

The Port Royal Sound Survey, Phase One: Preliminary Investigations of Intertidal and Submerged Cultural Resources in Port Royal Sound, Beaufort County, South Carolina



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Abstract

From May 1997 to September 1998 the Underwater Archaeology Division of the South Carolina Institute of Archaeology and Anthropology at the University of South Carolina implemented the Port Royal Sound Survey. The purpose of the project was to begin a comprehensive submerged cultural resource survey of Port Royal Sound, Beaufort County, South Carolina. Survey strategies for the first phase of the project included historical, archaeological, and geographical research, oral interviews, and field work to identify intertidal and underwater archaeological resources. During the course of an intertidal pedestrian visual survey 12 sites were documented to the state archaeological sites files, and more than 55 previously recorded sites were revisited. Newly documented intertidal cultural resources included the remains of abandoned watercraft and pilings for piers or wharves. Funds were also available to undertake a limited marine remote sensing survey of four areas in the sound. The aim of this document is to provide information to guide future intensive marine remote sensing survey operations and research efforts in the region.

Federal Disclaimers

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Table of Contents

List of Figures	vii
Introduction	1
Acknowledgments	4
Chapter 1: Environmental History	7
General Physical Description of the Project Location.....	7
Geological Description of the Sound.....	7
Port Royal Sound Paleoenvironment Evolution.....	10
Present Environmental Conditions.....	11
Extreme Weather.....	11
Other Natural Phenomena.....	12
Chapter 2: Native American Exploitation of Port Royal Sound	13
Recorded Prehistoric Sites.....	13
Paleoindian.....	14
Archaic.....	14
Woodland.....	16
Mississippian.....	17
Contact.....	18
Amerindian Canoes.....	19
Chapter 3: Maritime History	22
Colonial.....	22
Spain and France.....	22
Great Britain.....	25
Yemassee War.....	27
Intercolonial Warfare.....	28
South Carolina's Nascent Economy.....	31
Agriculture.....	32
Shipbuilding in Port Royal Sound.....	33
The Maritime Network.....	36
Royal Navy Presence.....	38
Revolutionary War.....	39
Antebellum.....	40
Agriculture.....	41
War of 1812.....	41
Live Oaking.....	41
Shipping.....	42
Civil War.....	44
Postbellum.....	49
Phosphate Mining.....	49
Shipping.....	51
Military Installations.....	52
Modern.....	53
Chapter 4: The Seafood Industries of Port Royal Sound	55
The Oyster Industry.....	55

History.....	55
Harvest and Processing.....	56
Fishing Grounds.....	58
Boats.....	58
Equipment.....	59
The Shrimp Industry.....	60
History.....	60
Harvest and Processing.....	61
Fishing Grounds.....	62
Trawlers.....	62
Nets and Equipment.....	64
Other Equipment.....	65
The Crab Industry.....	66
History.....	66
Harvest and Processing.....	67
Boats and Equipment.....	68
Finfish and Other Seafood Industries.....	68
Wharves, Packing houses and Canneries in the Port Royal Sound Project Area.....	69
Beaufort County Seafood Industry Time line.....	71
Chapter 5: Previous Archaeological Work.....	73
Contract Archaeology.....	73
Research Archaeology.....	74
Collectors.....	76
Watercraft and Submerged Archaeological Sites in Project Area.....	76
Watercraft Remains.....	76
38BU57-Hemmings/Boyer Historic Canoe.....	76
38BU103-Billy Partridge Prehistoric Canoe.....	79
38BU122-No Name Wreck.....	79
38BU477-The 242 Site and Spanish Point Wreck.....	79
38BU484-Whitie's Wreck or the S.S. <i>Clifton</i>	80
Underwater Historic Scatter Sites.....	80
38BU476-Tom's Site.....	80
38BU478-Fort Frederick Offshore Site.....	80
38BU479-Beaufort Waterfront Park Site.....	81
38BU480-Brickyard Point Landing Site.....	81
38BU338/482-Port Royal Site.....	81
Chapter 6: Research Strategy and Results.....	82
Research.....	83
Historical.....	83
Archaeological.....	84
Environmental.....	85
Oral Interviews.....	85
Field Work.....	86
Intertidal Survey.....	86
Aerial Reconnaissance.....	86
Pedestrian Survey.....	87
Marine Remote Sensing Operations.....	88
Public Outreach.....	88
Final Product.....	89

Chapter 7: Oral Interviews	91
Selected Interviews.....	92
Sport Divers.....	92
James Cooler.....	92
Bobby Black.....	94
Shrimpers and Commercial Fishermen.....	94
Bobby Chaplin.....	94
Randy Higgins.....	95
Charley Smith.....	95
Mark Wise.....	95
Woody Collins.....	96
David Bogan.....	96
Avocational Historians.....	96
Roger Pinckney.....	96
Sport Fishermen.....	97
Alice Jones and George Busby.....	97
Trevor Strever.....	98
Bill Parker.....	98
Other Sources.....	98
Tom Mikell.....	98
Chapter 8: Sport Diving Activity in Port Royal Sound	99
Port Royal Sound Diving Locations.....	101
Beaufort River.....	101
Spanish Point and Channel Marker 242.....	101
Fort Frederick.....	102
Beaufort Waterfront.....	102
Technical School of the Lowcountry.....	102
Other Sites in the Beaufort River.....	103
Unspecified Beaufort River Sites.....	103
Brickyard Point.....	103
Sam's Point.....	104
Battery Creek.....	104
Battery Creek at Port Royal.....	104
Whale Branch River.....	104
Factory Creek.....	104
Broad River.....	105
Port Royal Sound.....	105
Miscellaneous Sites in Port Royal Sound and Vicinity.....	105
Offshore.....	105
Chapter 9: Archaeological Sites and Revisits	106
Watercraft Remains.....	106
38BU1817-Cane Island Wreck.....	107
38BU1816-Shrimp boat "Boll Weevil".....	108
38BU1814-Factory Creek Wreck.....	109
38BU1815-Factory Creek Oyster Boat Remains.....	110
38BU1813-Port Royal Island Wreck.....	112
Pilings.....	115
38BU1821-Pilings behind Beaufort Hospital.....	115
38BU1824-Line of Palmetto Pilings.....	115
38BU1818-Squared Pilings.....	116

38BU1820-Channel Marker 242 Wharf Pilings.....	117
38BU1822-Technical School Pilings.....	119
38BU1823-Cat Island Pilings.....	120
38BU1819-Laurel Bay Palmetto Pilings.....	120
Miscellaneous.....	121
3B2/3B4-Telegraph or Telephone Pilings.....	121
4C2-Riveted Iron Boxes.....	122
4A2-Lady's Island Dump Ground.....	123
3B1-Artifact Scatter Site.....	123
Archaeological Site Revisits.....	124
Chapter 10: Marine Remote Sensing Survey Operations.....	130
Marine Remote Sensing Ensemble.....	130
Daws Island.....	131
Spanish Point.....	131
Cotton Island.....	132
SS <i>Clifton</i> (38BU484).....	133
Chapter 11: Potential and Ongoing Impacts to Archaeological Sites.....	134
Natural Impacts.....	134
Erosion.....	134
Biological Degradation.....	135
Chemical Decomposition.....	135
Cultural Impacts.....	136
Landscape Modifications.....	136
Dredging.....	137
Artifact Collecting.....	139
Pollution.....	140
Chapter 12: Conclusions.....	141
Chapter 13: Submerged Cultural Resource Management Recommendations..	143
Field Activities.....	143
Review and Compliance.....	144
Federal Cultural Resource Management.....	145
Public Outreach.....	145
References.....	147

List of Figures

Figure 1.	Location of Port Royal Sound Project.....	3
Figure 1.1.	Aerial view of Broad River looking north along Port Royal Island.....	7
Figure 1.2.	Rose Island.....	7
Figure 1.3.	Port Royal Sound from Mills Atlas.....	8
Figure 1.4.	Stratigraphy of shoreline from river to marsh grass.....	9
Figure 1.5.	Shell hash beach along Parris Island.....	10
Figure 1.6.	Joseph Beatty and pelican at Bay Point.....	11
Figure 1.7.	Shoreline blanketed in oysters.....	11
Figure 1.8.	Stranded steamers from 1893 hurricane.....	11
Figure 2.1.	Hobby diver James Cooler probes the Parris Island Canoe.....	21
Figure 4.1.	Early diesel-powered shrimp boat.....	61
Figure 4.2.	Shrimp boat in the 1930s.....	62
Figure 4.3.	Lady's Island Boat Yard in 1947.....	63
Figure 4.4.	Port Royal shrimp dock in the 1940s.....	69
Figure 5.1.	Plan view of the Hemmings/Boyer Canoe.....	77
Figure 5.2.	Wooden remains of the Hennings/ Boyer Canoe.....	77
Figure 5.3.	Rocks in hull of the canoe.....	78
Figure 5.4.	Frame of Hemmings/Boyer Canoe.....	78
Figure 5.5.	Mast step of the Hemmings/Boyer Canoe.....	78
Figure 7.1.	Photograph of SS <i>Clifton</i>	97
Figure 7.2.	USS <i>George Washington</i> howitzer on display at the Beaufort Museum.....	97
Figure 9.1.	Location map of new sites recorded during the survey.....	106
Figure 9.2.	Cane Island Wreck.....	107
Figure 9.3.	Cane Island Wreck.....	107
Figure 9.4.	Close-up of planks and frames on the Cane Island Wreck.....	107
Figure 9.5.	Christopher Judge studies engine block at Daws Island.....	108
Figure 9.6.	Remains of the Factory Creek Wreck.....	109
Figure 9.7.	Close-up of hull planks and butt joint.....	109
Figure 9.8.	Plan sketch of the Factory Creek Oyster Boat Wreck.....	110
Figure 9.9.	Frames of the Factory Creek Oyster Boat Wreck.....	111
Figure 9.10.	Stern assembly of the Factory Creek Oyster Boat Wreck.....	111
Figure 9.11.	Detail of forward section of the stern assembly.....	111
Figure 9.12.	Location of the Port Royal Island Wreck.....	112
Figure 9.13.	SCIAA staff record the outline of the hull.....	113
Figure 9.14.	Bow structure of the Port Royal Island Wreck.....	113
Figure 9.15.	Plan of the Port Royal Island Wreck Site.....	113
Figure 9.16.	Oyster encrusted structure.....	115
Figure 9.17.	Row of palmetto piling on St. Helena Island.....	116
Figure 9.18.	Pilings (38BU1818) angling towards the Atlantic Ocean.....	117
Figure 9.20.	Pilings (38BU1820) at Spanish Point.....	117
Figure 9.21.	Pine pilings and historic artifacts at 38BU1822.....	119
Figure 9.22.	Pine piling and rocks at 38BU1822.....	119
Figure 9.23.	Pine piling and cement bulkhead at 38BU1823.....	120
Figure 9.24.	Nanci Blackwood and Carl Naylor measure palmetto pilings.....	121
Figure 9.25.	John Peterson investigates oyster-encrusted iron boxes.....	122
Figure 9.26.	Archaeology sites revisited during the survey.....	124
Figure 9.27.	Concrete pivot structure for pneumatic gun.....	125
Figure 9.28.	Margie Tolley examines brick structure at pneumatic gun emplacement.....	125
Figure 9.29.	James Legg with barrel well at 38BU102/1100.....	125
Figure 9.30.	Boiler of SS <i>Clifton</i>	128

Figure 9.31. Boiler of SS <i>Clifton</i>	128
Figure 10.1. Locations of remote sensing surveys.....	130
Figure 10.2. Jim Spirek and Steve Shope operate the computer systems.....	131
Figure 10.3. Side-scan image of a car tire.....	131
Figure 10.4. Side-scan image of oyster beds off Daws Island.....	131
Figure 10.5. Side-scan image of SS <i>Clifton</i>	132
Figure 11.1. Waves erode the barrel well at Ft. Frederick.....	134
Figure 11.2. Barrel well stabilized with Geo Fabric™ and sandbags.....	134
Figure 11.3. Scattered sandbags around barrel well.....	134
Figure 11.4. Section of wall of Fort Frederick in the Beaufort River.....	135
Figure 11.5. Dock construction and residences on Factory Creek.....	136
Figure 11.6. Beaufort Waterfront in the 1900s.....	137
Figure 11.7. Beach renourishment at Hilton Head.....	138

Introduction

Miles of submerged bottom and intertidal lands, combined with a rich nautical past spanning prehistoric to modern times, provides a potential wealth of archaeological information from the remains of watercraft, submerged settlements, piers, and wharves, by which to interpret South Carolina's maritime heritage. The South Carolina coastline extends for 187 miles from North Carolina to Georgia and is interspersed with numerous inlets, bays, and estuaries, that increases the actual length of the shoreline to 758 miles. State sovereignty extends from the coastline three geographic miles out into the Atlantic Ocean. Navigable rivers in the state account for more than 11,100 linear miles of state bottom lands. These figures total over 2,900 square miles of submerged bottom lands with the promise to bear significant archaeological sites (Amer 1994:119).

