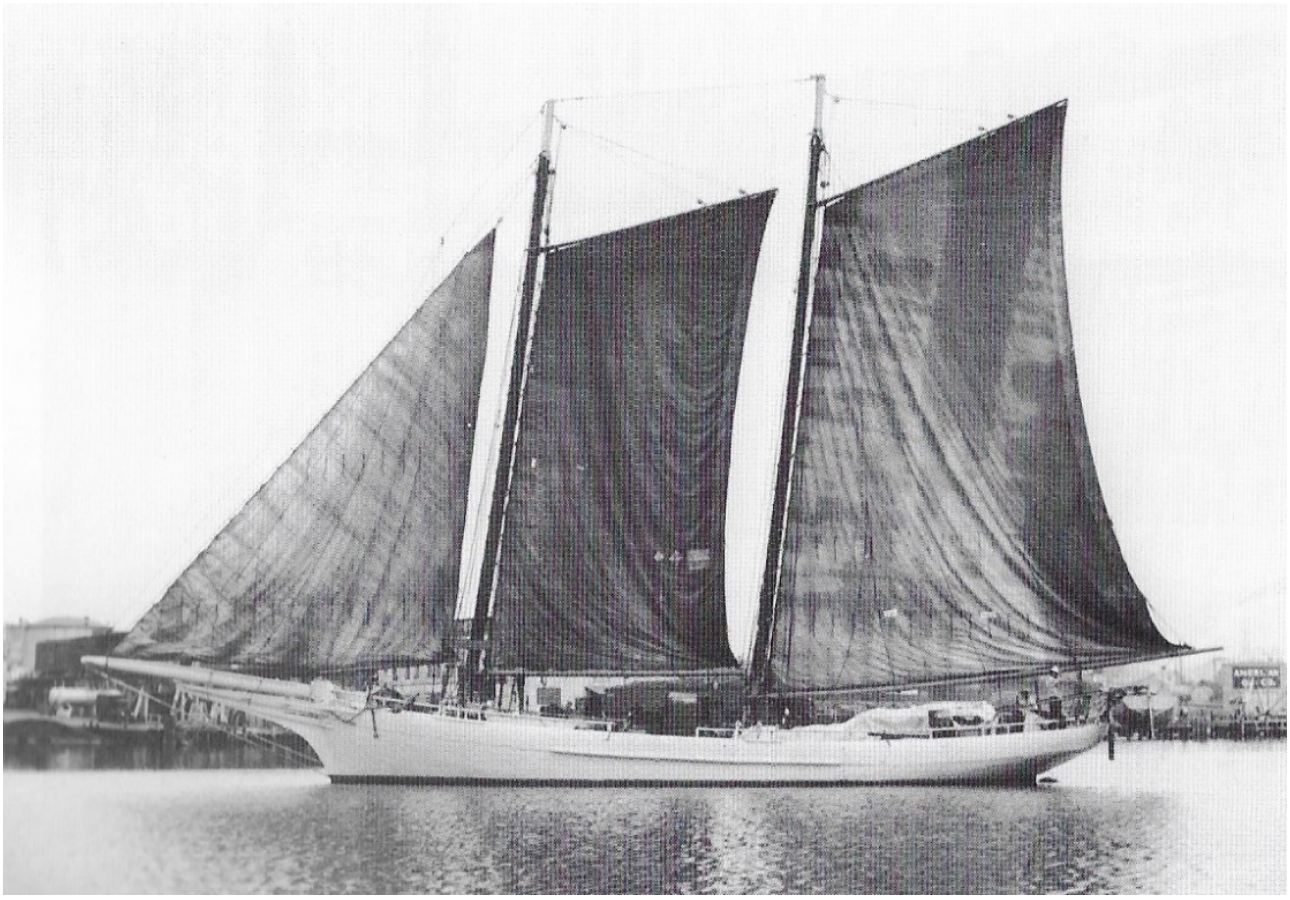

FIGURE 69. A photograph of the square rigged (gaff rigged) bugeye *Catherine* (Burgess 2005:19).

Construction Analysis

Since the Centerboard Wreck lies submerged in black water, it was only after the data collected from the site was drafted that some notable features were observed. The wreck's hull shape is significant in that it has a rounded bottom with a large beam, suggesting that it was built by a skilled shipbuilder since curved hulls were the most difficult types of ships to construct (Chapelle 1941:348). When compared to the hulls of Chesapeake Bay oyster vessels, the hull shape of the Centerboard Wreck is comparable and was the first construction feature used to determine potential vessel types and connections (FIGURE 70).

Among the significant construction features that also provided evidence of the type was the vessel's stem assembly. Although only a portion of the feature remains, the stem of the Centerboard Wreck consists of multiple distinct timber components and is raked sharply. A signature construction feature of Chesapeake Bay schooners is a clipper bow, which was adopted from the famous clipper ships built in the region in the early 19th century (Chapelle 1982:257). The Centerboard Wreck's stem is like the clipper bow construction (FIGURE 71). The square frames at the stem assembly are also an important identifying feature since bugeye vessels did not incorporate cant frames (Brewington 1963:45).

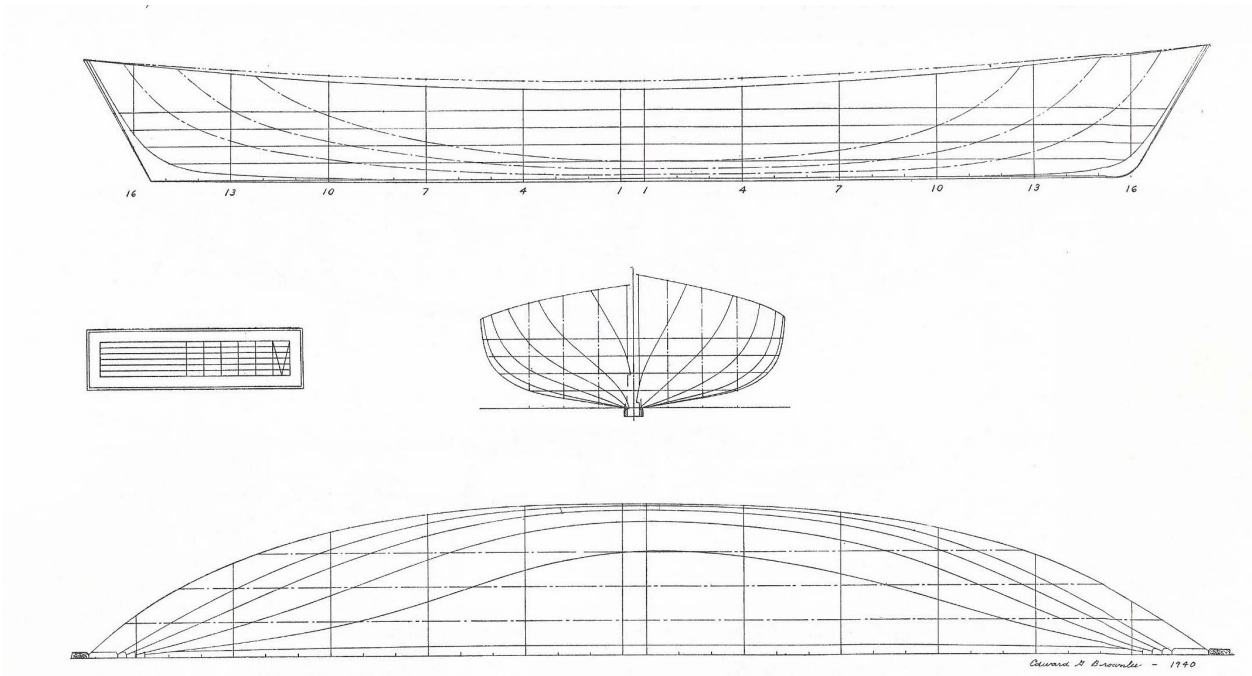

FIGURE 70. Lines drawing of the bugeye *Lizzie J. Cox*. Note the double ended design, sharp stem and stern, and the flat but rounded hull (Brewington 1963:151).

Similarly, the stern assembly is raked and is comparable to typical Chesapeake Bay vessel types (FIGURE 72). This feature contains multiple timber components including single frames, deadwood, and sternpost. The gudgeon, pintle, and the rudder also remain and are comparable to those used in the Chesapeake Bay region. The rudder is specifically constructed

with multiple wooden pieces connected vertically and the bottom is completely flat, yet the aftmost portion slowly curves upward and forms an indent at the top. This specific rudder design is commonly used on Chesapeake Bay vessels.

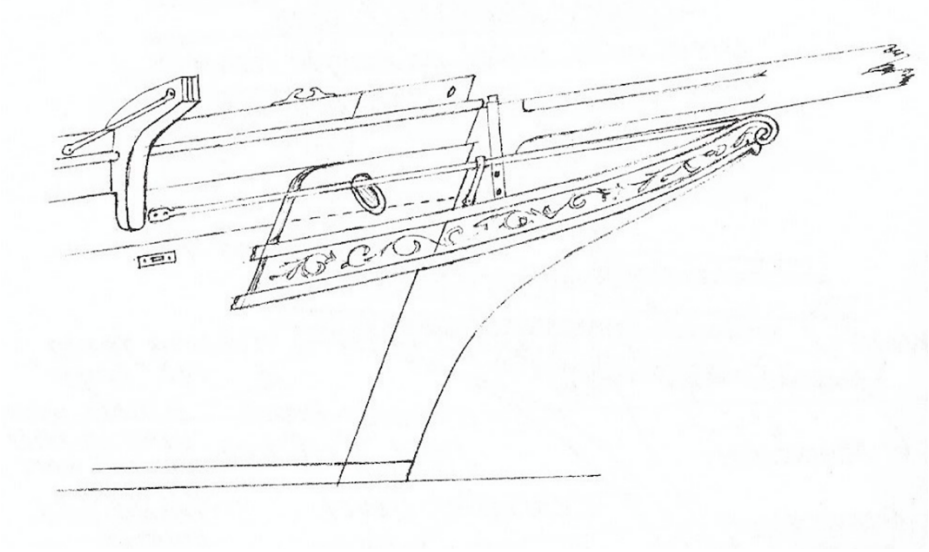

FIGURE 71. A drawing of the common “clipper bow” assembly. Note the similar angle of the Centerboard Wreck stem (Chapelle 1973:362).