The custodian of submerged archaeological historic property and artifacts on or embedded in state submerged lands is the South Carolina Institute of Archaeology and Anthropology (SCIAA) as legislated by the South Carolina Antiquities Act of 1991 (S.C.C.L 54-7-210). Administration of the Act and management of submerged cultural resources is assigned to the Underwater Archaeology Division (the Division) of the SCIAA. In an attempt to learn more about the submerged cultural resources on state-owned bottom lands the Division has embarked on a program of conducting systematic and comprehensive regional surveys. The following report outlines preliminary information gathered during the first phase of the Port Royal Sound Survey and the Division's inaugural regional survey.

State and Federal Submerged Cultural Resource Legislation

Legislation to protect submerged cultural resources in South Carolina have undergone several permutations over the years since the inception of the Shipwrecks and Salvage Operations Act in 1968. The law was later updated with enactment of the South Carolina Underwater Antiquities Act of 1976, amended in 1982, and again in 1991 (Amer 1994:119, 122). Essentially the 1991 law regulates the archaeological investigation of submerged historical resources by public and private interests, including salvagers and sport divers. Four types of licenses are issued by the Division to regulate impacts to archaeological resources on state bottom lands. Two of the licenses guide long-term archaeological projects, while the other two are issued to sport divers and dive instructors. Activities that involve conducting large-scale surveys and recovering archaeological materials from state bottom lands are covered by an Intensive Survey license and a Data Recovery license, respectively (South Carolina Antiquities Act of 1991). Licensing of private ventures ensures that these investigations meet federal and state archaeological standards. The intent of current legislation governing the state's submerged cultural resources is to preserve the scientific, educational, and recreational values inherent in these unique and non-renewable properties for the benefit of South Carolina citizens. During the intervening years between drafting and implementing the 1991 legislation, the Division identified the need for conducting comprehensive regional submerged cultural resource surveys for management purposes to inventory sites to the state archaeological site files, to assess their historical or archaeological significance, and to identify the range of ongoing or potential impacts to archaeological resources (Amer 1993:9).

Management of underwater archaeological resources is not only mandated by state laws, but also by federal legislation designed to ensure public accessibility to our maritime past. Passage of the Abandoned Shipwreck Act of 1987 (Pub. L. 100-298; 43 U.S.C. Sec. 2101-2106) authorized each state to manage certain abandoned shipwrecks embedded

in state bottom lands in the public interest. According to the Act, management of these resources by the state must take into account the recreational and educational benefits to divers and other interest groups and recognize the potential of these unique and irreplaceable resources for tourism and historical research. Guidelines written by the National Park Service offer suggestions to the states on how to achieve the goals of the federal legislation governing shipwrecks. An important guideline of primary interest to this project relates to the suggestion for states to gather baseline information of an area by conducting systematic regional submerged cultural resource surveys (National Park Service 1990:50129-50132).

Previous Submerged Cultural Resource Surveys in South Carolina

Underwater and terrestrial archaeological surveys undertaken in the state accomplish a variety of cultural resource management and research objectives. The categories of archaeological surveys are contract, searches, and intensive surveys. Contract archaeological surveys are implemented to meet federal, state, or local cultural resource management regulations. These surveys are primarily designed to determine the presence or absence of archaeological sites that might be adversely impacted by proposed development projects like channel dredging and residential or industrial construction. In the past, most underwater archaeological surveys conducted by private contractors in South Carolina occurred in the Charleston region under contract to the US Army Corps of Engineers and private industry. A search, confines itself to finding only a certain type of vessel or other type of construct. An example of a search was the recent and successful 1994 to 1995 effort to locate the remains of the *H.L. Hunley*, the Confederate submarine that sank a Union warship off Charleston in 1864. The most wide-ranging type of survey is a comprehensive or intensive survey to inventory the diverse scope of archaeological materials in a particular region or waterway for management or research purposes.

In the past, SCIAA has engaged in these diverse modes of survey to meet management and research objectives. Several small-scale intensive surveys have been conducted in particular sections of bottom lands in state waterways. For example, a group of hobby divers under the guidance of the Division completed a controlled and visual bottom search of the West Branch of the Cooper River between Mepkin Abbey and Rice Hope Plantation in 1992. The Cooper River Survey, as the project was called, succeeded in identifying several historic scatter sites and the remains of a large sailing vessel (Harris 1993). In addition to guiding sport diving activities, SCIAA archaeologists over the years have solicited information about underwater archaeological sites by interviewing sport divers during the Hobby Diving Survey. Information obtained by these means is a cost-effective manner of obtaining data, but it is limited by the geographical preferences of sport divers. The vast majority of sport diving activity in the state occurs around the greater Charleston area: the Cooper, Ashley, and Wando Rivers (Harris 1996b). During the 1970s and 1980s SCIAA engaged in many small contract surveys to investigate bridge crossings for the South Carolina Department of Transportation and other types of projects for various state agencies. SCIAA underwater archaeologists in the past, frequently focused research and management resources on the study of small colonial riverine watercraft primarily centered around Charleston, for example, the Malcolm Boat (Amer et al. 1993), the Biggins Creek Vessel (Amer et al. 1989), and the vessels located off Lewisfield Plantation (Amer and Thompson 1989). Division staff have also investigated a variety of prehistoric and historic sites throughout the state.

Implementing a Comprehensive Submerged Cultural Resource Survey

To fulfill state and federal mandates, the Underwater Archaeology Division of the SCIAA embarked upon the Port Royal Sound Survey in 1997 (Figure 1). The project was designed as a comprehensive regional submerged cultural resource survey to inventory and assess underwater and intertidal archaeological sites for management and research

purposes. Concurrently, we also wanted to develop the historical context to explain the presence of these sites in this particular maritime landscape. Due to financial constraints, the survey was purposefully divided into a multi-phase project to accomplish our objectives. The first phase of the project, or the information gathering phase, consisted of historical, archaeological, and environmental research and limited fieldwork to build a database of potential and known archaeological sites in the project area. A planned second phase will implement a marine remote sensing survey, although an initial and limited foray into prospecting for submerged archaeological sites was undertaken during the waning days of the project's first phase. Continued marine remote sensing operations guided by information accumulated during the first phase of the project will be undertaken as funding permits. The first phase of the project was partially funded by a National Park Service Historic Preservation Survey and Planning grant that was administered through the South Carolina Department of Archives and History. Matching funds were provided by SCIAA and the University of South Carolina.

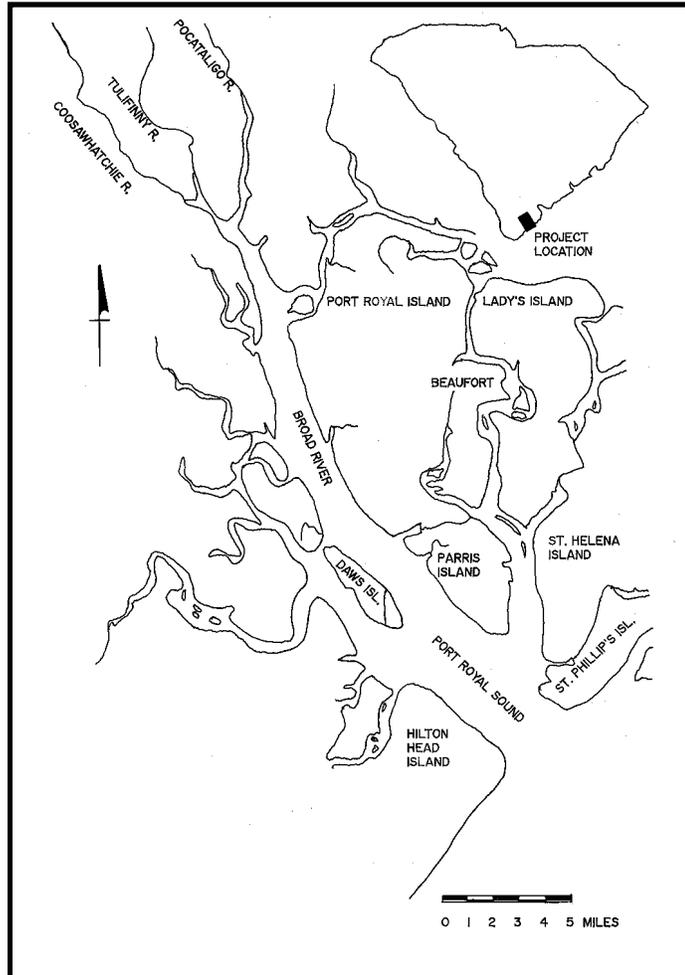


Figure 1. Location of Port Royal Sound Project . (SCIAA)

The Port Royal Sound Survey project is the first attempt by the Division to conduct a systematic, regional submerged cultural resource survey of a particular waterbody. This approach can be likened to a fisherman throwing out a cast net and hauling in everything that happens to get caught in the net. In the archaeologist's net the fish represent shipwrecks, pier and wharf pilings, submerged structures, among other objects or sites of archaeological interest. The only limits to a comprehensive survey's scope are the geographical boundaries and financial solvency of the project. The project provided the Division an opportunity to gather baseline information about Port Royal Sound to aid in developing management policies and research strategies applicable throughout the state. When the two phases of the project are united, that is the information gathering phase and

the marine remote sensing survey, they will provide a template to guide the efficient construction of a maritime archaeological resources survey for a particular region in the state. The project therefore will serve as a model for undertaking subsequent regional surveys in other state waterways

This report outlines the fruits of our research to gather information for identifying the underwater archaeological potential of the sound and to locate and prioritize areas for future archaeological prospecting by means of marine electronic survey equipment. The opening chapter describes the environment of Port Royal Sound and discusses the region's paleoenvironmental transition from 11,000 years Before Present (B.P.) with the advent of humans in North America to present conditions. The chapter also covers the role of severe weather in creating archaeological sites. The next three chapters provide a historical sketch of Port Royal Sound from prehistoric to historic times. Additionally, several important maritime industries and activities in the region are highlighted, including South Carolina and Beaufort shipbuilding and a contribution by Laura Von Harten regarding the seafood industry. Chapter 5 describes previous intertidal and submerged archaeological investigations in Port Royal Sound. The chapter ends with a description of previously recorded submerged archaeological sites within the project boundary. Chapter 6 outlines the research methodology used to build a database of known and potential archaeological sites in the sound, and describes the results of the historical, archaeological, and environmental research and the field work components of the intertidal survey. The following chapter transcribes some of the information gained by oral interviews with local watermen, sport divers, and other informants. The next chapter relates relevant information obtained from hobby diver reports maintained by the SCIAA. Chapter 9 lists and discusses the newly documented archaeological sites, as well as previously recorded sites, encountered during the pedestrian survey of the intertidal fringes of the sound and rivers. Chapter 10 outlines preliminary efforts in undertaking marine remote sensing operations in the sound. Chapter 11 describes past and ongoing natural and cultural impacts to intertidal and submerged archaeological sites in the sound. The next two sections discuss conclusions and recommendations for future work in the area derived from this first phase of the survey. The appendices relate to the public outreach efforts by project staff during the survey.

Acknowledgments

Embarking on this survey led the Underwater Archaeology Division staff to many scenic places around Port Royal Sound. Nevertheless, the most rewarding aspect of this project, however, was building the framework from which to implement the research and logistical portions of the survey. This activity was special because it allowed us to meet a variety of individuals and organizations eager to share and to participate in the project's goal to inventory and assess the intertidal and submerged historical remnants of Port Royal Sound.

Many professionals assisted us in our endeavor: Judith L. Woods, US Army Corps of Engineers-Savannah District, supplied information from her extensive database of shipwrecks in the region and encouragement for our project. Jennifer McClung, Beaufort Museum, allowed us a forum to present our findings to the public and additional support as needed. Chris T. Pendleton, Coastal Discovery Museum, had a strong interest in the project and worked to connect us with a pilot and a plane. Christopher Judge, South Carolina Heritage Trust-South Carolina Department of Natural Resources, furnished research materials and expertise while slogging around Daws Island with us. Carl Steen,

Diachronic Research, Inc., provided historical material to the project. Stephen Wise and Marshall Owens, USMC Parris Island Museum, permitted us to use their research facilities and assisted us in finding pertinent photographs and maps, charts, and plans. Dean Bradley, and the commanding officer and personnel of Parris Island Marine Recruit Depot, USMC, gave permission to access the depot for the intertidal survey segment of the project. Christopher Creed, Olsen Associates, Inc., supplied the project with coastal geomorphological reports. Jeffrey Berg, Beaufort County Library, provided kindly assistance in the search for historical materials. Steven Shope, Sandia Research, Inc., provided training and assistance during the marine remote sensing survey phase of the project.

Many colleagues at the South Carolina Institute of Archaeology and Anthropology assisted in the historical and archaeological research, implementation of field work, and of course, with the paperwork necessary to keep the project running smoothly. We acknowledge the assistance of: Sherry Bailey and Melody Ward in the Business office; Christopher Clement, Ramona Grunden, John Peterson, and Steven Smith in the Consulting Research Division for use of a hand-held DGPS and operator, and for historical and archaeological research assistance; Chester DePratter, James Legg, and Stanley South of the Research Division for their historical and archaeological research assistance, and encouragement in beginning the underwater search for archaeological materials; Keith Derting, Harold Fortune, and Sharon Pekrul of the Information Management Division at the Office of State Archaeologist for support in the state archaeological site files and access to curated materials. Also a special thanks to Bruce Rippeteau, the Director of the SCIAA and State Archaeologist, for his support of the project.

A group of eager volunteers, forewarned of the perils of pluff mud, razor sharp oyster shells, and rapid weather changes, nonetheless joined with our staff in combing the intertidal shoreline of the sound during the pedestrian visual survey. Margie Tolley, Gerry Thompson, Nanci Blackwood, Bob Dema, and Vicky Levy of the Archaeological Society of South Carolina, Hilton Head Island Chapter, participated through all sections of the intertidal survey with no complaints. A special thanks goes to Don Coyle of Hilton Head Island for expertly piloting us above the project area and around menacing thunderheads and enabling us to conduct aerial reconnaissance and photography. John Smith, a local resident participated in several sections of the survey and also showed us sites along the shores of Whale Branch River.

The search for watermen, sport divers, and other knowledgeable sources for information about Port Royal Sound brought us into contact with many interesting people and places. Jim Cooler and Peter McComas, two local sport divers and bottle collectors motored us around in a locally built wooden boat showing us archaeological sites, and a special thanks to Mr. Cooler for graciously inviting us to his home several times to discuss the project and to show us his extensive collection of bottles and other material culture retrieved from the SS *Lawrence* and throughout the region. Roger Pinckney invited us into his home to share his recollections of the SS *Clifton* and other Beaufort cultural markers, and provided historical photographs in his collection for us to reproduce. Alice Jones and George Busby, First Stop Bait Shop, provided information about Whale Branch River. Shrimpers Bobby Chaplin, Bubba Von Harten, David Bogan, Mark Wise, and Woody Collins supplied ranges and Loran-C numbers for various snags throughout the area and other related information. Charter boat captains Bill Parker and Trevor Strever shared information about wreck sites in the sound that they fish. A shout of "Have you found any treasure yet?" across the Citgo gas station brought our attention to Bobby Black, a local sport diver who discussed various areas around the Whale Branch and Coosaw Rivers

Rivers while he pumped gas. Local watermen Randy Higgins, David Beal, and Fred Krause provided information about obstructions and wrecks in their fishing areas.

Logistical support for operating in the county was provided by Evelene Grace of "The Spirit of Old Beaufort," who contacted John Perry, Town of Port Royal, about providing office space for our use, and as a result Port Royal graciously found room for our use. Michael G. Bryant and Ian Hill, Beaufort County, lent their support and interest in the project. Bob Demas and the Coast Guard Auxiliary, Hilton Head Island posted flyers at various bait and tackle stores and shrimp docks on Hilton Head Island. The Town of Hilton Head Island permitted car parking at a restricted area in order for us to gain easy beach access; Hilton Head Plantation and Port Royal Plantation, two private residential communities on Hilton Head Island, allowed us to pass through their respective properties and park in order to access the beach for the shoreline investigations.

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Chapter 1: Environmental History

Environments in the project area range from the open ocean at the mouth of the sound's channel to the tidal marshes bordering the sea islands. Each of these environmental settings expose underwater and intertidal archaeological sites to a host of natural conditions including exposure to rough weather, river currents, salinity, and marine organisms that affect the amount of remaining structure available for the archaeologist to study. These and other factors affecting submerged cultural resources are more fully discussed in Chapter 11. This chapter provides an environmental characterization of Port Royal Sound, including a discussion of the paleoenvironment contended with by the prehistoric inhabitants of the region. The chapter also summarizes the effects of extreme weather, such as, hurricanes, that have impacted the cultural landscape (Figure 1.1).



Figure 1.1 Aerial view of Broad River looking north along the western shoreline of Port Royal Island. (SCIAA)

General Physical Description of the Project Location

Port Royal Sound lies in the Sea Island section of the Coastal Plain province on the Atlantic Plain (S.C. Water Resources Commission [SCWRC] 1972:88). The Coosawhatchie, Pocotaligo, and Tullifiny Rivers converge to form the Broad River which in turn joins further downstream with the Chechessee and Beaufort Rivers to create Port Royal Sound. Port Royal Sound is a drowned river embayment at the mouth of the Broad River (U.S. Army Corps of Engineers 1976:2). The Broad River and the sound are essentially the same waterbody 30 miles in length. Large sea islands in the region include Port Royal, Lady's, St. Helena, Hilton Head, Parris, and a host of smaller island, islets, and hummocks (Figure 1.2). Important creeks in the project area include Stations, Skull, Chowan, and Battery.



Figure 1.2. Rose Island on the western shoreline of Broad River. (SCIAA)

Geological Description of the Sound

The Coastal Plain on which Port Royal Sound is situated consists of a thin layer of sediments at the Fall line and thickens towards the coast to a depth of over 3,500 feet. These sediments rest on a basal formation of crystalline and metamorphic rocks formed during pre-Cretaceous periods. Formation of the Coastal Plain sediments began during the Late Cretaceous period and continued through to the Pleistocene period. Holocene changes have also shaped the coast by fluctuations in sea level and transport of sediments by long shore currents (Michie 1980:1). Seven relict shorelines have been identified on the Coastal



Figure 1.3. Port Royal Sound from Mills Atlas. (Mills 1825).

Plain. Four of these terraces are in Beaufort or Jasper Counties: the Pamlico from 0-25 feet above mean sea level (amsl); the Talbot 25-42 feet amsl; the Penholoway 42-70 feet amsl; and the Wicomico 70 to 100 feet amsl (Stuck 1980:3). The ubiquitous marshlands surrounding firm land in the project area were formed from Holocene sediment deposits which overlay sediments from the previous Miocene and Eocene periods (Michie 1980:1).

Sediment stratigraphy of Port Royal Sound's near-surface bottom consists of a basal carbonate section of late Eocene age called the Santee Limestone which is overlain by Oligocene age sediments called the Hawthorne Formation consisting of marls, clays, sandstones, lime muds, and gravels of early Miocene age. The immediate surficial layers of the sound's bottom is composed of Pliocene, Pleistocene and Holocene age sediment deposits characterized by light to medium gray clays and fine marine sands, with occasional coarse sandy layers, relic soils and fossilwoods bear evidence of the inundation process of the ancient riverine system to form the estuary (SCWRC 1972:75-76, 90). The sound's bottom is underlain by fine grained and coarse grained sand of an ortho-quartzitic nature (95 percent quartz). The percentage of silt and clay is 5 percent in open water areas. The percentage of these sediments, however, increases near marshes and headwaters of tidal creeks (SCWRC 1972:81).

Hydrologically, the project area resides in the Combahee-Coosawhatchie River Sub-basin. The sub-basin extends approximately 95 miles inland from the Atlantic Ocean. The areal extent of the sub-basin covers 3,270 miles. The major freshwater streams emptying into the sub-basin include the Salkehatchie, Coosawhatchie, and Ashepoo Rivers. The coastal area of this sub-basin comprises the most extensive estuarine waters in South Carolina (SCWRC 1983:269-70).

Port Royal Sound is an estuary--defined as a semi-enclosed body of water that has access to the open ocean and where there is a measurable dilution of saltwater by freshwater. The sound is also further characterized as a homogeneous estuary, which means that salt and fresh water are well-mixed (SCWRC 1972:8-9). Salinity levels taper from lower levels at the extreme upper limits of the sound to higher levels at the mouth. Salinity is approximately 23 to 25 parts per thousand in the upper region of the estuary and 30 to 35 parts per thousand at the mouth (Michie 1980:7). Salinity levels are about 28 parts per thousand around the middle of the sound at Daws Island and Parris Island in Broad River (Freeman 1982:8). The maximum flow of water at the sound's entrance ranges from 1.5 to 2.0 million cubic feet per second (SCWRC 1972:8-9). At mean tide the mouth of the sound is approximately 3 miles wide (SCWRC 1972:27). Tides in the sound are semi-diurnal with ranges of 6 to 9 feet during neap and spring tides, respectively (Sullivan 1988:5). The mean tidal range is approximately 7.5 feet (SCWRC 1972:8-9). The tidal duration is 6.2 hours for a tidal day of 24.8 hours (Michie 1980:7). Depths vary throughout the sound with the maximum depth at low tide between 40 and 45 ft.

The main channel of the sound extends inland approximately 24 miles from the coast with a dendritic, or branching, channel structure. (SCWRC 1972:27). A large ebb-delta complex fronts the entrance of the estuary and extends approximately 9 miles seaward from the mouth (Freeman 1982:3). Generally, ebb-funnel sandbars are typically larger than flood-funnel sandbars and shoals by virtue of the ebb's domination of the movement of sediments. This hold's true for all the bars and sand ridges in the sound, and for the large ebb-delta complex at the entrance (Freeman 1982:20). Longshore transport also influences the shape of the ocean shoals by their southerly drift. An historical example is Joiner's Bank that has been moving in a southwesterly direction towards the shore of Hilton Head Island since 1866 (Creed 1995:36). At the confluence of the various subreaches within the sound system are numerous shoals, sandbars, and banks which appear to be in a state of long-term dynamic equilibrium (SCWRC 1972:27). An example of a migratory bar in the sound, however, is found between Daws and Parris Islands. This particular sand ridge has migrated about 700 ft to the SW since 1898 (Freeman 1982:21).



Figure 1.4. Stratigraphy of shoreline from river to marsh grass showing Bohicket and Capers soils. (SCIAA)

The primary sediments that comprise the intertidal marshlands and riverbanks in the project area are Bohicket and Capers soils (Figure 1.5). Bohicket soils dominate the marshlands and are characterized by silty and clayey sediments that are poorly drained and are associated with broad tidal flats to a level three feet above mean sea level. Capers soils are similar but are slightly elevated above Bohicket soils. Other less abundant marsh soil



Figure 1.5. Shell hash beach along east shore of Parris Island. (SCIAA)

types are also present. Evident throughout the marsh are small hummocks of raised lands formed from Pleistocene soils that protrude above the Capers soils. Fine and loamy fine sands comprise these Pleistocene soils. The landforms of the sea islands and adjacent mainland are composed of recent Holocene deposits of silts and clays (Michie 1980:4-5) (Figure 1.6).