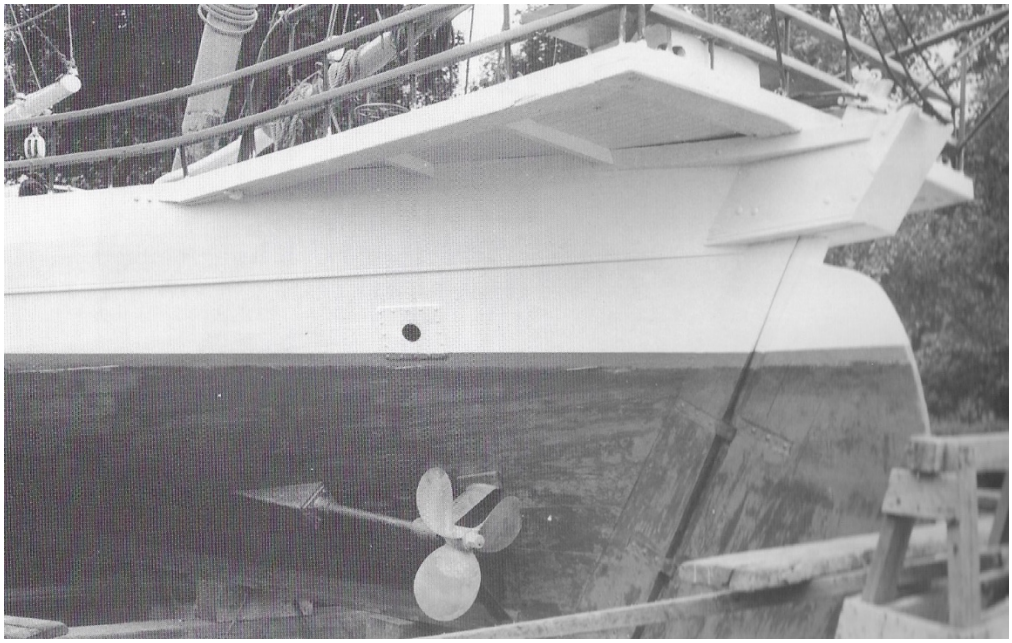

FIGURE 72. A rare photo of the stern of a bugeye, *Brown Smith Jones,* out of the water. The placement of the rudder pintles is similar to those found on Centerboard Wreck (Burgess 2005:18).

Although the vessel had a variety of construction features that were comparable to a traditional Chesapeake Bay bugeye, three features seemed to contradict the evidence. The first of these is the planked and framed construction, which is unlike most bugeyes that have survived and are referenced in historical records. For example, the Chesapeake Bay Maritime Museum's *Edna E. Lockwood*, one of the only surviving bugeyes, contains a traditional log hull construction. This was the most common method of building Chesapeake Bay bugeyes and displays the direct evolution from log canoes. During the 1880s, however, "builders began to find a scarcity of suitable timber, and, forsaking the log method out of necessity, they were constructing bugeyes conventionally built throughout" (Brewington 1963:44). By 1895, the traditional log hull construction stopped completely and bugeyes were entirely built using frames and planked fully to the keel (FIGURE 73) (Brewington 1963:40-44).

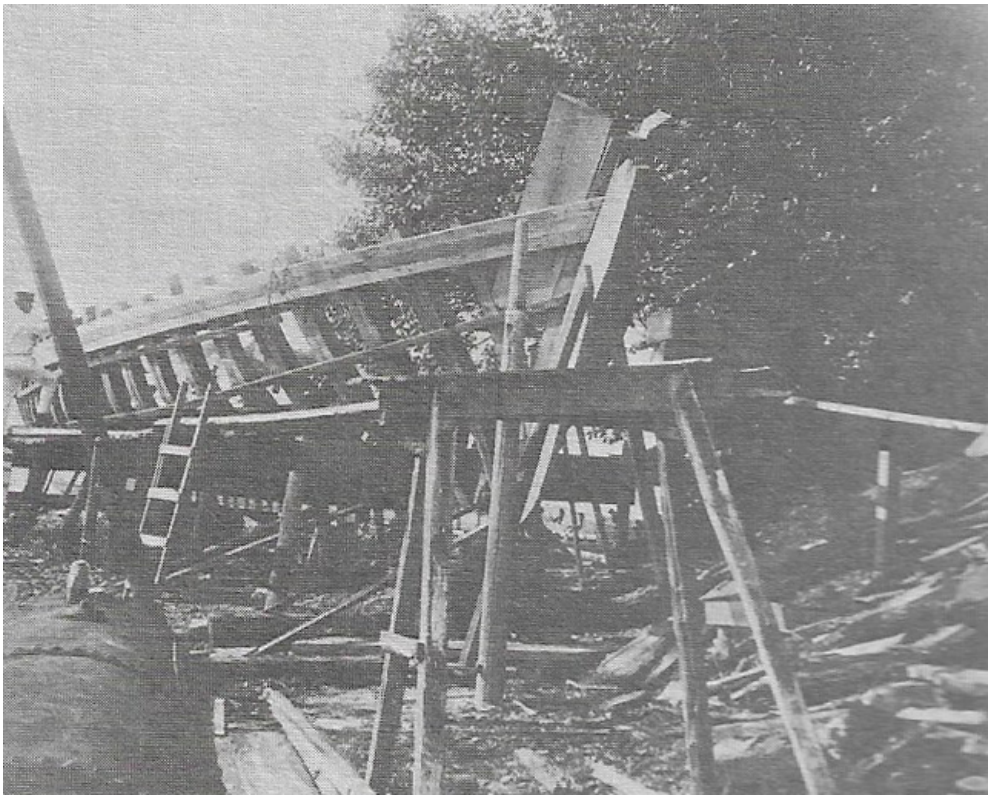

FIGURE 73. Image depicting the bow of the planked and framed bugeye *Nora Phillips* (Brewington 1963:45).

The later bugeye construction fits the same style documented at the Centerboard Wreck. The vessel contains the remains of at least 20 frame stations that extend roughly 2 m (6.5 ft.) from the keel. Inner and outer hull planks attached to frames from the outermost section of the hull down to the keel, which was also observed. The longitudinal planking, double frame construction, lack of angled cant frames, and regular gap between frames are all consistent features of known Chesapeake Bay bugeye construction methods. This detail not only provides strong evidence that the Centerboard Wreck is a bugeye, but it also narrows the date of construction to post-1880s (Brewington 1963:40-44).

The second feature that contradicted the preliminary evidence was the offset position of the centerboard case from the keelson on the starboard side. The lines drawings of bugeyes found in the historical record indicate that their centerboard cases were generally placed in line with the keel. Large centerboard schooners, however, were known to have been built with offset centerboards as early as 1855 (Chapelle 1973:83). Since having an offset centerboard on a small vessel was uncommon, this was initially considered to be a shipbuilding trait specific to North Carolina. Brewington (1963:45), however, states that few bugeyes did have offset centerboards and it is likely that this was a distinct construction feature used in a limited number of them.

The final feature that seemed to contradict the evidence that the wreck was of the bugeye type was the placement of the mainmast step far forward and offset to port. According to Pete Lesher (2021, elec comm), Curator of the Chesapeake Bay Maritime Museum, the offset centerboard was employed to avoid weakening the integrity of the keel by adding a slot. Lesher also suggests that on Chesapeake Bay schooners, pungys, and square rigged bugeyes, mainmasts were stepped farther forward to be gaff rigged and would therefore need to be offset to port to clear the centerboard case (FIGURE 74). Although this feature is not often found on schooners in

the archaeological record, “it was used in many centerboard schooners built from Virginia northward” (Chapelle 1973:131). If Chapelle is correct, then this construction feature would be rarely found on North Carolina-built vessels and provides further evidence that the Centerboard Wreck is in fact a bugeye (Chapelle 1973:131; Pete Lesher 2021 pers comm).

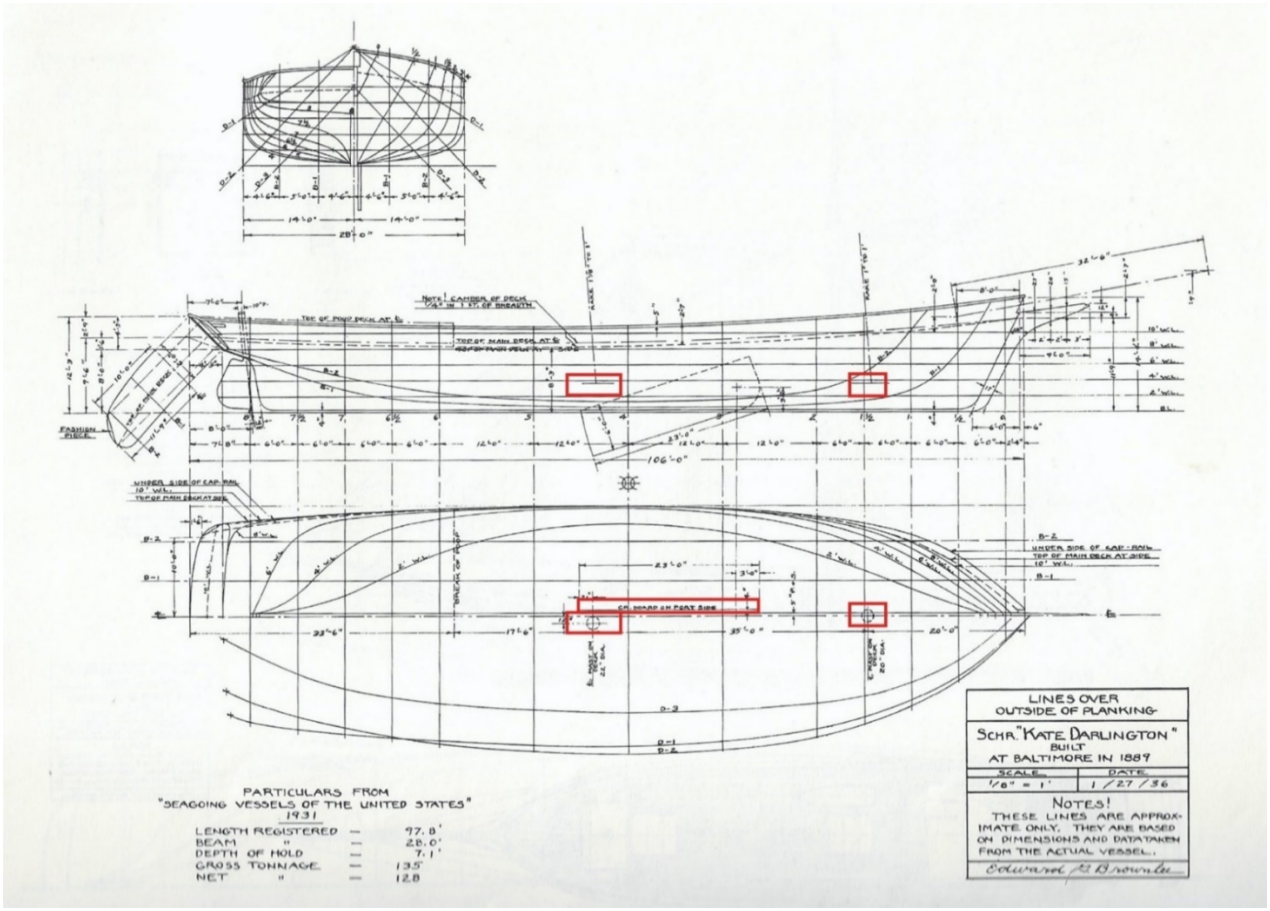

FIGURE 74. Lines of the Chesapeake Bay schooner *Kate Darlington* which depict an offset centerboard and main mast step in red (Amended from Snedicker and Jensen 1992:217).

A primary example of this construction feature found in the archaeological record was recorded on the Grover’s Creek Cove shipwreck in Calvert County, Maryland. Identified as a Chesapeake Bay workboat named *Widgeon* and originally thought to be a bugeye, construction features on the shipwreck suggested the ship was instead a traditional Chesapeake Bay schooner (Maryland Historical Trust 1997:1). *Widgeon* specifically had a raised quarterdeck, which was a

feature common on schooners and not bugeyes, as it tended to obstruct the workers on deck. *Widgeon*, however, included an offset centerboard case and a mainmast step that was placed forward and offset of the keel (Watts 2000:59-62). Although Watts (2000) erroneously states that *Widgeon's* mainmast step is placed in the center of the keelson, the step was recorded half in the keelson and half in a sister keelson (FIGURE 75). This notable feature correlates to known construction traditions of the Chesapeake Bay schooners.

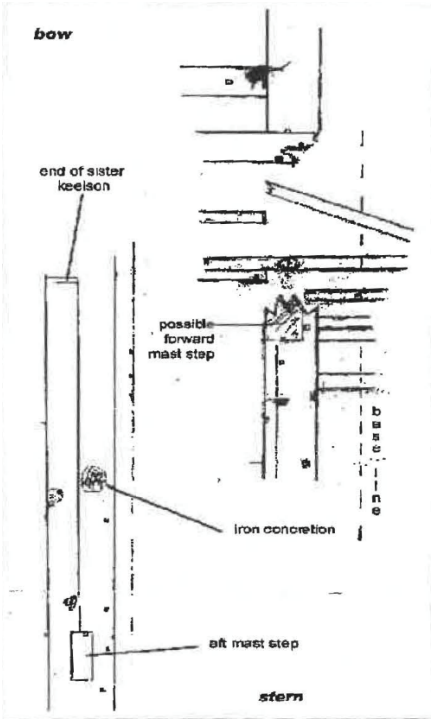

FIGURE 75. An image of the recorded mast step on *Widgeon*. Note that half of the step is notched into a sister keelson (Watts 2000:62).

While these construction elements initially seemed to contradict the theory that the Centerboard Wreck is the remains of a bugeye, further historical research indicated that these were features used for building a specific bugeye type. Evaluating such specific construction features of a shipwreck is critical in understanding the vessel type. Although these features are rarely mentioned within historical records, the planked and framed construction, offset

mainmast, and offset centerboard are known in the archaeological record. The remains of a bugeye with similar features were documented at the Hobbs Wreck, which were surveyed by archaeologists from the VDHR and LAMP in 2020 (Burke et al. 2020).

The Hobbs Wreck is suspended in mud on the banks of the Nansemond River and measures 14.18 m (46.5 ft.) long and 5.33 m (17.5 ft.) wide. During low tide the wreck is entirely exposed. Remaining features include the stem and stern assemblies, keel and keelson, 28 frame stations, and remnants of the centerboard case. Although the remaining features of the Hobbs Wreck are less extant than those of the Centerboard Wreck, the overall measurements of each vessel are comparable (Burke et al. 2020:45-55).

The Hobbs Wreck is significant to this study because it is one of the only bugeyes to be fully surveyed archaeologically and it contains nearly identical features to the Centerboard Wreck. Both shipwrecks are comparable in size, are planked and framed throughout, have offset centerboard cases, and have an offset main mast step. The main mast step of the Hobbs Wreck is notably cut halfway into the keel (FIGURE 76). The other half of the mast step is cut into a separate timber, possibly a sister keelson, placed adjacent to the keelson. This specific construction feature was also recorded on the Centerboard Wreck. The offset main mast and offset centerboard cases are distinct construction features found on square rigged bugeyes but not on traditional bugeyes (Burke et al. 2020:45-55)

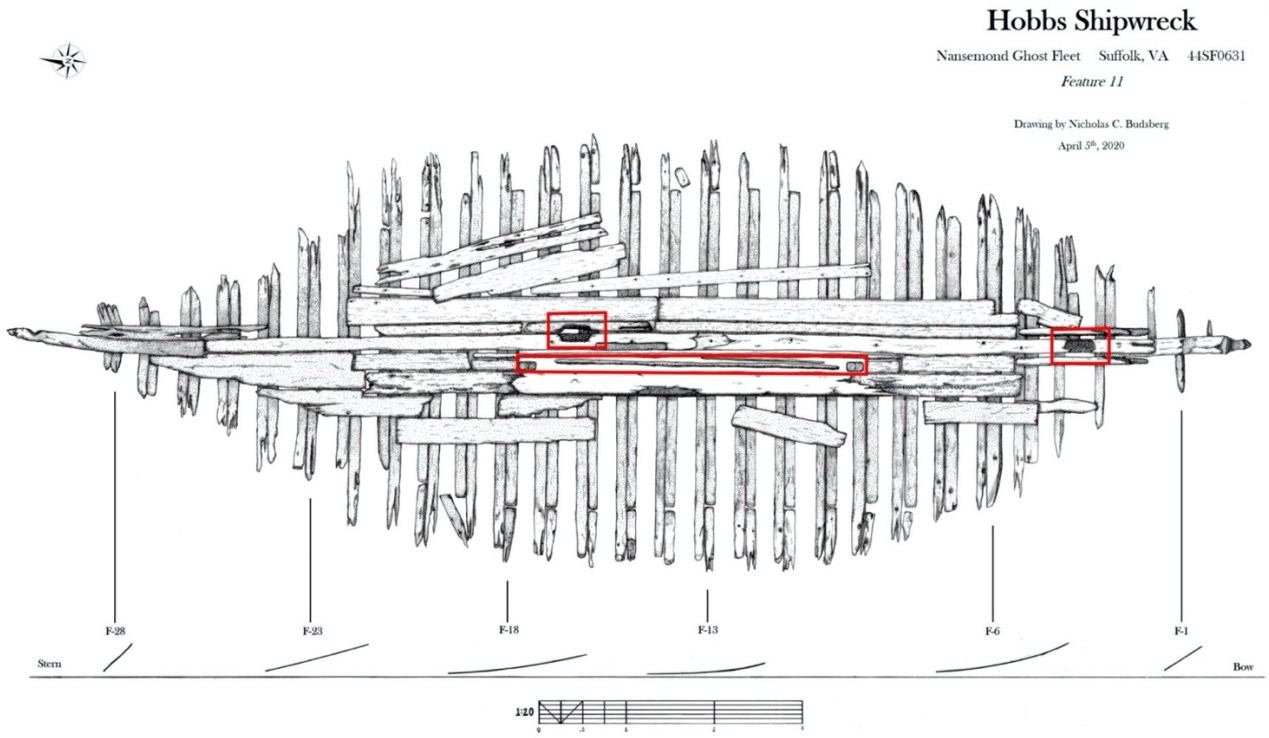

FIGURE 76. The Hobbs Wreck site plan with features highlighted. Note the offset mast steps and centerboard (Adapted from Budsberg 2020)

Though the exact identity of the Hobbs Wreck was never confirmed, it was suggested that the vessel likely worked in the local oyster industry in Suffolk, Virginia. Since the remnants of the vessel were fully exposed at low tide, even more construction elements were noted. Specifically, a distinctive feature examined on the Hobbs Wreck was a master frame couple, frame 18, which is where the futtocks were placed in reverse order on the floor timbers as a "traditional method of build to equalize patterns in framing throughout the vessel" (Burke et al. 2020:46-47). While multiple attempts were made to detect a master frame couple at the Centerboard Wreck, the inability to remove sediment overburden and the additional amount of ceiling planking prevented it from being identified. Nevertheless, the similarities between both shipwrecks suggest that both vessels were built to carry a schooner rig and not the traditional bugeye leg-of-mutton rig.

Artifact Assemblage

The artifacts recorded at the Centerboard Wreck provided the first definitive evidence suggesting that the vessel was involved in the historic oyster industry. Among them, the multiple dredge rakes found within the wreck suggest that the boat was used for dredging. This type of rake was commonly used for catching oysters in the 19th and early 20th centuries. Another diagnostic artifact was the dredge roller which was used to prevent the dredge cable from scraping the deck and hull while the dredge was overboard. Multiple pieces of cable found at the site are likely associated with these operations and connected the dredge basket to the deck. Finally, oyster shell found in between the vessel's planking indicate that it was employed in the industry. Since oysters do not naturally grow in the area in which the shipwreck is located, the presence of shells on site suggest that they were obtained using the vessel. All these artifacts provide clear evidence that the vessel was employed as a dredging vessel in the historic oyster industry at least some point in its career.

Though many of the other artifacts are unidentifiable, some provide evidence of the date in which the vessel was used. The stove leg, hatch plank, and bobstay strap matched similar examples used on known Chesapeake Bay oyster vessels of the late 19th and early 20th centuries. Examining individual artifacts, or even the complete assemblage, does not provide enough evidence to identify the exact vessel type of the Centerboard Wreck. Considering the artifact assemblage along with the vessel's construction features, however, provides strong evidence suggesting it was constructed as a square rigged bugeye employed in North Carolina's oyster fishery.