Port Royal Sound Paleoenvironment Evolution

Around 10,000 years Before Present (B.P.) the Atlantic coastline was 50 to 100 km eastwards from its present shoreline. The mouth of the Savannah River during the late Pleistocene to early Holocene period met the Atlantic Ocean approximately 50 to 100 km from the present coastline (Goodyear et al. 1989:24). Sea level around this time was 20 m below present levels (Mistovich and Elinton 1991:4). The area that is now Port Royal Sound and the Broad River around 10,000 B.P. was the channel of the Coosawhatchie River, with the Beaufort and Colleton Rivers serving as freshwater tributaries (Michie 1980:18; Michie 1983:16). Below the 33rd latitude, which is slightly north of Charleston, just prior to 10,000 B.P., vegetation would have been similar to modern times with forests comprised of a mixture of oak, hickory, sweetgum, and pine trees. The weather was warm and temperate during this period. The onset of present forest conditions, with a prolific increase in pine trees, abruptly commenced around 10,000 B.P. (Goodyear et al. 1989:43). The Middle Holocene was warmer and a drier climate than the previous Pleistocene period, but was punctuated by episodic flooding caused by heavy rains. This period was also characterized by glacial warming. Around 7,000 to 6,000 B.P. swamps and estuaries on the coastal plain began to form (Blanton and Sassaman 1989:58-59). By 7,000 B.P. sea levels rose to within 8 m of present sea level (Grunden 1989:4). The project area remained a river channel until around 5,000 B.P. when rising sea levels formed a saltwater estuary that drowned the freshwater river valley (Michie 1980:18). A slowing of sea level prior to 4,200 B.P. resulted in a stable estuarine environment for native populations to subsist on reliable supplies of shellfish and finfish (Brooks et al. 1989:98). Sea level remained stable for several centuries, but by 3,050 B.P. sea levels began dropping and by 2,750 B.P. water elevation was approximately three or four meters below present elevation. By 2,550 B.P. sea levels began rising again and reached present levels around 2,000 B.P. (Michie 1989:17). Natural resources and habitation sites available to Native Americans varied as sea levels fluctuated along the coastal plain from around 11,000 to 2,000 B.P. (Michie 1980:18) which is discussed in the next chapter.

Present Environmental Conditions

Port Royal Sound and Beaufort County weather conditions are characterized by a temperate climate with short, mild and relatively dry winters. Summer is the time of heaviest precipitation with frequent thunderstorm activity caused by moist tropical air; thunderstorm activity typically ceases around October. Summer temperatures hover around 90 degrees Fahrenheit (Tippett and Roberts 1988:4). Prevailing winds are southeasterly at about 8 mph, but March winds reach an average of 10 mph from the northeast (Drucker and Anthony 1980:7).

Fauna and flora species in the sound are similar throughout the estuary. Vegetation along the intertidal fringe in the project area is primarily composed of cordgrass, *Spartina osteriflora*, in the Bohicket soils, and where the elevation increases to the Capers soils, the



Figure 1.6. Joseph Beatty and pelican at Bay Point. (SCIAA)



Figure 1.7. Shoreline blanketed in oysters. (SCIAA)

predominant flora is salt meadow cordgrass, *Spartina patens*, among other types of lesser flora. Predominate intertidal faunal species include the oyster, *Crassostrea virginica*, quahogs, *Mercenaria mercenaria*, razor clams, *Ensis directus*, periwinkle, *Listitorina irrorata*, and knobbed whelk, *Busycon carica*, among other species of shellfish, crustaceans and finfish and other marine biota (Michie 1980:8-9) (Figures 1.7 and 1.8).

Extreme Weather

Severe storms along the southeastern Atlantic coastline have helped to shape the natural and cultural environment for millenniums. Hurricanes are the main weather phenomenon that frequently cause profound alterations to the natural and cultural landscape. Landscapes under normal conditions change through gradual processes of erosion or accretion of sediments. During violent weather these processes can be accelerated to cause dramatic changes in the landscape. Natural alterations to the landscape such as inlets can be formed or closed, tidal creek channels altered, sandbars moved, etc. In the historic period, at least 30 recorded hurricanes have affected Port Royal Sound from 1586 to the present, in addition to a host of other severe



Figure 1.8. Stranded steamers from 1893 hurricane. (Courtesy of Roger Pinckney)

storms (South & DePratter 1996; Rowland et al. 1996; Marx 1994; Spence 1994; Harris 1894; Michie 1980; and Tibbetts 1998). These hurricanes and storms have damaged or destroyed maritime industries and infrastructure, that is piers and ships, as well as homes and agricultural pursuits, and other property during this timeframe (Figure 1.9). Additional historical and geographical research is ongoing to gather information through contemporary newspapers articles and other sources to build a list of cultural resources, namely shipwrecks, caused by these storms. Of the approximately 60 known historic shipwrecks in the the region, six were lost during hurricanes while others were stranded and later salvaged.

Probably the most graphic examples of the powerful effects of a hurricane on the cultural landscape is provided by the Hurricane of 1893. On 27 August 1893, a hurricane hit Port Royal Sound and surrounding areas. 3,000 persons drowned from the Savannah to the Edisto Rivers, mainly as a result of the storm surge that was more than 12 feet high above normal high tide levels. The hurricane also wreaked terrible havoc on the maritime industry infrastructure. Boats were dashed to pieces or carried ashore, while nearly every wharf, pier, or warehouse along the Beaufort waterfront was destroyed. The phosphate industry suffered immensely, dredges were lost with their crews and the attendant lighters were driven ashore into the marshes or overturned in the rivers (Mather 1894:319-22; Harris 1894:326-8).

Other Natural Phenomenon

Earthquakes are another potentially catastrophic natural disaster that can affect the maritime landscape. While the historic record does not mention many earthquakes in the Beaufort region, one especially powerful earthquake struck on 31 August 1886. The epicenter of the quake, which measured 7.6 on the Richter Scale, was north around Charleston. According to reports a 20 ft high wall of water swept up the Beaufort River while a similar wave moved down Battery Creek. The two opposing walls of water met at the confluence of the two streams sending plumes of spray over a 100 ft into the air (Pinckney 1998:30). Additional historical research is required to learn the extent of any damage, but it is likely that some vessels, as well as intertidal sites, such as wharves or piers, were caught unawares and sunk or damaged as a result of the tidal waves.

Chapter 2: Native American Exploitation of Port Royal Sound

The prehistory of Native American occupation in the Port Royal Sound environment is characterized by adaptation to an evolving natural landscape and dislocation caused by European encroachment. Native American subsistence and settlement strategies over the centuries were intertwined with the geographical and environmental evolution of the sound from a river to an estuary as discussed in the previous chapter. Sea level fluctuations and subsequent changes in climate caused the prehistoric inhabitants to modify their patterns of subsistence and settlement in the region. Dramatic sea level changes occurred between the advent of humans to the area around 11,500 B.P. when the sound was merely a river and exploitation centered on megafauna species such as, mammoths and camels, to about 2,500 B.P. when sea level reached modern-day levels with an environment composed of flora and fauna similar to present times. The most dramatic and detrimental factor to Native American lifeways and eventual cultural decline, however, occurred in the 16th century with the arrival of Europeans intent on colonizing the region.

Researchers have divided the cultural development of prehistoric peoples in North America into five periods: Paleoindian, Archaic, Woodland, Mississippian, and Contact. These cultural distinctions are discussed below with an emphasis on the archaeological evidence of the native peoples from the Port Royal Sound region. This chapter also discusses Native American use of canoes to navigate the southeastern coastal environment. Information in this chapter is drawn from southeastern archaeological chronologies of prehistoric cultural development and is augmented with archaeological evidence from Port Royal Sound. Readers seeking additional information about South Carolina's prehistoric cultures should consult, among other works, *Paleoindian and Early Archaic Period Research in the Lower Southeast: A South Carolina Perspective* edited by David G. Anderson and others, *The Savannah River Chiefdoms: Political Change in the Late Prehistoric Southeast* by David G. Anderson, the special anniversary edition of *South Carolina Antiquities* Volume 25 (nos. 1&2) 1993, Chester DePratter's *Late Prehistoric and Early Historic Chiefdoms in the Southeastern United States*, and *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson* edited by Albert Goodyear.

Recorded Prehistoric Sites

The majority of the previously documented prehistoric sites in the project area discussed in this chapter were discovered during a shoreline investigation in 1979 led by SCIAA archaeologist James Michie (Michie 1980). The remainder of the sites were recorded by contract terrestrial archaeologists, although in several instances private collectors informed the archaeologists, as well as Michie, about the existence of a site. A total of 34 prehistoric sites along the intertidal fringe of the project area were documented in the South Carolina Statewide Archaeological Site Inventory (State Site Files). These sites date from the Paleoindian to Mississippian periods, and possibly from the Contact period, along with mixed prehistoric and historic cultural material sites. Of the 34 sites, 13 of them were associated with several cultural affiliations, suggesting long-term usage of certain sites by various prehistoric cultural groups. Many of these prehistoric sites also contained historical materials. This is not surprising as habitation and work sites would remain attractive for a variety of seasonal needs or temporary purposes over the years not only for Native Americans, but also for use by European colonists settling and exploiting resources along the coast.

Investigations at these previously recorded sites were primarily survey level projects designed to identify cultural affiliation and spatial limits. Additionally, contract

Investigations at these previously recorded sites were primarily survey level projects designed to identify cultural affiliation and spatial limits. Additionally, contract archaeologists assessed sites concerning eligibility for inclusion to the National Register of Historic Places. The lone exception to survey level investigations occurred at the Fish Haul Creek site (38BU805) which was an Early Woodland period encampment on the sound side of Hilton Head Island. An intensive excavation was undertaken by the Charleston Museum in the early 1980s (Trinkley and Zierden 1983). The known sites, therefore, provide only a preliminary glimpse of the range of cultural materials, subsistence strategies, and settlement patterns used by Native Americans to exploit Port Royal Sound. Most of the prehistoric sites in the sound also share two common threats to their existence and research potential: erosion and collectors. Much of the information derived about individual site descriptions are from site files in the State Site Files maintained by the Information Management Division of SCIAA. Refer to figure 9.26 in Chapter 9 for prehistoric site locations discussed in this chapter.

Paleoindian

The earliest South Carolinians arrived around 11,500 B.P., based on the findings of fluted points bearing the characteristics of the Clovis culture (Goodyear et al. 1989:19). Point types from this period include Clovis, Suwanee, and Dalton which were lanceolate in shape. The earliest local peoples exploited local megafauna including giant tortoises, camels, horse, sloths, and mammoths. The Clovis-peoples were the last and only Indians to subsist on these prey as climatic changes caused the extinction of these animals by 10,500 B.P. (Goodyear et al. 1989:24). Several lithic points found in relic ridges bordering the sound suggest that settlements or camps from this period in Port Royal Sound were situated along sandy ridges overlooking the river valley below. A basal portion of a Suwanee point, approximately in use from 11,000 to 10,500 B.P., was found at 38BU248 on Parris Island along with other artifacts from the entire prehistoric cultural continuum (Michie 1980:64-5). Intact archaeological sites from this period, however, were nonexistent in the immediate project boundary; this may be related to the multiple transgressions and regressions of the sea which would have reworked these early sites (Drucker and Anthony 1980:23). Also, Paleoindian peoples would have utilized the river channel all the way to the ocean, approximately 50 to 100 km away, on lands that are currently submerged in the Atlantic Ocean and subsequently their habitation sites would not be accessible today by usual survey methods. Archaeological researchers from the University of Georgia, however, are beginning to explore the archaeological potential of submerged paleolandscapes off the coast of Georgia at Gray's Reef (E. Garrison, pers. comm., 1998).

Archaic

The Archaic age of North American inhabitants is characterized by three distinct phases: Early, Middle, and Late. The Early Archaic age, from 10,500 to 8,500 B.P., was an extension of the Paleoindian culture. Early Archaic Indians in the project area were still choosing sandy ridges elevated above the river valley for habitation as did the preceding Paleo-generation. Sites were situated at the confluence of the tributaries to the main river channel in order to overlook the flood plains. No faunal materials were found in association with these sites, which were mostly composed of lithic points, but subsistence strategies were inferred to include white-tailed deer and turkey from the river ecosystem (Michie 1980:64-6). Points from this early phase include Kirk and Palmer. Cultural

material at early archaic sites in the project area included points and other artifacts. Two other Early Archaic sites, 38BU258 and 38BU261, also included later Woodland period ceramics. Each of these sites was suffering from erosion and artifacts were scattered along the beach, and at 38BU261, the artifacts may have been deposited there through longshore drift, originating from a site further upriver (Michie 1980:48). Two sites, 38BU262 and 38BU263, had been heavily visited by local collectors prior to their documentation by archaeologists (State Site Files).