Archaeological Context

The physical location of the Centerboard Wreck also provides important details for the interpretation of the vessel. The shipwreck site is located directly across from the historic port of Washington and likely dates to the period when the town had a prominent oyster canning factory, fish house, and shipyards. As with most of the wrecks around Washington, the Centerboard Wreck is also in the proximity of the ship graveyard at Castle Island, which includes another possible bugeye type vessel.

The tenth vessel identified within the Castle Island ship graveyard shares many similar construction features with a Chesapeake Bay bugeye. The vessel has a rounded hull, contains a centerboard, and is fully planked and framed. It was originally suggested that it was used in an unknown deep-sea fishing industry and possibly Washington's oyster industry (Rodgers et al. 2016:149). Considering the evidence found through the current research, it is highly likely that the remains represent those of a bugeye which was used in Washington's oyster industry at some point.

Although the Castle Island ship graveyard contains the remains of at least 11 vessels, it is unknown why they were deposited in that location. It is possible that they were all abandoned there on purpose, or the vessels could have been abandoned at different areas in the river and were simply "caught" by the island when environmental factors such as floods moved them from their original depositional location. Another theory is that the Castle Island shipwrecks, and possibly the Centerboard Wreck, wrecked because of the great storm that caused several ship losses at Washington in 1913 (Rodgers et al. 2016:42). On Wednesday September 3 of that year, a terrific storm battered many coastal communities in eastern North Carolina. The town of Washington was devastated from the effects of flooding which included collapsing the county

bridge. At least a dozen large vessels and countless small boats were washed into the town and surrounding landscape (*The State Journal* 1913:6). And while it is possible that many of the shipwrecks found near Washington were caused by the storm in 1913, the Centerboard Wreck likely wrecked after this event.

The Centerboard Wreck is located on the east side of pier remains in a cove on the south shore of the Tar River across from Washington's waterfront. Closer to the pier, but on the west side, lies a second shipwreck that is not as articulated as the Centerboard Wreck. Although the pier is depicted on historical maps as early as 1872 (FIGURE 77), along with structures on land in the area, the exact use for this component of maritime infrastructure is unknown (U.S. Coast Survey 1872). By the year 1915, the terrestrial buildings at this location are no longer depicted on charts and the pier seems to have become derelict (U.S. Coast Survey 1915). Interestingly, this chart also shows a shipwreck icon on the west side of the pier in the same location as the second known wreck in the cove. A shipwreck icon for the Centerboard Wreck is noticeably missing from both the map and chart which suggests that ship possibly wrecked or was abandoned in the cove sometime after 1915. Although the exact cause of loss is unknown, there is no evidence to suggest the Centerboard Wreck collided with an object, land, or another vessel. Given the proximity of the wreck to known abandoned vessels, such as those at Castle Island, it is possible this vessel was simply abandoned.

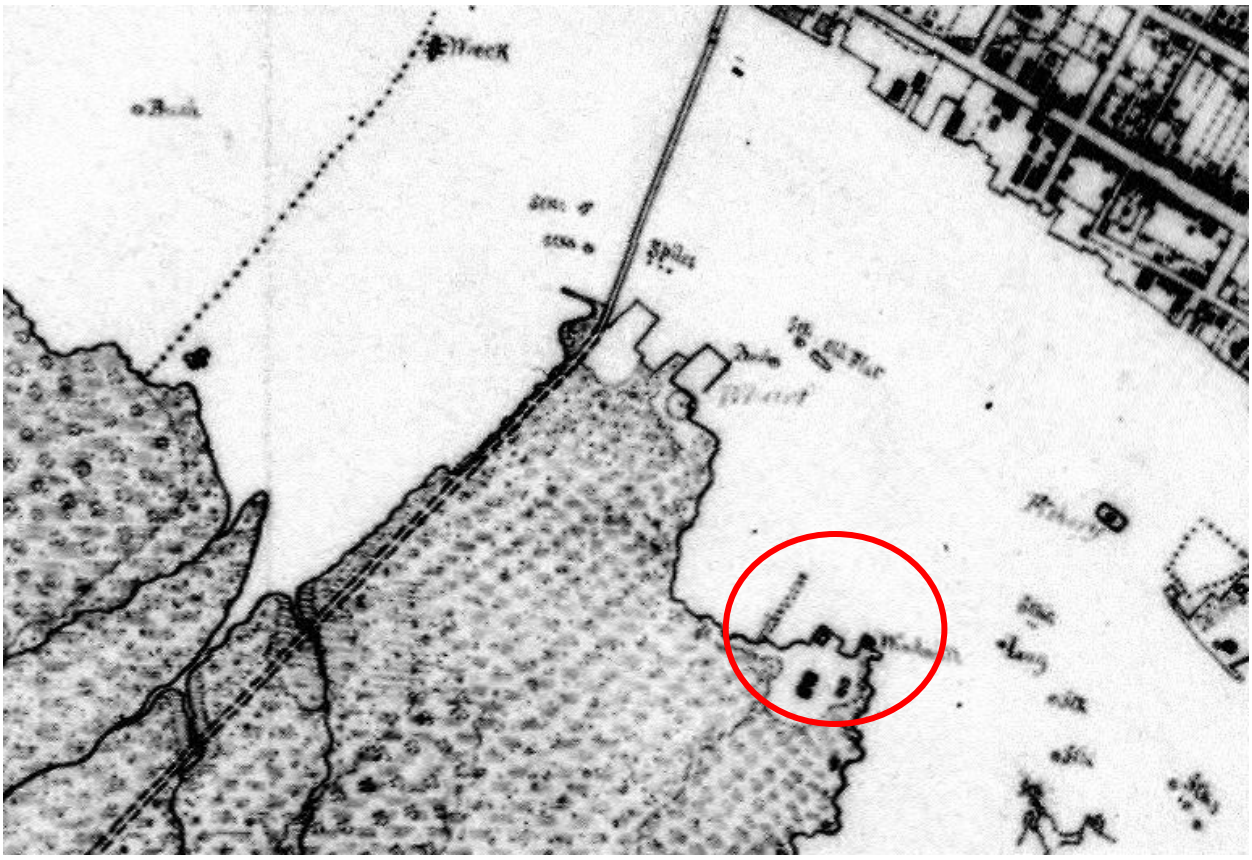

FIGURE 77. An 1872 map of Washington that shows a pier and structures in the vicinity of the Centerboard Wreck location (U.S. Coast Survey 1872).

Future Research

The significance of this study is the presentation of multiple pieces of historical and archaeological evidence that were previously not investigated or correlated. Brewington's *Chesapeake Bay Log Canoes and Bugeyes* (1963) can be considered a complete bugeye treatise and is regularly cited in modern sources that discuss Chesapeake Bay style construction methods (Burke et al. 2020). And while there is a significant lack of information regarding the use of the bugeye vessel type outside of the Chesapeake Bay region even though historical sources provide evidence that the vessel type was used extensively in multiple maritime industries in North Carolina.

Although the identity of the Centerboard Wreck was not determined through this case study, the possibilities were narrowed down significantly. Brewington (1963:100-110) compiled a list of bugeyes that includes the dimensions of each vessel, the location where it was built, and any notable features. Created using MVUS lists and the records of known bugeye shipbuilders, this list includes nearly 600 vessels, of which only 37 are listed as being square-rigged bugeyes (FIGURE 78). The 37 vessels listed were reexamined within *MVUS* for this project to determine the fate of each. Although some are listed as abandoned, many of them disappeared from the historical record entirely. The vessels listed as abandoned are not given a scuttling, while those listed as lost or wrecked are provided an approximate location. Since the homeport of abandoned vessels can typically be found in the list from the year prior, however, most of the listed square-rigged bugeyes were abandoned with their last homeport as Baltimore. Interestingly, one of the 37 bugeyes was listed as being abandoned in Washington; however, the dimensions of the vessel do not match either those recorded from the Centerboard Wreck or the possible bugeye at Castle Island.

Although the exact name of the Centerboard Wreck is unknown, it is possible to narrow down possible candidates through historical sources and Brewington's list of known bugeyes. Multiple bugeye vessels are referred to by name within primary and secondary historical sources relating to Washington. For example, one local newspaper contained an advertisement for chartering the "bugeye schooner *Hamlet*, for a trip to Makleyville…starting from Washington at one pm" (*Washington Gazette* 1891:3). The announcement not only states the name of the vessel, but it also shows that boats were being referred to by their specific type. *Hamlet*, along with other of the type, can be found in the list of known bugeyes (Brewington 1963:104).