Middle Archaic peoples from 8,500 to 5,000 B.P. relied on forest resources, such as acorns and whitetailed deer for sustenance (Michie 1980:20). Environmental changes during this period to pine forests, estuaries and wetlands on the coastal plain created a more diverse resource base available for exploitation (Blanton and Sassaman 1989:68). These Indians moved about large river valleys and also began to exploit areas in between river valleys (Michie 1980:20). Archaeological sites from this period are not in close proximity to one another, but individual sites cover larger areas than previous cultural sites (Blanton and Sassaman 1989:68). Points from the Middle as well as the Late Archaic phase, or abbreviated as MALA, include Kirk stemmed, Stanly, Morrow Mountain, Guilford, and Brier Creek. Site 38BU257 consisted of Middle Archaic to Late Archaic points and ceramics, and lithic debitage, although cultural materials found there continued through to the Mississippian. The site was approximately 50 m in length along the river and was dispersed along the beach (Michie 1980:48; State Site Files).

The Late Archaic, once called the Formative period, spanned from 5,000 to 3,500 B.P. Late Archaic peoples became more sedentary than their forebears as evidenced by large shell middens (Michie 1980:21). Fresh water mussels and tidal oysters became available to a large degree due to sea level increases, shallower river gradients, and channel changes (Trinkley 1989:74). They continued to rely on whitetailed deer and forest resources as in previous periods. A hallmark of this period was the development of fiber tempered pottery for cooking and storing items (Michie 1980:21). An important cultural expression in the region was the Stallings Island culture which was centered along the Savannah River valley and extended to the adjacent coastal waters of South Carolina and Georgia. This group of hunters and gatherers developed a sedentary society that subsisted on shellfish and other local resources, developed the first use of pottery along the Eastern coast, among other items such as highly decorative bone pins, steatite disks, stone tools, and polished stone items (Sassaman 1996; Trinkley 1989:73).

The Late Archaic, as archaeologically manifested in the project area, consisted of four distinct features: shell rings; amorphous shell middens with an abundance of diverse cultural materials; amorphous shell middens with limited cultural materials; and non-midden sites. Shell middens from the Late Archaic are distinct from other later shell middens by the diverse range of shells in addition to oysters, such as razor clams, moon snails, whelks, and quahogs. The distinguishing feature of shell middens from this period were the inclusion of significant numbers of periwinkle shells. Associated floral and faunal remains in the shell middens included mammal, bird, and reptile bones and hickory nuts and acorns. Fiber-tempered pottery sherds were also found in these middens, along with human burials (Michie 1980:70).

Sites in the sound from the Late Archaic were found predominately along the Broad River (Michie 1980:70-1). One such site was a shell midden on Daws Island (38BU9), dating to approximately 4,000 to 3,500 B.P., that consisted of fiber tempered pottery, projectile points, fired clay balls, and a human burial. The midden attests to the original environment of a swamp and verdant area where shellfish were exploited, a much different

setting than the present estuarine environment at Daws Island (Hemmings 1969:6-7). The human burial consisted of the skeletal remains of a 30-40 year old female dating to around 4,000 B.P. Analysis of the remains, especially of the teeth, revealed a diet of gritty shellfish consistent with Archaic and Woodland coastal dwellers (Hemmings 1971:128). Two other shells middens from the Late Archaic site 38BU336 were located on private property. The property owner had dug up four blades and five stemmed points, along with Savannah River points and Stallings Island plain ceramics (State Site Files). Excavations during the search for Charlesfort revealed a shell midden with Late Archaic to Early Woodland pottery sherds (38BU163) on the grounds of the Naval Hospital underneath twentieth century land fill (South 1982). Another shell midden (38BU108) was inundated under 3 to 4 feet of water daily and contained bones and hickory nuts visible in the matrix along with plain and fiber tempered pottery from the Late Archaic to Woodland periods (Michie 1980:45). The Fish Haul Creek site (38BU805) on Hilton Head Island on the shore of Port Royal Sound was apparently a Late Archaic camp, perhaps inhabited on a seasonal basis for exploiting marine or terrestrial resources. The site is not associated with a shell midden, but contained subsistence remains of oysters, deer, turtle, birds, and fish. Other cultural material included pottery sherds and lithics, including abraders (Trinkley and Zierden 1983).

Other sites from this period included several cultural deposits that were believed to have been transported there from other places. Several sites were apparently caused by dispersion from a main core such as at 38BU255 where Late Archaic points and ceramics were found. These materials probably represented an integral site that was dispersing due to erosion over a distance of 40 m (Michie 1980:48). At Elliot's Beach on Parris Island (38BU115/248) a prehistoric and historic scatter included prehistoric materials from the Late Archaic to Mississippian that consisted of pottery, chert, and steatite fragments, although a basal point of a Paleoindian Suwanee Point was also found at the site (State Site Files). A report of a revisit to the site in 1995 by contract archaeologists suggested the site was a seasonal camp and that the site was continuing to erode into the Broad River as reported in an earlier site description (Blick et al. 1996:50).

Woodland

From 3,500 B.P. to 800 A.D. Indians continued to hunt and gather as their primary subsistence strategy (Michie 1980:21). During the early Woodland period estuaries proliferated in the coastal region which was conducive for shellfish exploitation with sea level around 1 m below present levels (Grunden 1989:8). Native Americans also developed limited agricultural cultigens such as maize. Pottery became more elaborately decorated. Burial mounds also became a part of the cultural suite for these peoples (Michie 1980:21). Evidence of Woodland peoples represent the largest number of prehistoric sites in Port Royal Sound. Shell middens from this period, predominately composed of oyster shells and some inclusions of whelks, are between three and four meters in diameter. Other middens from this period are long and linear stretching along the edge of a hummock. Site 38BU289 was one such Woodland shell midden that stretched 150 m in length and was 15 m wide, but was not very thick. Due to the lack of other cultural materials at these shell middens sites it was supposed that they were oyster camps used to either extract the shellfish from the estuary or to shuck them, and thus were sites of a transient nature. Lithics were rare in these middens. Cord marked pottery, however, was often found in association with these middens (Michie 1980:72).

The earliest phase of the Woodland period called Thom's Creek, beginning around

3,500 B.P., saw stable village life with subsistence based on exploiting large and small mammals, fish, shellfish, and hickory nuts. Shell rings composed of shells and animal bones fringed a cleared area that usually contained post holes and shellfish preparing areas (Trinkley 1989:77-8). At 38BU246, Thom's Creek fiber and plain tempered pottery were found in the remnants of a shell midden. Additionally, several bifaces, lithic debitage, animal bones, and remnants of another shell midden were spread approximately 30 m along a marsh. At two other sites, 38BU242 and 38BU243, a small amount of Thom's Creek material was found eroding from a bluff onto the beach below (Michie 1980:46-7). Several other middens containing Early Woodland period cultural remains (38BU1150) were found along the northeastern shore of Hilton Head Island. At the time of their documentation by archaeologists these shell middens exhibited signs of pot hunting activities (State Site Files).

Rising sea levels changed settlement and subsistence patterns for both middle and late Woodland populations (Brooks et al. 1989:96). The Thom's Creek phase faded out by 2,000 B.P. into the Deptford phase that was characterized by smaller groups that no longer strictly subsided on shellfish populations. The most likely explanation for this dietary transition was a result of rising sea levels from a low of three meters below present levels during the previous cultural phase around 3,150 B.P. to a level of around one meter below current marsh levels in 2,900 B.P. This increase of water drowned the tidal marshes and sites utilized earlier by Thom's Creek peoples (Trinkley 1989:78).

Following the collapse of the Thom's Creek cultural phase, Deptford peoples still relied on shellfish as a food group but not at previous exploitation levels as attested by archaeological finds of small, thinly layered shell heaps that were connected together over time. Sites from this period were usually in close proximity to tidal streams on the Coastal Plain (Trinkley 1989:79). At the end of the Woodland phase sites became fragmented from one another indicating that the Indians were making seasonal rounds to exploit various natural resources. Specific to Port Royal Sound, rising sea levels pushed those groups living in the area further up the estuary (Trinkley 1989:83-5). Sites that were attractive to Woodland Indians were also exploited by the succeeding Mississippian period. At three sites, 38BU244, 38BU274, and 38BU247, Woodland ceramics were present along with Mississippian ones (Michie 1980:46, 49).

Mississippian

The Mississippian period lasted from 800 A.D. to the first European contact in the area around the 1520s. The period is characterized by large ceremonial temple mounds and large and ornate ceramic vessels. Researchers also have further defined this cultural expression as the South Appalachian Mississippian Period, which is a variant of true Mississippian. The South Appalachian Mississippian Period is characterized by intensive agriculture within inland waterway floodplains and exploitation of marine resources along the coastal fringe (Mistovich and Elinton 1991: 9). An increasing population relied heavily on domesticated cultigens such as maize, beans, squash, and probably sunflower (Drucker and Anthony 1980:30). Agriculture primarily occurred on fertile soils found in coastal flood plains. As in previous ages, the Native Americans relied on mobility and seasonality to exploit white-tailed deer and forest resources along the coast (Michie 1980:21-2; Anderson 1989:117).

In 1898, archaeologist C. B. Moore, investigated the remains of two Mississippian mounds on Little Island (38BU23), or present-day Barnwell Island at the confluence of the

Broad and Whale Branch Rivers. On a point located on Whale Branch River was a large elliptical-shaped domiciliary mound with a base 100 feet (39 m) east to west and 150 feet (58 m) north to south, and a summit width of 38 feet (15 m) and 61 feet (23 m), respectively. The mound was between 11 and 14 feet (4 and 5 m) high. Excavations determined that the mound was built incrementally over an earlier wooden structure. Walls were composed of clay and wood, which was evident in the mound stratigraphy. A skeleton of a very young infant was found near a central hearth. Associated artifacts included complicated stamp pottery, bone awls, earthenware discs, and chert points (Moore 1898:152-160). Approximately 105 feet (41 m) to the south of the large mound was a smaller one suffering from erosion. The base of the mound was estimated to have been 50 feet (19 m) by 3 feet and 7 inches (1.5 m). The mound was 8 feet (3 m) deep and contained a mass of oyster shells about 3 to 4 feet (1 to 2 m) thick. Associated cultural materials included several human burials, shell beads, a chert knife, several fossil shark teeth, and earthenware discs (Moore 1898:162).

Cultural materials from the Mississippian were found in other locations throughout the sound and were usually in association with materials from previous cultural periods such as at sites 38BU247 and 38BU244. These two sites contained Woodland period artifacts and an assemblage of Mississippian artifacts. In several instances, sixteenth-century Spanish pottery sherds were found along with Mississippian materials at sites surveyed by Michie in 1979 (Michie 1980:74). There are several non-mound sites, however, that exclusively contain cultural materials from this period. On Parris Island along the Broad River, 38BU1374 comprised a single house shell midden, perhaps from the Contact period, about 10 cm thick, along with pot sherds and chert flakes in the matrix (State Site Files). The site showed evidence of having been disturbed by plowing. Another site (38BU1698) contained a mixed scatter of Mississippian and historic cultural materials (State Site Files).

Contact

During the Contact period those lands along the southern coastal zone were historically occupied by small, Muskogean speaking tribes collectively called the Cusabo (Abbott et al. 1989:15). Prior to the introduction of European settlements in the 1560s, the southeastern coast was uninhabited from the Savannah River valley north to just around Port Royal Sound (DePratter et al. 1990:144). When the Spaniards landed in Port Royal Sound the closest Indian village was reportedly several leagues inland (Espenshade 1995:12). The Spanish *adelantado*, Pedro Menéndez de Avilés, arrived to establish Santa Elena on present-day Parris Island and found Indians in the Port Royal Sound region at war with the coastal Guale on the northeastern coast of Georgia (DePratter et al. 1990:144). From this point on began the decline of the Mississippian culture due to population decreases caused by European incursions and aggressive inter-group warfare which created smaller and less complex societies (DePratter 1993:48). When the English captain William Hilton entered the sound in 1663 he found the Indians living in close proximity to the abandoned remains of Santa Elena. This group of Indians were called the Saint Helena by the English (Espenshade 1995:12). With the introduction of the English and their guns, these contact tribes engaged in internecine warfare to capture slaves, as well as fighting on the side of either the Spanish or English. Consequently, native groups migrated to areas along the Savannah River. The Yemassee tribe moved to Port Royal Sound for protection and trading purposes in 1694. They remained in the region until 1715 when the Yemassee War erupted as a result of mistreatment by English traders (DePratter 1993:48). Despite periods of temporary peace with the European settlers, native populations were either

defeated in wars, enslaved, or lands confiscated through unfair treaties by 1775 in the Carolinas, although some tribes such as the Cherokee and Catawba managed and continue to maintain a group identity (DePratter 1993:48). Known sites from this period include several outside of the project boundary associated with seventeenth-century Yemassee settlements on Callawhassie Island and other places. As mentioned above in the Mississippian period discussion, 38BU1374 may also be associated with the historic period (State Site Files).

Amerindian Canoes

There is ample historical and archaeological evidence that dugouts were used by Amerindians in South Carolina. Early accounts from the correspondence of Spanish and English exploration expeditions describe the usage of Native American canoes in South Carolina. In the wake of explorer Hernan de Soto in the 1540s, a captain named Juan Pardo traveled over much of the present-day South Carolina in the mid to late 1560s. Pardo and his men depended on Amerindian canoes to transport them across the many rivers during their journey. Wherever they traveled, they encountered the ubiquitous dugout canoe as the primary mode of riverine transportation for the Indian people. The Spaniards traded iron tools, especially axes, chisels and knives, to local chiefs to construct canoes for special purposes (Hudson 1976:132-136)

Later English travelers also relied on the dugout canoe for riverine and estuarine transportation. William Bartram, an Englishman and a pioneering ethnographer in eighteenth-century South Carolina, described some of his perceptions of his native hosts, "they are supplied with necessaries, conveniences, and even superfluities by the white traders...men performing nothing except erecting mean habitations, forming their canoes, stone pipes, tambour, eagles tails...for war and hunting are their chief occupations." (Slaughter 1976:407). Bartram's rambling writings about flora, fauna, and the local folks include many references to the Englishman's means of transportation through the wilderness. Native canoes were used for fishing, trading, and hunting expeditions--and even "sometimes crossing the gulph, extending their navigations to the Bahama Islands and even to Cuba." (Slaughter 1976:498, 198). Another early English traveler, John Lawson, wrote in 1710 that "many of the women are very handy in canoes and handle them with great dexterity and skill" (Lawson 1967:140).

An engraving by the naturalist John White, shows a canoe being used in a fishing scene. The canoeist is using a paddle with a shovel-shaped blade. The canoe appears to be extremely narrow with square blunt ends and shallow sides. A fire burns in the middle of the boat and could have been used to attract fish at night, cook food, or provide warmth. In the background, men wade in shallow water or stand poised to strike a fish with a harpoon or a spear. The canoe is poled by Amerindians standing upright (Hulton 1984:16).

Canoes were also used as South Carolina's earliest inland trading vessels. During the 1700s, there were frequent references to Amerindians as canoeists or oarsmen for the early tradesmen. Amerindian canoes were traded, purchased, and even stolen by the Europeans. For example, during a board meeting of the Indian Commissioners, the Chief of the Tuscaroras at Port Royal complained that a trader named Daniel Callihaun had violently seized and taken a canoe from him on the pretense that he had bought it for 20 shillings (MacDowell 1955:262).

Several types of watercraft were used by Amerindians for travel and work- the canoe version being the most popular. The quickest and easiest way to cross a waterway, was to simply make a raft by lashing cane or logs together. On other occasions, two or three bundles of cane were bound together with wooden straps. More time-consuming manufacturing processes involved stretching the skin of an animal over a bowl-shaped framework of saplings, hollowing out a large log to form a dug-out canoe, or creating a catamaran by lashing two dugouts side by side. Poles laid across the two canoes to form a catamaran created a platform providing more cargo space. Some sea-going dugouts had structural additions for masts and sails. Canoes also varied in size and design depending on the body of water to be navigated (Hudson 1976:314; Swanton 1946:596).

The manufacture of dugout canoes typically involved a series of controlled burns on a log and then scraping away the charred remains to form a hollow. This process was repeated until the desired shape was achieved. A drawing by John White carefully illustrates the method used by Amerindians to manufacture canoes. It depicts a large tree undergoing the process of shaping the hull of the canoe with the fire technique. The caption states that it was made "onely with the help of fire and hatchets of stone and shell." It specifies that a tall straight tree called "rackiock," perhaps cypress, *Taxodium distichium*, was used to make canoes (Hulton 1984:16). Other woods were also used in the Carolinas: pine, tulip, and cottonwood trees were the most popular trees utilized to fashion a canoe. Archaeologists speculate that pine was preferred over cypress because of resin canals which aided in the fire-hollowing process. Cypress was chosen over pine when iron tools became available and negated the fire-hollowing technique following the introduction and adaptation of European ideas (Newsome and Purdy 1990:164-180).

The concept of the dugout canoe, a watercraft type which endured up until the twentieth century and was ideally suited to the southeastern riparian environment, can be attributed largely to Amerindian boat building traditions. The bulk of the archaeological work on Amerindian dugout canoes in the southeast has taken place in Florida. More than 200 canoes have been recorded in Florida. The earliest identified canoe in an archaeological context in Florida dates to 5,120 BP. The most recent are those built by the Seminole in this century (MacDonald and Purdy 1982:6-14; Newsom and Purdy 1990:164-180). The largest collection of *in situ* prehistoric canoes in the southeastern U.S. are in Lake Phelps, a shallow freshwater lake on the coastal plain of North Carolina. In 1986, over 22 canoes were located with some recovery of artifacts and samples to assist in dating the canoes (Morris 1986:4).

To date, several prehistoric dugout canoes have been identified and dated by archaeologists in South Carolina, including a few in the project area. On Kiawah Island a radiocarbon sample from a prehistoric dugout canoe dated the vessel to 740 +/- 200 B.P. (approximately 1200 A.D.), or from the Mississippian period. The sample was retrieved from a 35 ft. long dugout canoe found on a small unnamed island adjacent to Kiawah Island. The canoe was made from a pine tree, *Pinus taeda*, and had been buried under 10 ft. of sand when found in 1956 (Crane and Griffin 1959:186). In the early 1980s, SCIAA archaeologists visited the remains of a canoe eroding out of the bank of a small tidal tributary to Broad Creek on Hilton Head Island. The canoe, which was in two pieces, was very rotten and probably made of pine, and showed evidence of charring on the interior of vessel. The largest piece measured 22 ft. and 3 in. in length and a maximum breadth of 2 ft. and 8 in. Bottom thickness ranged from 1 and 1/2 in. to 1 and 3/4 in. The gunwale at amidships measured 1 and 1/4 in. to 1 and 1/2 in thick. A second piece was an end piece of a canoe, presumably from the embedded canoe. This section measured 5 ft. and 6 in in length, 1 ft. and 10 in. at the widest point, a 1 3/4 in. bottom thickness, and a gunwale

thickness approximately 1 in. Radiocarbon C¹⁴ analysis dated the canoe to 930 +/- 90 years B.P. (approximately 1020 A.D.) again another Mississippian period canoe (Division files). A prehistoric canoe (38BU103) was reported to SCIAA by Mr. Billy Partridge in 1973. The canoe rested on the southwest point of the marsh island at the confluence of the Beaufort River and Chowan Creek. The canoe measured 22 feet in length and was 28 inches in width. The sides and ends of the canoe were no longer extant. Twenty-one pieces of grit-tempered, cord-marked pottery were recovered from the canoe by another individual who donated them to the SCIAA for study. The collection of pot sherds suggests the canoe may be from the Woodland period (State Site Files). The site was no longer evident during a revisit by project staff and volunteers in 1997. Another canoe was found eroding out of the Parris Island shoreline in the late 1980s by James Cooler, a local sport diver and collector (Figure 2.1). The canoe was later recovered from the shore by U.S. Marine personnel.



Figure 2.1. Hobby diver James Cooler probes the Parris Island Canoe. (SCIAA)

Chapter 3: The Maritime Cultural Landscape of Port Royal

The historical and economic development of Port Royal evolved fitfully from the earliest endeavors by Europeans to colonize the region through to the modern era. An integral and shared feature of Port Royal's evolution is the periodic bouts of external and internal conflicts brought about by commercial, social, and political rivalry between indigenous peoples and Europeans, between fellow Europeans, and finally between countrymen. From the first French settlement attempt in Port Royal Sound the region has seen the flags of six different nations flying over the land: France, Spain, Scotland, England, the Confederacy, and the United States. Each nation has left behind an indelible maritime cultural legacy on the region. This chapter seeks to discover and interpret the maritime landscape with emphasis placed on exploring the historical archaeological potential of the sound. This chapter is divided into the four periods generally applied to define the historical progression of South Carolina: Colonial, Antebellum, Postbellum, and Modern.

The following chapter relies on a variety of historical resources to document the maritime cultural landscape in Port Royal Sound from the early 1500s to modern times. Sources consulted included manuscripts, diaries, cartography, secondary sources, and photographs. For those wishing to further explore the region's history we suggest the tome *The History of Beaufort County, South Carolina, Vol. 1: 1514-1861* by Lawrence Rowland and others which thoroughly documents the human history connected to Port Royal Sound and environs to 1861. Another source for this chapter was the edited work *Port Royal Under Six Flags* by Katherine Jones. This book is composed of excerpted texts of contemporary accounts of Beaufort's historical evolution from the Spanish period to modern times. Information about shipwrecks was predominately compiled from *Shipwrecks of South Carolina and Georgia* by E. Lee Spence and *New World Shipwrecks* by Robert Marx, and cross-referenced with other historical accounts. Cartographical sources and photographs proved a main source for identifying particular maritime activity areas in the sound. The bulk of the maps, charts, and drawings, and photographs were studied at the Caroliniana Library at USC, the National Archives II in College Park, MD, the USMC Parris Island Museum, and from private collections.

Colonial Period (1562-1785)

Spain and France

Interest in controlling a potential gateway to the Orient and fabulous legends of wealth and a luxurious climate spurred sixteenth-century French and Spanish imperial ambitions to control *La Florida*, a territory that stretched from Florida to Newfoundland (Hoffman 1990). Spanish mariners had explored the area in the early 1500s and extolled the region's potential for profitable conquest and settlement. In order to secure the region Spanish expeditions led by Lucas Vázquez de Ayllón in 1526 (Hoffman 1990:73) and Tristán de Luna from 1559 to 1561 (Priestly 1928:225) attempted to occupy the elusive region of Santa Elena. Both expeditions were crippled by storms and failed to reach the area, although Ayllón did manage to exist for two years somewhere along the southeastern coast between the Cape Fear River, NC and Sapelo Island, GA. Luna also managed to last a couple of years in the region of Pensacola, FL, but never mustered his people to move overland to Santa Elena. Following these abortive Spanish efforts to physically claim the territory, a French exploratory expedition comprised of 150 soldiers, sailors, and young noblemen from Havre de Grace, under the command of Captain Jean Ribault, a Huguenot, sailed into a large river and named the harbor Port Royal in 1562. Ribault believed the

sailed into a large river and named the harbor Port Royal in 1562. Ribault believed the river they entered was the River Jordan which figured greatly in the fanciful stories brought back to Europe from earlier explorers. Ribault and his men selected a small island and erected a fort and named it Charlesfort in honor of the boy king, Charles IX (Jones 1960:10). The fort's location was once an object of speculation and uncertainty but through archaeological investigation it is now known to have been located on the southern tip of Parris Island on Mean's Creek (DePratter et al. 1996).

Thirty volunteers remained behind to man the fort and to await Ribault's return from France with supplies. The French were immediately concerned with the maritime geography of the region for strategic purposes. From cape to cape the sound measured three French leagues wide and was divided into two great arms. The waterway was determined to be a commodious harbor for shipping, where even the small river fronting the fort, called Chenocœu, could contain a number of galleys and galliots. The Frenchmen also quickly began to supplement their stockpiled rations with local marine resources, especially fishing for *sallicoques*, loosely translated as "Salt Shells" (Jones 1960:11). Perhaps these "Salt Shells" were oysters which were introduced to them by the local Indians.