"SQUARE-RIGGED" BUGEYES

NAME	OFF. NO.	TONNAGE:			DIMENSIONS:		BUILT:		
		GROSS	NET	LENGTH	BREADTH	DEPTH	YEAR	WHERE	BY
A. J. LAWSON	106217	24.1	22.9	57	17.6	5.2	1883	Pocomoke City, Md.	
ALEXANDER BOND	107046	32.0	30.0	65.5	19	5.4	1893	St. Michaels, Md.	Kirby & Son
AMBITION	106205	17.0	8.0	53.2	15.1	4.3	1883	St. Michaels, Md.	T.L. Dawson
ANN MATILDA	106219	10.0	9.0	46.5	12.9	3.7	1883	St. Michaels, Md.	
AVALON	106861	22.0	17.0	59	18.1	4.8	1891	Pocomoke City, Md.	
CATHERINE	209260	51.0	51.0	65.2	22.1	6.1	1911	Solomons Is., Md.	M.M. Davis
CENTENNIAL	125692	9.0		51.1			1878	Crisfield, Md.	
CLYTIE	12785	40.0	36.0	81	21	6.5	1901	Solomons Is., Md.	
CURLEW	126170	38.0	29.0	65	19.4	6	1883	Pocomoke City, Md.	W.J.S. Clarke
EDGAR M. SCHALL	135752	30.0	21.0	62.3	17.8	5.3	1883	Baltimore, Md.	McCosker
EVA BRAMBLE	135529	23.9	22.7	61.5	16.3	4.8	1881	Brannock Nk, Dor. Co.	G. Bramble
G. W. GLENN	85872	16.0	13.0	59.3	16.5	3.3	1884	Accomack Co., Va.	
GEORGE T. PHILLIPS	85747	32.0	31.0	65.5	18.1	5.5	1882	Solomons Is., Md.	J.T. Marsh
GRACIE	86107	26.0	25.0	58	17.7	5	1890	St. Michaels, Md.	Kirby & Son
HAZELLEAN	95892	10.0	9.0	51.4	14.2	2.8	1886	Somerset Co, Md.	
IVY L. LEONARD	100343	31.0	21.0	64.2	18.1	4.8	1883	Madison, Md.	
J. HAMMITT LAKE	211624	49.0	49.0	68.5	22.2	5.3	1913	Solomons Is., Md.	M.M. Davis
J. F. LANGHAMMER	76444	31.0	23.0	60	19	5.8	1883	Pocomoke City, Md.	
J. W. LEWIS	76758	19.0	18.0	45	14.6	4.6	1888	Greenpoint, Va.	
JOSEPHINE	76230	19.0	18.0	54.8	16	4.4	1881	St. Michaels, Md.	R. Lambdin
LIZZIE LEE	206696	45.0	36.0	68.8	22.7	5.5	1909	Inverness, Md.	J. Branford
LIZZIE MAY	140786	9.0	9.0	49.3	13.3	3.2	1885	Tilghman Is., Md.	J.T. Harrison
LOLA TAYLOR	15958	10.3	9.8	56	16.6	2.3	1886	Westmoreland Co., Va.	
M. J. COVINGTON	91711	9.0	5.0	50.4	13.6	2.8	1884	Tilghman Is., Md.	W.S. Covington
M. W. WILLING	91620	13.0	8.0	49.6	157	3.8	1883	Somerset Co, Md.	
MINNIE AND HELEN	91508	27.2	25.8	64.7	17.2	4.6	1882	Easton, Md.	
NORMA R.	130478	27.0	26.0	65	18	5.3	1890	Solomons Is., Md.	W. Parsons
R. B. HAYNIE	111134	31.0	22.0	64.6	19.1	5	1896	Solomons Is., Md.	M.M. Davis
RESCUE	110877	27.0	19.0	60.7	18.2	5	1890	Pocomoke City, Md.	
RHODA VIRGINIA	111460	18.0	18.0	56.3	17.8	3.6	1903	Madison, Md.	J.W. Brooks
RICHARD J. VETRA	110790	10.0	9.0	50	15.5	3.2	1888	Deal Is., Md.	
SAMUEL S. SMYTH	116297	10.0	9.0	53	13.9	3.4	1889	Monie, Md.	
SAMUEL T. WHITE	115976	20.0	19.0	50.5	17.6	4.4	1883	Pocomoke City, Md.	
THOMAS BLADES	145488	27.0	26.0	62	17.6	5.1	1888	St. Michaels, Md.	Kirby & Lang
THOMAS H. KIRBY	145316	28.0	26.0	61.1	17.6	5.1	1882	St. Michaels, Md.	Kirby & Lang
WINNIE H. WINDSOR	81060	26.0	25.0	63.1	17.2	5.2	1884	Solomons Is., Md.	
WOOLFORD	80958	29.1	27.7	63.2	18.7	4.7	1883	Madison, Md.	J.W. Brooks

FIGURE 78. A consolidated list of all known square-rigged bugeyes first compiled by Brewington (Snedicker and Jensen 1992:194).

Hamlet has a long-recorded history and was used extensively in North Carolina (FIGURE 79). Built in Fishing, Maryland in 1890, it measured 17 m (56 ft.) long and 4.4 m (14.5 ft.) wide and was used in the oyster industry in both Maryland and North Carolina. In 1914, *Hamlet* famously aided the New York Aquarium in transporting live dolphins from North Carolina with the help of Captain Ethelbert Dozier Burrus. Burrus retired from trading cargo from the state to the West Indies sometime prior to 1915. Thereafter, he used *Hamlet* as a freight boat to carry

goods between Ocracoke, Wilmington, Elizabeth City, and Washington (MVUS 1896:82; NPS 2005:322; Garrity-Blake and Amspacher 2017:155).

FIGURE 79. The bugeye *Hamlet* with its homeport stated as Elizabeth City, NC (Garrity-Blake and Amspacher 2017:155).

While some of *Hamlet's* story is recorded in ethnographies, the history of many bugeyes have been lost (National Park Service 2005; Garrity-Blake and Amspacher 2017:155). A great deal of information, however, can be obtained if the name of a vessel is known and can be traced within the MVUS lists. Separated by year, each list contains the names of individual vessels, their identification number, their dimensions, and where they were built. This information can be compared to the list of known bugeyes to determine if it is the same vessel. The registered homeport, owners address, and the fate of each vessel can be determined by identifying it within the list. Thus, much can be determined about each vessel by examining this information in the lists of each year. For example, the bugeye *Hamlet* was initially registered as a sailing vessel but was later converted into a gas screw boat for a few years before again being listed as a sailing vessel (MVUS 1929:589). The vessel was also listed as being an oyster fisher for some years but

ended up registered as a freight boat, a type commonly used in Washington. Interestingly, *Hamlet* is listed as abandoned with its last home port as Washington, North Carolina in 1931 (MVUS 1931:947).

Although *Hamlet* is similar in size to the Centerboard Wreck and was likely abandoned in Washington, certain features of each vessel may prove that they are not the same. *Hamlet* was listed as a gas boat during multiple years of its lifespan but there is no evidence that the Centerboard Wreck ever utilized a motor. Furthermore, although *Hamlet* is among the known bugeye list, it is not registered as a square rigged bugeye. It is also difficult to determine from historic photographs if the main mast of *Hamlet* is offset to the port side or in line with the forward mast. A model of *Hamlet*, however, indicates that it was not square rigged and appears to be built as a traditional bugeye (FIGURE 80). Thus, since the Centerboard Wreck was not built as a traditional bugeye and shows no signs of conversion to a gas boat, it is unlikely to be the remains of *Hamlet*.

FIGURE 80. A model of the bugeye *Hamlet* located at the Graveyard of the Atlantic Museum (NPS 2005:323).

Though the identity of the Centerboard Wreck cannot presently be determined, it may be possible to do so in a future investigation. As previously mentioned, some vessels disappear from the *MVUS* lists leaving their fates are unknown; the specific fate of each vessel, however, may be mentioned in other historical records such as insurance logs. A detailed historical examination of each square-rigged bugeye may provide enough evidence to ascertain the identity of the Centerboard Wreck, as well as that of those of the Hobbs Wreck and the Castle Island bugeye. Furthermore, the fact that a previously unknown North Carolina built bugeye, *Flossie D. Lee*, was discovered using historical newspaper accounts and the *MVUS* records supports the possibility of more unknown bugeyes cited in the historical record (*MVUS* 1902:64). Whether or not the Centerboard Wreck is eventually identified, this case study is a significant example of the benefits of examining vernacular watercraft.

Conclusion

The Centerboard Wreck is an example of a workaday vessel related to two historic fisheries. Though rarely found in the archaeological record, bugeye shipwreck sites provide evidence of specific construction features that were specific to a region for less than half of a century. The Centerboard Wreck is also associated with multiple industries specifically relating to the town of Washington, the Chesapeake Bay region, and possibly the Outer Banks.

Perhaps the most significant contribution to knowledge that this case study provided was the rediscovery of the extent to which Chesapeake Bay vessels were used in North Carolina. Even if the Centerboard Wreck was not built in the Chesapeake Bay region, the historical documents examined for this study provide abundant evidence that Chesapeake Bay schooners, skipjacks, and bugeyes were used extensively throughout North Carolina waters during the critical years of the oyster boom. North Carolina's oyster industry advanced because of the

introduction of these vessel types, yet this fact is rarely mentioned in historical examinations of the industry. Even though the Centerboard Wreck was likely known to residents who may have seen it while paddling by on their kayak or noticed portions of it protruding from the water during a blowout, its identity and historical narrative are lost. Despite the fact that the identity of the wreck remains unknown, the role that the Centerboard Wreck played in Washington's oyster industry is a significant piece of the local and regional maritime cultural landscape and historical narrative. The knowledge gained from this case study has been shared with members of the community so that it can be remembered for future generations.

FIGURE 81. A photograph of the abandoned bugeye *Goldie C.* (Burgess 2005:31).

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APPENDIX A: FRAME BASELINE OFFSET AND SCANTLING MEASUREMENTS

Port Side Frame Baseline Offset Measurements

Port Side Frames	Baseline Measurement (m)	Offset Measurement (m)
P1	16.38 m	0.03 m
P2	15.98 m	0.44 m
P3	15.68 m	0.67 m
P4	15.18 m	0.83 m
P5	14.72 m	0.87 m
P6	14.26 m	1.06 m
P7	14 m	1.1 m
P8	13.5 m	1.58 m
P9	12.9 m	2.03 m
P10	12.1 m	2.3 m
P11	11.58 m	2.3 m
P12	11.2 m	2.32 m
P13	10.15 m	2.45 m
P14	9.85 m	2.53 m
P15	8.9 m	2.52 m
P16	8.58 m	2.3 m
P17	7.95 m	2.59 m

P18	7.5 m	2.6 m
P19	6.82 m	2.53 m
P20	6.4 m	2.21 m
P21	5.4 m	2 m
P22	Not able to record	Not able to record

Starboard Side Frame Baseline Offset Measurements

Starboard Side Frames	Baseline Measurement (m)	Offset Measurement (m)
S1	16.38 m	0.4 m
S2	15.65 m	0.6 m
S3	15.3 m	0.92 m
S4	15.2 m	1.07 m
S5	14.5 m	1.2 m
S6	13.85 m	1.49 m
S7	13.4 m	1.65 m
S8	12.55 m	1.88 m
S9	12 m	2.05 m
S10	11.3 m	2.22 m
S11	10.72 m	2.03 m

S12	10.06 m	2.43 m
S13	9.5 m	2.52 m
S14	9.05 m	2.36 m
S15	8.28 m	2.28 m
S16	7.55 m	2.2 m
S17	7.02 m	2.35 m
S18	6.45 m	2.13 m
S19	5.9 m	2.1 m
S20	5.2 m	2.03 m
S21	4.55 m	2.35 m
S22	4.12 m	Not able to record

Port Side Frame Scantling Measurements

Port Frame	Sided (cm)	Molded (cm)	Baseline (m)
PF1	12 cm	6 cm	16.65 m
PF2	11 cm	11 cm	15.95 m
PF3	9 cm	10.5 cm	16.65 m
PF4 and PF5	19 cm	5 cm	15.4 m
PF6	8 cm	10 cm	14.3 m
PF10	8 cm	11 cm	12.5 m

PF11	8 cm	13 cm	12.2 m
PF12	8.5 cm	11.5 cm	11.5 m
PF13	7.5 cm	11. 5 cm	10.9 m
PF14	7.5 cm	11 cm	10.45 m
PF15	7.5 cm	12 cm	Not recorded
PF27	7 cm	11 cm	7.8 m
PF 28	7 cm	10 cm	7.2 m
PF 29	7 cm	9.5 cm	6.5 m
PF30	7.5 cm	11 cm	6.05 m

Starboard Side Frame Scantling Measurements

Starboard Frame	Sided (cm)	Molded (cm)	Baseline (m)
SF1	3 cm	22 cm	16.35 m
SF2	3 cm	17cm	16.1 m
SF3	8 cm	11 cm	15.25 m
SF4 and SF5	23 cm	13 cm	14.4 m
SF6	6 cm	11cm	13.95 m
SF7	8 cm	11 cm	Not recorded
SF10	11 cm	11 cm	12.5 m
SF11	9 cm	10 cm	11.95 m

SF12	8 cm	9 cm	Not recorded
SF13	8.5 cm	9 cm	11.6 m
SF14	8.5 cm	10 cm	Not recorded
SF15	10 cm	9 cm	10.95 m
SF16	8 cm	10.5 cm	Not recorded
SF25	8 cm	8 cm	7.95 m
SF26	8 cm	9 cm	Not recorded
SF27	15 cm	8 cm	7.35 m
SF28	9 cm	10 cm	Not recorded
SF29	10 cm	9 cm	6.6 m
SF30	9 cm	11 cm	Not recorded

APPENDIX B: CENTERBOARD WRECK ARTIFACT INVENTORY

Artifact #	Material	Object	Description	Measurements	Artifact Image
62.20.001	Iron	Bobstay Fitting	Iron bobstay containing concretions. There is an eyebolt at one end and two through bolts. One through bolt is broken.	Length: 22-24.5 cm Width: 15 cm Thickness: 1.5-2 cm Eyelet Outer Diameter: 7.5 cm Eyelet Inner Diameter: 2.5 cm	
62.20.002	Wood	Wooden Tackle Half	Half of a wooden tackle. Broken along the centerline.	Length: 12 cm Width: 7-11 cm	
62.20.003	Iron	Iron Bar with Detergent Bottle	Iron bar with eyelet. Plastic laundry detergent bottle is attached to a rope tied to the eyelet.	Length: 1.1 m Width: 1-5 cm	
62.20.004	Iron	Bent Iron Bar	Bent iron bar with broken ends.	Length: 24 to 33 cm Width: 5 cm Thickness: 0.5 cm	
62.20.005	Iron	Dredge Roller	Iron cylinder containing a concretion between at the neck.	Length: 45 cm Width: 5-6 cm	
62.20.006	Iron	Iron Pulley	Iron pulley containing a bolt.	Length: 22 cm Width: 5-14 cm Thickness: 2 cm	
62.20.007	Iron	Iron Ring	Iron ring with a small concretion.	Outer Diameter: 14 cm Inner Diameter: 10 cm Width: 2 cm	
62.20.008	Iron and Wood	Pulley with Wood	Iron pulley containing a small pieces of wood.	Length: 22-23 cm Width: 8 cm Thickness: 15 cm	
62.20.009	Iron	Oyster Dredge Rake	Iron oyster rake containing 20 teeth.	Length: 144 cm Width: 12 cm Thickness: 5 cm Teeth Length: 4-6 cm	

62.20.010	Clay	Brick	Red brick with slight discoloration. Appears to be modern.	Length: 20.5 cm Width: 9.5 cm Thickness: 7 cm	
62.20.011	Iron	Gear	Worn gear pieces with approximately 30 teeth at the outer edge.	Outer Diameter: 14 cm Inner Diameter: 5 cm Gear Teeth Length: 2 cm	
62.20.012	Iron	Motor	Iron mechanism containing small concretions.	Length: 12 cm Width: 6-8 cm	
62.20.013	Iron	Iron Bars with Eyelets	Iron bars concreted together with eyelets on ends.	Length: 45 cm Width: 3-12 cm Thickness: 2-3 cm Eyelet Outer Diameter: 4-6 cm Eyelet Inner Diameter: 2.5 cm	
62.20.014	Wood	Tongue and Groove Wood Piece	Small tongue and grooved plank piece with longitudinal grain.	Length: 12 cm Width: 6-8.5 cm Thickness: 5-6 cm	
62.20.015	Iron	Purchase Link	Iron bar and eyelet concreted to a U-shaped shackle.	Length: 33.5 cm Width: 2-3 cm Outer Diameter of Eyelet: 5 cm Inner Diameter of Eyelet: 2 cm Shackle Length: 8 cm Shackle Width: 3 cm	
62.20.016	Iron	Pulley	Circular iron pulley with internal groove.	Length: 18 cm Width: 13 cm Thickness: 7 cm	
62.20.017	Metal	Wire Rope Pieces	Assortment of wire rope fragments.	Varying Length: 10-52 cm Width: 2.5-3 cm	
62.20.018	Copper Alloy	Rudder Pintle	Rudder pintle made from a type of copper alloy.	Length: 24 cm Width: 20 cm Thickness: 2-5 cm	

62.20.019	Iron	Concreted Threaded Pipe	Hollow thin pipe with threaded ends containing small concretions.	Length: 13 cm Diameter: 5.5 cm Thickness: 1.5 cm	
62.20.020	Iron	Oyster Rakes	Two oyster rakes concreated together. One contains 21 teeth while the other has no remaining teeth.	Length: 141 cm Width: 13-16 cm Thickness: 5 cm Teeth Length: 2-6 cm Gap Between Teeth: 5-6 cm	
62.20.021	Organic	Oyster Shells	Assortment of oyster shells with various sizes.	Sizes Vary Length: 1-9 cm Width: 1-7 cm	
62.20.022	Iron	Iron Bolt	Thin iron bolt with concretion at one end.	Length: 36 cm Width: 3 cm Thickness: 1.5 cm	
62.20.023	Iron	Chain Links	Two chain links concreted together.	Length: 16 cm Width: 7.5 cm Thickness: 2.2-3 cm	
62.20.024	Iron	Square Fastener Head	Square shaped fastener head.	Length: 8 cm Width: 6 cm Thickness: 2-3 cm	
62.20.025	Iron	Curved Iron Bar	Iron bar curved at the ends.	Length: 103 X Width: 16-21 cm Thickness: 2 cm	
62.20.026	Glass	Glass Panel	Clear glass panel with a broken corner.	Length: 20-22 cm Width: 10-14 cm	
62.20.027	Leather	Shoe Sole	Leather shoe sole containing stitching around the rim. The number 2883 can be seen in center.	Length: 16.5 cm Width: 2-6.5 cm Thickness: 0.5 cm	
62.20.028	Iron	Iron Stove Leg	Curved iron stove leg with broken top. Inside is concaved and contains small concretions.	Length: 19 cm Width: 3-9 cm Thickness: 1 cm	

62.20.029	Iron	Iron Elbow Joint	Iron elbow joint containing two diagonally placed holes.	Length: 21 cm Width: 11 cm Thickness: 1 cm	
62.20.030	Copper Alloy	Copper Centerboard Case Bolt and Fastener	Copper bolt is slightly bent and contains a fastener near the head.	Length: 25 cm Width: 2 cm Fastener Outer Diameter: 4 cm Fastener Inner Diameter: 2 cm	
62.20.031	Iron	Iron Tongs	Iron tongs with missing handles. Teeth are intact but slightly overlap each other.	Length: 46 cm x 19 cm x 12 cm Width: 7 cm	
62.20.032	Iron	Iron Band	Circular iron band with three notches placed inside.	Diameter: 32 cm Thickness: 3 cm Notches: 6 cm x 3cm	
62.20.033	Wood and Iron	Hatch Cover	Wood piece containing an iron eyelet. One corner of the wood is curved.	Length: 93.5 cm Width: 2-4.5 cm Eyelet Diameter: 2 cm	
62.20.034	Tar	Tar	Tar formed to the frame spacing. A frame impression is in the piece.	Length: 24 cm Width: 20 cm Frame Impression: 15cm x 6cm	
62.20.035	Wood	Bulkhead Timber	Top and bottom of timber are flat with the sides cut at a sharp angle.	Length: 1 m Width: 4 cm	
62.20.036	Iron	Deck Attachment	Flush front and back with holes. Sides are indented and contain vertical bolts. Top is rounded with a hole. Bottom is flat but has bolts protruding.	Length: 20 cm Width: 15 cm	

APPENDIX C: HISTORICAL NEWSPAPER REFERENCES

Tarboro Press (March 01, 1845)
“Washington is a delightful place. One side of the town is margined by the River which is very wide, and Wharves and Shipping give it the appearance of a commercial City. About midway of the River, is an Island, owned by Abner Neale. Esq. covered with work-shops suitable for Ship building, &c. The Island is called "The Castle"- a very classical name. On the opposite side of the River, are several Turpentine Distilleries, but the most extensive one is owned by Dr. Freeman and Mr. Houston-both scientific gentlemen, who conduct their distillation on the principles of science, and in a style nowhere else to be found. This town is quite large. It has about twenty or thirty Stores, five Churches, a Court House and Jail. The five Religious denominations are Episcopalians, Presbyterians, Methodists, Baptists, and Roman Catholics. The Episcopal Congregation is rather the largest, and the interior of the Church is most beautifully decorated, showing the good taste of the Ladies of the Society. A "Grave Yard" surrounds the Church on every side, except the front, which impresses the visitor with a sort of melancholy calmness that renders the visit doubly interesting. No one can leave Washington without regret, especially if he has mingled with the good Society of the town”.

Weekly Star of Wilmington (February 27, 1891):
“This place [Washington] has improved very much in the last two or three years. A great many old wooden structures have been replaced with handsome two- or three-story brick buildings. The several industries of the town have increased its shipping trade very much. The oyster canning factories [sic] has been doing a thrifty business; also, the merchants. The steamers plying between Tarboro and this place also, in freighting and passenger traffic.”

Washington Gazette (July 02, 1891):
"Personal"
"Mr. E. S. Hoyt, Jr., left Monday night on one of the Bugeyes for a cruise around Ocracoke, Portsmouth and other seaports. Ed, we wish you a most charming voyage."