Charlesfort lasted until 1563 when the volunteers, despairing of forthcoming relief from Ribault, built a sailing vessel to carry them back to France (Bennett 1975). The small wooden vessel, or pinnace, was caulked with moss and sealed with rosin. Local natives provided cordage for the rigging and the sails were fabricated from shirts and sheets. They loaded the fort's artillery and munitions, a forge, and a mill stone to provide ballast for the vessel. After a harrowing voyage, in which the crew resorted to cannibalism to survive, the men arrived back in Europe. According to Ribault this was the first recorded transatlantic vessel built in North America (Jones 1960:12). A year later, France again attempted to gain a foothold along the southeastern United States coastline by establishing Fort Caroline in northeast Florida. France had intended both of these fortifications to become bases for privateers to sally forth and seize Spanish shipping, and as nuclei for larger colonies (Bennett 1975).

Spain reacted violently against French encroachment in their New World territory, *La Florida*, which they claimed based on charting the newly found land. Arriving too late to destroy Charlesfort in 1563 (Wenhold 1959:57-58), the Spaniards did manage to annihilate the French intruders in 1565. They sacked Fort Caroline, located on the present-day St. John's River in north Florida. The Spanish punitive expedition also slaughtered the survivors of a French relief force led by Jean Ribault which had been wrecked by a storm along the Florida coast (Quinn 1979:404). With the problem of French intrusion in *La Florida* temporarily alleviated, Philip II, the king of Spain, and Florida *adelantado* Pedro Menéndez de Avilés, established several bases around peninsular Florida, most notably St. Augustine and Santa Elena. These frontier outposts were intended to protect shipping lanes, secure claims to the land, provide succor for shipwreck victims, and allow evangelization of the Native Americans (Lyon 1984:1).

From 1566 to 1576, Santa Elena served as Menéndez's capital in *La Florida*, located in the same area as Charlesfort on Parris Island. During that period the fledgling colony at Santa Elena grew to include a church, a fort, gardens, a wharf, government buildings, and homes. The population during this time consisted of as many as 400 settlers and soldiers (DePratter and South 1995:73). Colonists at Santa Elena exported furs and sarsaparilla roots obtained by the Indians, but mostly engaged in agricultural pursuits for their own sustenance. In mid-1576, relations with the native population worsened and the

settlers and soldiers ultimately deserted the town by way of the sea. The colonists watched in despair from the safety of the armed sailing vessels as the Indians looted and torched the abandoned town. Displaced from their homes and posts the Spaniards retreated to St. Augustine (Lyon 1984:7-11).

Besides seeking New World beachheads the French had also recognized in the early 1520s the disruptive and lucrative nature of privateering in Spanish controlled areas. Privateers, or corsairs, attacked Spanish shipping and conducted illicit trade with Spanish colonial backwater towns while attempting to wrest control of *La Florida* from the Spaniards through occupation (Hoffman 1980). Following the abandonment of Santa Elena in 1576 by the Spaniards, a French corsair, *Le Prince*, or *El Principe* as the Spaniards called the vessel, met disaster at Port Royal Sound and wrecked on a sandbar in early January 1577 (Connor 1930:332). *Le Prince* had departed for the New World from France in 1576 to raid and trade with Spanish colonial settlers. Apparently the corsair successfully sacked several towns and preyed on shipping in and around the Caribbean before the ship wrecked off Port Royal Sound. All of the crew survived the wreck. The survivors proceeded to the abandoned Spanish capital of Santa Elena, and threw several remaining pieces of Spanish ordnance into the adjacent tidal creek. The Frenchmen then moved to a nearby, but presently unknown, location where they built a small triangular fort. An attack by local Native Americans soon reduced the Frenchmen to approximately forty men. The remaining Frenchmen were taken inland to local villages either as slaves or forced guests (Connor 1925:265, 269; 1930:27, 255).

Learning of the French presence and fearing their potential to incite the local indigenous population against their interests, the Spaniards returned with troops and a prefabricated fort to refortify Santa Elena. From this fort they began a hunt for the French shipwreck survivors living among the native population. During their searches they found the French survivors' fort in a "wood by a river". The fort was triangular in shape and constructed of sod and wood. From cavalier to cavalier the fort measured sixty-six paces. Five houses, one piece of bronze artillery of twelve quintals, one hanged man (subsequently found to be a Spaniard), and a number of human bones were located within the fort. The Spaniards then burned and destroyed the fort (Connor 1930:6). For more than three years, the Spaniards methodically ferreted out the corsair crew from their native hosts throughout the region. Many of the captured Frenchmen were hung in St. Augustine for their crimes against the crown and people of Spain (Lyon 1984:12).

Initially, the second occupation of Santa Elena at the newly constructed Fort San Marcos consisted of a garrison manned by 53 soldiers. Garrison numbers strengthened throughout the next several years. The fort apparently was four-sided, with a triangular gun platform on one side, and armed with five bronze guns. The south bastion was outfitted with two pieces while the northwest cavalier was equipped with the remaining three pieces (Lyons 1984:12). A civilian population returned to the town in 1580. From 1580 to 1587, Santa Elena grew to more than 200 residents, not including soldiers. Santa Elena, however, was no longer the capital of *La Florida*, but rather an auxiliary post to St. Augustine, the new Spanish capital (DePratter and South 1995:73). When St. Augustine was destroyed along with other Spanish Caribbean and North American colonial possessions in mid-1586 by Sir Francis Drake and his fleet, the Spaniards in Florida reacted by consolidating their resources. Santa Elena was abandoned in 1587 against the wishes of the town's residents and the Spaniards entrenched at St. Augustine (Lyon 1984:15-16). Following the abandonment of Santa Elena the Spanish maintained only a limited presence in the Port Royal Sound region with an occasional military, civilian, or religious foray.

Despite the brief occupation of Parris Island by the French and Spanish, a potential wealth of associated material culture exists in the surrounding waters and marsh related to the defenses of the Spanish town and French fort. The Spaniards situated Santa Elena between the confluence of the Broad and Beaufort Rivers in a position to defend against attack, which also presumably guided Ribault's placement of Charlesfort on the same tract of land. At least four and possibly five forts were built by the Spaniards from 1566 to 1587 to secure the town from attacks by sea and by land. Reinterpretation of previous excavations by SCIAA has revealed that the Spanish Fort San Felipe was built atop Charlesfort. The placement of the Spanish fort most likely symbolized the erasure of the French presence from the island and any claims to the land (DePratter et al. 1996:1). Fort San Felipe was outfitted with a drawbridge and a moat (Lyons 1984:8). Additional defensive structures also helped to protect against European sea raiders. To thwart entry through the tidal channel leading to Santa Elena, the Spaniards constructed several water defenses. In an effort to seal the channel entrance from unauthorized entry in 1586, two large pylons were erected in the marsh with a log-chain strung across the water between the two. In another area, a defensive work consisted of a log palisade that obstructed the channel near the town. A defensive construct of flood gates at each end of Fort San Marcos's moat allowed the Spaniards to flood the moat as needed (231, doc. 64, Santo Domingo, AGI). Archaeological investigation have revealed that large portions of two Spanish forts and Charlesfort have eroded into the marsh (DePratter et al. 1996:1).

Other potential archaeological features at and around Santa Elena are related to maritime logistical operations. Written accounts describing the town confirm the presence of a wharf structure at the town's waterfront to load and off-load goods between the anchored vessels and the town (ACR CAN 47, No. 22, Image 451-455, Reel 107). A map drawn of Fort San Marcos in 1586 shows an area named as an embarkation point on the channel in front of the town. The landing area could contain remnants of wharf pilings and submerged debris such as ceramics, barrels, and bottles usually connected with an active waterfront. Research also indicates the presence of several anchors abandoned by a fleet of Spanish vessels at the Santa Elena anchorage, which most likely was situated in the Beaufort River just off the channel leading to the settlement (Eugene Lyon 1996, pers. comm.). At the entrance to the sound, Ribault noted a convenient source of freshwater located off the northwest end of present day Hilton Head Island during his 1562 visit. A need for freshwater and fresh game may have attracted seafarers to this area of the sound to provision their ships, to trade, to make repairs, or to discard unwanted materials before attempting the Atlantic crossing back to Europe (Quinn 1979:293). Additional archival research also indicates that the Spanish lost at least two vessels in local waters. One vessel was scuttled and burned in the harbor and another struck the sandbars leading into the sound and sank (C. DePratter 1998, pers. comm.).

Great Britain

A hundred years after the establishment of Charlesfort, William Hilton, an English captain, sailed from Barbados on the *Adventure* and arrived along the South Carolina coastline on 3 September 1663. Hilton's mission was to investigate promising colonial sites for Barbadian planters and other Englishmen eager to expand into the New World. Sailing into Port Royal Sound, situated on the contested fringes of the Spanish empire, Hilton was careful to note in his report intelligence gathered from the Indians who mentioned the periodic appearance of Spaniards via canoes and small, usually two masted, vessels from the sea (Rowland et al. 1996:59). In an effort to augment British controlled lands in America the king of England, Charles II, had on 24 March 1663 granted territory concessions to the eight Lords Proprietors the Province of Carolina (Jones 1960:67). The

Lords Proprietors hoped that the infant Carolina colony would produce silk, currants, raisins, capers, almonds, and olives (Brown 1975:119). These wishes merely mirrored earlier Spanish agricultural attempts to produce attractive commodities for export and sustenance. In 1666, the Lords Proprietors sent a reconnaissance mission led by Robert Sandford to the Carolina coast to determine suitable sites for colonization. Sandford reached Port Royal on 3 July 1666 and anchored off Parris Island. Based on his survey of the Carolina territory, Sandford recommended the settlement of the Port Royal region (Jones 1960:83). A prime concern for the success of the fledgling colony was safe navigation from the harbor to the shipping channels. Sandford and others noted the presence of shoals on both sides of the harbor entrance which extended approximately five leagues from land. Despite breakers on both sides of the sound's entrance, ideal water depths of 2 1/2 fathoms at low tide in the channel and from 5 to 9 fathoms of water within the sound assured safe navigation to the intended settlement (Jones 1960:83).

In 1669, the Lords Proprietors agreed with Sandford's recommendations and chose Port Royal as the destination for a settlement (Rowland et al. 1996:62). Under the command of Joseph West, a fleet of three vessels, *Carolina*, *Port Royal*, and *Albemarle*, left England to settle in Port Royal. The *Carolina*, however, was the only vessel to reach Port Royal on 21 March 1670. The other two vessels sank due to storms in the Caribbean (Jones 1960:80). A replacement vessel loaded with passengers from the expedition arrived shortly afterwards to join the first arrivals. Setbacks caused by the ship losses, sound advice from local Indians, and a desire to distance themselves from the Spaniards in St. Augustine caused the settlers to relocate to present-day Charleston Harbor on the banks of the Ashley River. The newly founded colony was named Albemarle Point but was later renamed Charles Towne (Rowland et al. 1996:62; Jones 1960:80).

Despite the rejection of Port Royal as the location for the first English settlement in South Carolina, Scottish Highlanders intent on securing religious, commercial, and social freedom secured rights to found a colony in that part of the province. In October 1682, *James of Erwin* sailed to South Carolina to scout an area to establish a Scottish settlement. The vessel arrived in Charles Towne in March 1683 and departed for Port Royal shortly afterwards, reaching the harbor on 25 March. The crew spent a month surveying and taking soundings of the waterbody (Rowland et al. 1996:69). During the course of the survey, the sailors traded knives, beads, glass, and other commodities to the Indians in exchange for deer and turkey (Crafford 1683:6). Based on the findings of the exploratory mission the *Carolina Merchant* sailed from Glasgow Bay on the Clyde on 21 July 1684 loaded with a group of Scot Covenanters intent on settling in Port Royal (Jones 1960:85). The Scot settlers arrived in Port Royal on 2 November 1684 and founded Stuarts Town (Stewart Town) on a bluff on present-day Port Royal Island. The site was chosen far enough inland to guard against a surprise attack by sea and to cluster the settlers together for mutual protection (Parker 1997:11). The Scots intended the town to become a prosperous port town (Jones 1960:88). The Lords Proprietors intended that the town become a defensive barrier between the English and Spanish (Parker 1997:11).