Washington Gazette (November 01, 1894):
"Bug-Eye for Sale"
"The Ruba Sterling, carries 1100 bushels oysters, draft five feet loaded, fast sailor, complete order, ready to go to work, can be bought for $900. She is 8 years old, built at Pocomoke City. For further paticulars [sic] apply to CAPT. W. H. FRENCH, Berkley [sic], Va."

Washington Progress (April 16, 1895):
"The New Oyster Law"
"The following is a summary of the provisions of the new oyster law, which is now in effect and which we print in reply to a number of inquiries concerning it: All persons taking oysters must procure license from the clerk of the court of Hyde, Dare, Carteret or Pamlico counties and must make oath that they are citizens and residents of twelve months' standing. Clerk's fee is 25 cents. Dredging license requires the payment of a tax of $3 per ton from vessels of six tons and over, and of $1 per vessel for those less than six tons. Dredging is allowed only during the months of February, March and April and within the following limits where the depth of water is more than

ten feet. First Area-From Pamlico Light House to Rue's marsh, and thence to Shell Point, thence to Southeast Point of Great Island, thence to the Brant Island Light House, thence to the beginning. Second Area-From Gull Shoal Light House, thence to Gibbs Shoal Buoy, thence to Long Shoal Light House, thence to Gull Island thence to Oliver Reef Light House, thence to the beginning. The penalty for dredging contrary to law is from $1,000 to $5,000 and from one to five years imprisonment in the penitentiary and forfeiture of the boat. The law known as the Lucas law is repealed. A chief inspector of oysters is provided who has been elected by the Legislature [Senator Theophilus White, of Perquimans County] His pay is $60 per month and he has the appointment of as many deputy inspectors as may be necessary, at $50 per month; all salaries to be paid out of the oyster fund. Inspectors have about the same duties as those prescribed under the old law except that they are not allowed to handle the money. All purchasers of oysters for packing, shipping or for sale are required to make a sworn statement at the end of each month of the number of bushels purchased and from whom purchased and to file same with the clerk of court of the county wherein they reside and pay to the clerk the tax of two cents per bushel. The clerk transmits the tax, less one per cent, which is his fee to the State Treasurer. Oysters caught with tongs during the month of February, March and April are not subject to tax upon the production by the purchaser to the clerk of the court of a statement sworn to before a deputy inspector that the oysters were so caught. Upon application by the County Commissioners of any country, the Governor has power to suspend dredging by proclamation for a period not exceeding on year. The act applies to the public grounds of the State and not to private grounds."

Washington Progress: (April 16, 1895):
"Oyster Pirates"
"Liet. F. Winslow learns from Senator Parsons of Hyde County, that oyster pirates are again in the Sound. Capt. Cox, of the schooner Len, reported a large number dredging at Middleton, Hyde County. The crew of the schooner Venus reports a number dredging in Wysocking Bay. Capt. Silverthorn, of another Hyde county schooner says it is commonly reported that dredging is and has been going on at Gibbs Shoal for some time. Senator Parsons is informed that over 7,000 bushels of oysters were taken from Gull rock on Friday and Saturday, March 29th and 30th and that 40.000 have been taken out of the State recently from the same locality. Mr. Parsons says all the dredging is illegal as no license have yet been granted and moreover the dredging is outside the limits allowed by the law. Mr. Parsons has placed the facts before Chief Shell Fish commissioner, who is also Senator of the first district from Perquimans County, with the suggestion that Mr. White should make the representation to the governor as required by the recent act of the Legislature. There is scarcely room for doubt that all the dredgers are from outside of the State. Being non-residents, they violate the law in taking the oysters at all, they violate it again in their manner of carrying them, and they violate it again by taking them outside of the State. The oyster beds are State property, and the State intends them for the benefit of its own citizens. These violators of the law are laying themselves liable to a fine of $4,000 and to five years imprisonment in the penitentiary. We judge the shell fish commission will promptly take steps to catch some of the trespassers and put a stop to their depredations. A few examples made of some captured ones would have a wholesome deterring effect. -New Berne Journal."

Washington Progress (October 15, 1895):
"Mr. Robt. Tripp has moved on the corner of Market and Second streets and will run an oyster saloon".

Washington Progress (March 31, 1896):
"Our City to Have Shelled Streets."
"Friday afternoon the Board of Aldermen had a call meeting at the City Hall at 4 o'clock for the purpose of considering a proposition from Mr. Farren, owner of the canning factory to sell the city oyster shells to place on the streets, offering them at one cent per bushel. Mayor Havens invited all the physicians of the town to be present and other representative men to present their views whether or not such a step would be healthful or not. The physicians were of the opinion that while the odor of the shells would be unpleasant, yet it would make the city healthier. The commissioners decided to purchase one hundred thousand bushels of oyster shells at one cent per bushel."

Washington Progress (April 07, 1896):
"The news Tuesday that the canning factory would not be operated here this season was a keen disappointment to our people, and regret was expressed on all sides at the news. Dr. S. T. Nicholson wired Mr. Farren, the owner of the factory, to reconsider his decision. That our people deprecated his determination exceedingly. To this dispatch Mr. Farren answered "That it would be impossible. Washington has too many disadvantages for this season." Dr. Nicholson wired Mr. Farren again offering him the steam tug Gazelle free, if he would consent to come. To which the following reply came: "See yesterday's letter. Only chance to operate Washington would be purchasing Makely's oysters at satisfactory price if in condition." So it is settled the factory will not be opened here this season. Mr. Makely wants twenty-five cents per bushel for his oysters at rail of boat and Mr. Farren does not wish to pay over fifteen cents. In otherwords, Makely wants $7,000 for his oyster under water. We had hoped to see the factory in full blast very soon but we will not have that pleasure this season. Our citizens should thank Dr. Nicholson for his endeavor to secure the opening of the factory. Had we more such men Washington would be a town second to none in the State."

The Evening Messenger (September 12 1896):
"Bug-Eye Stolen"
"From Cambridge Harbor June 6th, 1896"
"Sharp sail: will carry about 150 bushels of oysters, round stern, painted white, oiled bends steers with a small "Lake" wheel; has been made two feet wider; old sealing still remains; five hatches, three cut in two; cabin forward, with one diamond shaped window in each side. wire standing rigging, on mainmast one larger than the other: gilt ball on each masthead; gilded eagle head on long head; large cockpit, eleven or twelve inches deep, with lead pipe on each side leading out overboard: hatch in cockpit; hole torn in jib, companionway not finished; "Imp" painted inside of companionway; no name on hull; spairpine masts; galvanized windlass; has been painted red; one sleeve off starbord [sic] side of windlass; iron pump on port side; small skiff painted pea green. A Liberal Reward will be paid for any information leading to the recovery of the same, - Address. P. W. Jackson, Cambridge, Md."

Washington Progress (December 21, 1898):
"Mr. J. S. Farren of Baltimore, arrived in the city on Saturday last and left Monday morning on a tug on a trip down in the sound on an oyster inspection tour with the view of opening the oyster factory here should the oyster stock be in good condition and if he can get a supply. We hope conditions will be such as to justify the opening of the factory as it will be of much advantage to the business interest of this place and at the same time furnish a good market for oysters."

Washington Progress (January 11, 1899):
"-Main street has been greatly improved recently by the use of oyster shells. When the factory opens, which will be in a week or two there is no reason why our streets should not be shelled and put in good condition."

Washington Progress (January 11, 1899):
"-One day last week while attempting to cross Pungo river off Rumley's Mill the small boat capsized and two colored men were drowned. There was five in the boat but three of them were saved by some parties in an oyster boat."

Washington Progress (October 12, 1899):
"-Mr. H. B. Farren of Baltimore, was in the city some days recently looking after the oyster factory. He tells us that he will build an addition and start up a raw business the last of this month and will open the steam business just as soon as he can get a supply of oysters sufficient. He wishes us to say that he will be ready to buy oysters by the last of the month."
Washington Progress (October 12, 1899):
"Capt. A. W. Styron authorizes us to state that at an early date he will put on a line of steamers from Belhaven to Swan Quarter. Messrs. A. B. Riggin & Co., who have built a large oyster factory at that place and who will also run a large raw business are making arrangements and Capt. Styron says the Calumet will go on the line and will make daily trips between the town points."

Washington Progress: (December 1, 1899):
"The oyster law permits dredging the first of December and at that time the waters of Pamlico Sound will be alive with dredge boats."

Fisherman and Farmer (December 01, 1899):
"FOR SALE!"
"Schooner of 68 tons register, 7 1/2 feet draught.
Schooner of 48 tons register, 6 feet draught.
Pungy of 22 tons register, 7 1/2 feet draught, carries 1000 bushels.
Schooner 15 tons register, 5 feet draught, carries 500 bushels.
Bugeye of 7 1/2 tons register, 4 feet draught, carries 300 bushels with complete dredging outfit.
Address
C. W. Woolford, Foot President St. Balto., Md. Nov-24 2t."

Washington Progress (February 1, 1900):
“On Thursday night last during the heavy blow a schooner hailing from Belhaven belonging to Catp. Cox and others was capsized in the sound and four men were drowned, two white men and two colored.”

Washington Progress (March 01, 1900):
"Bugeye Capsized."
"The bugeye, A. L. White, in charge of Capt. J. J. White, was capsized at the mouth of Chocowinity bay Thursday morning. The White had discharged a cargo of oysters at the canning factory and was on her way back to the oyster rocks, when off Chocowinity bay the boat came in contact with high winds. There was no one on deck at the time but the captain, who was at the wheel, his wife and child were in the cabin and a crew of three in the forepeak. When the wind struck her the gib filled and turned her over throwing the captain in the water. He made efforts to reach the cabin where his wife and child were but failed. After several vain attempts he reached the companionway and met his wife and child coming out, the cabin was full of water and Mrs. White unconscious. She was rescued after hard work, and the rest of the crew. The boat is now lying on the bottom of the river in twelve feet of water. The captain and crew were rescued from their perilous position by Capt. Daniel Paul, and was offered assistance by the steamer Hatteras. Efforts were made to raise her Thursday, and several boats aided gratis in the work which was accomplished."

Washington Progress (February 8, 1900):
“From Lake Landing, Hyde Co. Jan 28 (?), 1899 [sic]
Mr. Editor: Capt. Robert Cox and his brother Clyde left Middletone Friday with part of a load of osyters bound for Belhaven..?...were down or frozen to death. She went down between 2 and 3 o’clock, p.m. and the crew that was not lost clung to the mast until they were rescued Saturday morning. Ed Midyette and Tom Collins were brought and buried today. Walter Jones is in a critical condition. David Credle’s son about 12 years old and Frank Morris and Squire Howard are missing. They were trying to round Long Point shoal so as to beat up in Wysocking bay. The pongee (May C. Ward?) is a flat bottom boat with no center board and drew five feet of water light and even loaded. She was the property of Capt. Cox and was a regular oyster baot carrying about seven hundred tubs. The casualty is deplorable and shows the eagerness with which our people are trying to make a living. Never before has there been oystering of necessity and were it not for this industry many would now be suffering for the necessaries of life and hence it is that many risk their lives and suffer the hardships that otherwise would be home enjoying the comforts of home. If I were to say that there are over two hundred boats including schooners and one thousand men and boys now engaged in the business dredging and tonging and conveying oysters to Elizabeth City, Swan Quarter, Belhaven and Washington and to the market boats, I don’t think I would miss the mark, if I came up to it. And all of this in that portion of Pamlico sound adjacent to Hyde country the most productive soil in the state is in Hyde county and the people are in the worst condition they ever were. I believe the government will have to help or suffering will be among us.”

Roanoke Beacon (May 23, 1902):
"Bugeye" Bay Craft"
"A Crisfield, Md., correspondent writes to the Baltimore Sun: Stephen G. McCready, of Crisfield, gives the following history of the boat known as the bugeye. He has acquaintance with all kinds of Chesapeake Bay craft for the past fifty years, and says: "Captain Clement R. Sterling built the first bugeye that sailed on the Chesapeake Bay. Captain Sterling was building a canoe from three logs, and as he had plenty of time, it occurred to him to use two more logs and put on a deck. On his first trip to Baltimore with this peculiar craft he was hailed many times by passing vessels, whose captains invariably asked what was the name of the queer vessel. To each inquiry Captain Sterling replied: 'It's a bug's eye.' If Captain Sterling were living at the present time it is doubtful if he could give an explanation of his answer, beyong [sic] saying that it was pleasantry. The name stuck to the craft, and it has been known ever since as the bugeye. The first vessel of this class was called a punt, and was made from one log hollowed out; then came the canoe, and, finally, the most complete vessel of all-the bugeye.

The bugeye is now the most popular vessel among oystermen in Somerset County, and at least 100 new vessels of this type are built every year. Some of them are of at least ten feet beam, and cost $1200. They are very strong, being built of the best logs."

Washington Progress: (July 31, 1902):
"Bug Eye for Sale."
"I have a boat of the class known as the Bug Eye which I will sell for a reasonable price. She is about 60 feet long, about 17 feet beam and draws about 20 inches light. Will carry about 450 bushels of oysters. She is a first-class boat and in good condition.

Apply to T.M. Credle, Swan Quarter, N.C."

Washington Progress (December 18, 1902):
"Mr. H. B. Farren tells us that he is undecided whether they will rebuild the oyster canning factory here or not. He says they feel discouraged. We trust they will decide to rebuild at an early date."

Washington Progress (April 09, 1903):
"From Corepoint"
"A few days ago, three young men while on their way ashore from the bugeye Flossie D. Lee, which was laying at anchor, were up-set, but happened to be in shallow water and waded out. They were met at the water's edge by a large crowd to join in a hearty laugh."

Washington Progress (August 27, 1908):
"The Oyster Question"
"Editor Progress:-I see from your paper the Governor has called a convention to meet at Morehead City on the 26th and 28th of this month. Delegates are appointed from each eastern county for the purpose of devising plans and discussing the best laws for the fish and oyster industries of the state, to be submitted to our next General Assembly. It is a fact that under the present laws and conditions the revenue is not sufficient to meet the indebtedness in paying the inspectors and maintaining the patrol boat.

I would suggest that the next General Assembly repeal or amend that portion of the law that gives the Governor power to appoint the chief inspector. Let this be given to several counties

bordering on Pamlico Sound, who are directly interested in the fish and oyster business. I would further suggest that this chief oyster inspector should be a man who should have control of the patrol boat and he be on board and have charge of the inspection and issue license and have general supervision over the whole business, and only appoint inspectors when they are actually needed. By this means we would have the chief inspector on Pamlico Sound where he could see what was needed and could prevent many depredations. Having only one man, which is amply sufficient, would be a saving to the state oyster funds at least $13,000 (?) annually.

I have no objection to any of the present officials, they are all nice men, but what we need is a man located near the center of the oyster district. As we now have it the chief is about 100 miles away and the assistant 75 miles away, and not visiting the sound once a year. It looks as if this is a needless expenditure of money, unless the business was more profitable and was self-sustaining. Unless there is a curtailment of officers it looks as if there will not be any inspectors as many of the inspectors have not received their pay for nearly town years.

I would also advise the lengthening the time of dredging and tonging of oysters from the public ground of the state of April 15th of each year. There are so many men along the string of banks between the Pamlico Sound and the Atlantic ocean who have no other means of support other than their oyster and fish industries, and when our people legislate to shorten the time of oystering it leaves them with practically no means of support. A good many oystermen are in favor of the old two and half inch law from hinge to mouth be restored instead of three inches, and the rpevention of any plants being conveyed out of the state, which is a law now, but is broken in some instances.

If there is a single suggestion in this that would be of benefit I would be glad for any delegate to discuss it at the convention.

Respectfully, Chas Brinn, Swan Quarter, N.C."

Washington Daily News (October 13, 1909):
"Looking Over Situation"
"Mr. T. W. Ford of the J. S. Farren Company in the City Looking Over the Field with View of Re-opening Factory."
"Mr. T. Wheeden Ford, of the J. S. Farren & Co., Canned Goods Packers, Baltimore, arrived in the city last evening. Mr. Ford is here looking over the oyster situation with a view of reopening the canning factory, which has been closed down for the past two years.

In talking to a News Representative this morning, Mr. Ford stated that if the outlook for oysters the coming season were propitious it was his opinion the factory would resume operations. Mr. Ford will leave for Belhaven today so as to get in closer touch with the dredgers and tongers. Before the factory could be opened the management must have some assurance of securing enough oysters to keep the plant busy.

When the factory operates, over 200 hands are employed and the city is thereby benefitted in more ways than one. Mr. Ford speaks most encouragingly of the outlook so far, and thinks if nothing unforeseen takes place the factory will open here this season.

Much needed repairs to the plant will have to be made and several late machinery improvements installed. If the company decides to open the factory they will begin operations within the next 30 days.

The opening of this large plant will be welcome news to the people as it will mean employment to a large number."

The Asheville Weekly Citizen (October 26, 1909):
"Help! Help! What is Oyster Bug Eye?"
"Washington, Oct, 21.-The chase of the oyster bugeye Freddie Hayeward, which was libeled at Baltimore and stole down the Chesapeake Bay after ejecting the deputy marshal who had taken it in custody led today to St. Jerome's Creek. A wireless message was received by the treasury department today from the revenue cutter Apache aboard which a United States marshal is searching for the fugitive craft, reporting the anchoring of the Apache in the Patuxent river last night and the exploration of St. Jerome's creek today. St. Jerome is nearly five miles north of Point Lookout, a shallow tributary."

Washington Daily News (November 10, 1909):
"Oysters-We are now receiving regular by our own boats oysters direct from oyster grounds, and selling them as follows. Standards, 25c quart, $1 per gal. Selects 35c quart, $1.25 per gal. These prices are for solid oysters, not water, and at our fish house only; extra charge made for delivery. Respectfully, Swindell & Fulford Fish Co."

Washington Daily News (November 13, 1909):
"Many Oyster Boats"
"At no time this season has there been more boats at the Market dock with oysters. They are here from Dar, Pamlico, Hyde and Beaufort counties. They are of excellent quality for the time of the year".

Washington Daily News (March 26, 1913):
"The fish boat A. L. White, owned by the Swindell-Fulford Fish Co. of Washington, Capt. Luther, is in port from Hatteras.
The fish boat Knox, owned by the Swindell-Fulford Fish Co., Capt. Leland Green, is in port from Bath.
The oyster boats: Casey Jones of Goose Creek Island, Pamlico country. Capt. Popperwill; and Lucy May, of Goose Creek Island, Capt. George Clark, are in part (sic?).
Capt. Carawan is here with is oyster boat from Swan Quarter."

Washington Daily News (February 02, 1916):
"The Oyster Situation"
"The condition of the oysters which are being brought into Washington is causing considerable comment on the part of those citizens who have watched the loads that the boats are bringing in. One Man stated this morning that there were four boats in port and that three of these boats ought to be sent back to the oyster rocks and be made to throw their cargoes overboard. He added that at the rate the oystermen were going at present, it would not be long before the oyster beds would be entirely depleted.

In speaking of the matter this morning, R. B. Weston, who is oyster inspector for this port, made the statement that he believed the cargoes of the boats were alright, and that he was powerless, under the law to do anything. The law on the question reads as follows:

"All oyster taken from the public grounds if this State shall be culled and all oysters whose shells measure less than two and one-half inches from hinge to mouth, except such as are attached to a large oyster and cannot be removed without destroying the small oyster, and all

such taken with the said oysters shall be returned to the public ground when and where taken; and no oyster shall be allowed by the inspectors to be marketed which shall consist (?) more than ten per cent of such small oysters and shells, except "coon" oysters and oysters largely covered with mussels; Provided these musseled oysters must not contain more than five per cent of shells or small oysters under regulation size."

The Daily Free Press (August 09 1920):
"Slight Regard"
"For Creatures of His Kind Has Cap'n Bill Thomas"
"Washington, N. C., Aug. 10.-The "bugeye" has become popular in the Eastern Carolina waters. The Craft of this kind have been looked upon with suspicion heretofore, and few if any true "bugeyes" have been seen. Three handsome boats have been brought to Ocracoke from Maryland waters. The sharpness of the sterns is relieved by the patent platform decks built onto the vessels. They are rigged as schooners without topsails and carry auxiliary motors. The tremendous increase in the passenger business is proving profitable to the boatmen. Capt. Bill Thomas, who rant the last West Indiaman out of this port, here today on his first visit in four years, commented caustically. "I'd rather carry a cargo of monkeys than a boat load of people," declared "Cap'n Bill." The monkeys would stain in the way less, and "they wouldn't ask a lot of d-d fool questions."