Under the command of Lord Cardross (Henry Erskine), the Scottish settlers became involved in trading with the Indians for furs and slaves (Rowland et al. 1996:72). During this period a band of Yemassee Indians settled within the Scot territory. Instigated by the Scots, the Yemassee Indians raided Spanish controlled areas and traded the spoils to the Scots (Parker 1997:11). Situated perilously on the frontier between Spain and England the settlers petitioned the Lords Proprietors for five pieces of cannon for the defense of the town in late 1685 (Jones 1960:92). Despite the presence of the cannons, Stuarts Town was destroyed by a Spanish reprisal expedition on 17 August 1686. A flotilla of three

periaguas, or half galleys, arrived in Port Royal through the inland passageway from St. Augustine. The Spanish force, comprised of approximately 200 Spanish soldiers and Indian allies, attacked and destroyed the town and plantations in retaliation for the Scot's destruction of a Spanish mission in 1685. After destroying the Scot settlement, the Spanish force moved towards Charles Towne to continue their attack when a hurricane wreaked havoc on the small fleet and forced a hurried retreat to St. Augustine (Jones 1960:94; Rowland et al. 1996:74). A land grant rush by English settlers ensued after the Spanish sack of Stuarts Town. The opportunistic Englishmen were mostly Indian traders eager to profit from the vacuum created by the Scots displacement from the trade network (Rowland et al. 1996:82). One of these early Englishmen was a Mr. Pinny who had a land warrant ". . . for that Point of Land, lying on Port-Royall River below the Bluff, on w[hich] the Scott's Town formerly was commonly Known by ye Name of ye Spanish Point Dated Janu[ary] 12th 1698/9" (Salley 1973:585). Presently, the exact site of Stuarts Town remains unknown, though unidentified as yet, remnants of landings, wharf pilings, and other material culture in or along the river may provide clues to the town's location.

Situated on a fluid and hostile border, Port Royal settlers were vulnerable to Indian and Spanish raids. When the Queen Anne's War erupted amongst the European colonial powers, the first in a series of European conflicts to spill over into the New World, one of the first blows was initiated from Port Royal Sound.. In October 1702, Carolina's Governor, James Moore, struck first and sent a military expedition against St. Augustine. Five hundred South Carolinians and 100 Indian allies and 14 small vessels gathered at the southern end of Port Royal Island under the command of Gov. Moore. The South Carolina force attacked St. Augustine but did not force a capitulation and abandoned the effort. The English retreated and left a detachment at Port Royal Island to guard the inland passageway. In 1703, the Lords Proprietors ordered a post at Port Royal Island to watch for and resist Spanish privateers along the coast, and also requested a Royal navy frigate to guard Charles Towne, and, if it drew more than 20 ft., it was to be stationed in Port Royal. From 1703 to 1706, the lookout garrison grew from a small wooden blockhouse to a two-story blockhouse and a palisaded enclosure (Rowland et al. 1996:89). By 1706 the post consisted of four officers and 112 men. The fort also served as a meeting place for local Indian traders and planters in the region. In 1707 an act of the General Assembly authorized the establishment of a lookout post on the southern end of Pinckney Island on the May River for additional protection (Calmes 1973:76).

In 1709 the colonists petitioned the Lords Proprietors to create a town on Port Royal Island. They provided as an economic incentive the region's abundant forests which were potential sources for masts, pitch, tar, turpentine, and other naval stores for the ships of Great Britain. A group of eight men was selected to fathom Port Royal River (Beaufort River) and to determine the best place for the town authorized by the Lords Proprietors. The Town of Beaufort was founded two years later in 1711 to serve as a military outpost along the southern frontier. A port quickly developed to support the Indian trade, cattle raising, nascent naval store industry, and military requirements (Rowland et al. 1996:88-91).

Yemassee War

Indian traders played a large role in the political and economic arena of the Carolina colony. Indian traders meddled in politics for personal profit and helped to stimulate the trade in furs and slaves by sparking the Stono War of 1674 and the Westo War of 1680. In 1712 the Tuscarora War flared following a group of Indian traders' attempt to exploit the Indians. The most destructive conflict occurred when the Yemassee War erupted in 1715,

although tensions between the English and the neighboring tribes had been simmering for some time over trade debt and land (Brown 1975:119-21). In 1686, the Yemassee tribe established ten towns in the Port Royal area and then acted as middlemen between other native tribes and the Scots, and later the English settlers (Rowland et al. 1996:81). A large influx of the native population in the region by 1707 caused the General Assembly to authorize distinct boundaries between the lands of the Indians and settlers. Tensions between the two groups grew as Indian traders continued to violate the political boundaries and commit grievances against the natives (Rowland et al. 1996:83).

In 1715 the Indians conspired to destroy the English settlement in South Carolina. The principal cause of the war lay in the amount of debt that the Indians had incurred with traders amounting to an estimated 10,000 *l.* Sterling and ". . . was attributed to some ill Usage they had receiv'd from the Traders, who are not (generally) Men of the best Morals . . ." (Yonge 1722:6). Indian tribes throughout the southeast united to drive the English from the area by destroying settlements and plantations, disrupting trade lines, and murdering the colonists and succeeded in driving the settlers from the Port Royal area (Rowland et al. 1996:80). The inhabitants of Beaufort fled to a smuggler's vessel, a ship of 300 tons impounded off Beaufort, and used onboard cannons to keep the Indians at bay, and then beat a hasty withdrawal to Charles Towne. Over a hundred Englishmen were killed by the Indians during the initial wave of violence (*Boston News*, 13 June 1715:101).

For the next thirteen years the Port Royal environs were plagued by periodic Indian raids carried out by land and by war canoes which were countered by militia and settlers with periaguas, longboats, and canoes (Rowland et al. 1996:98). In 1720 Beaufort was practically uninhabited and the lookout fort lay in ruins (Rowland et al. 1996:101). To defend Port Royal the General Assembly ordered additional look-out posts and the development of a scout boat system. Scout camps during the Yemassee War were posted on the northern and southern ends of Port Royal Island and on Pinckney Island (Rowland et al. 1996:99). Another scout outpost was established on Bay Point in 1724 (Rowland et al. 1996:105). One of the shell midden islands on Station's Creek (originally Lookout Creek) between St. Helena and St. Phillips Islands was used as a look out station in the 1700s. The posts remained viable during the war but by the late 1720s the fortified lookout post on the north end of Pinckney Island was in ruins (Calmes 1973:76). The other defensive measure used in conjunction with the lookouts was to station scout boats ". . . upon Port Royall Island to watch the inland water passage from St. Augustine and to prevent our white people and slaves from deserting and going thither, two scout boats of 10 men each, who have small forts to retreat and secure themselves." (Jones 1960: 58). In 1722, the two armed scout boats stationed at Port Royal were periaguas rigged with loosed-footed sails on removable masts, and oars. Each vessel was about 30 feet long and crewed by six scouts and a commander. The boat was heavily armed with a swivel gun, muskets, cutlasses, and pikes. The main function of the lookouts and the scout boats was to serve as an alarm system to warn the colonists of impending Indian or Spanish attack (Rowland et al. 1996:101-2). The Yemassee War finally concluded with Palmer's Raid in 1728 led by Colonel John Palmer and 110 South Carolina militia and 110 Indian allies to St. Augustine to attack the Yemassee tribe under the walls of the *presidio*. The raid brought to an end thirteen years of episodic violence that ebbed and flowed over the tenuous Port Royal frontier (Rowland et al. 1996:107).

Intercolonial Warfare

The conclusion of the Yemassee War secured only a brief respite from violence before the South Carolina colony was drawn once again into intercolonial conflicts between

before the South Carolina colony was drawn once again into intercolonial conflicts between England, France and Spain. Port Royal inhabitants transferred their fear from the Indians to the prospect of attack from Spanish privateers and naval forces during the 1730s. Scout boats remained stationed near Beaufort until 1764 as part of the early warning system. The 1730s witnessed a reversal in secure and safe havens from a raid. During the Indian wars, the sea islands were places of sanctuary and safety, but with the threat of hostile naval activity, the sea islands were vulnerable to attack and safety was sought by fleeing inland. Security along the frontier boundary of South Carolina improved as a result of the development of Savannah and the Georgia colony during the 1730s. In 1737 South Carolina handed over the defensive obligation of the Georgia colony to the Georgians. This action effectively moved the frontier borders with Spain and France further south (Rowland et al. 1996:140-2).

Earlier in 1726 plans were made to construct a permanent fort on Port Royal Island as the susceptibility of the sound to egress by hostile enemies was recognized. The General Assembly also pointed out ". . . the harbor of Port Royal [was] capable of receiving many large ships of war," for use as a potential naval base (Rowland et al. 1996:139). Fort Prince Frederick was built between 1726 and 1735 using tabby, a mixture of lime, shell, and sand poured into forms, much like concrete (Rowland et al. 1996:105). A lessening of the colony's conflict with Spain and conclusion of Indian raids caused work on Ft. Frederick to slow considerably and after five years of work the bastions were only partially constructed. A Beaufort merchant, John Delabere, assumed management of the fort's construction in 1733 and completed the fortification two years later. The tabby walls measured 5 ft. high and were 5 ft. thick at the top. On 4 March 1737 a motion passed through the General Assembly to construct a brick powder magazine within Fort Frederick. A 1739-1740 report of the condition of Fort Frederick outlined that the new work was almost gone to the river, presumably through erosion, and had fallen down on the land side. The report also mentioned the garrison required a small boat for their use (Jones 1960:110, 112). In disrepair, the fort was periodically used through the 1740s and 1750s as perceived threats manifested themselves (Rowland et al. 1996:140) Today, the ruins of the fort lay on the grounds of the Naval Hospital and during high tide the river side portion of the ruins are submerged in the Beaufort River (See Figure 11.4).

The War of Jenkin's Ear (1739-1743) caused consternation in the Port Royal region and forced local citizens to outfit a scout boat to cruise the southern inland passage to thwart surprise attacks by Spanish forces (Rowland et al. 1996:143). The war caused a virtual cessation of shipping in Port Royal due to the threat of Spanish privateers harassing the coastline. In April 1740, a sloop commanded by Captain Stewart wrecked on Bay Point after being chased by a privateer. In May 1742, a new schooner built in Beaufort and owned by Ephriam Mikell loaded with 100 barrels of rice was taken by a Spanish privateer. Another vessel later in the year was chased when leaving the sound (Rowland et al. 1996:148-9). To protect shipping and the colony the Commons House in 1740 proposed the construction of two "half-galleys," each with a crew of 40 to 50 men, and outfitted with a 9-pounder, several swivel guns, oars, and other necessities. One boat was ordered to Port Royal and the other to guard South Edisto Inlet. The two galleys, *Beaufort Galley* and *Charles-town Galley*, were launched in 1742 and both were stationed in Port Royal Sound. Each galley was equipped with six light cannon, twelve swivel guns, oars, removable masts, and a crew of 50. The galley's were ideally suited for inland work and not for use on the sea (Rowland et al. 1996:143, 150). For protection at sea, Port Royal merchants relied upon a Royal Navy presence with the arrival in 1743 of the HMS *Loo* and HMS *Spy*, and two additional warships, which operated for a year in the sound (Rowland et al. 1996:150). The threat of privateers was not one sided as South Carolinian privateers also

also proved successful in strikes against Spanish merchants (Rowland et al. 1996:149). At the conclusion of the Jenkin's Ear War in 1743 the *Beaufort Galley* took the flag of truce to St. Augustine signaling the end of the conflict (Rowland et al. 1996:150).

Peace in the region lasted until 1744 when the War of Spanish Succession, also known as King George's War by the English, broke out. This time the enemy was the French but the Spanish entered the fray along the southeastern coast (Rowland et al. 1996:150). Defenses again were an issue with the Port Royal citizens and a committee in 1744 reported to the House Assembly recommending the construction of a fort at Cochran's Point on the north end of Port Royal Island to secure Port Royal ferry and another fort on the mainland to secure Bryan's Ferry (Jones 1960:114). These recommendations apparently were never acted upon. In 1745, Gov. James Glen wrote to the duke of Newcastle about providing protection to Port Royal by stationing two naval vessels in the harbor. That same year the 15-ton schooner *St. Joseph*, the first ship registered in the port of Port Royal, was captured by French and Spanish privateers. A feared Spanish privateer was the *Invincible Shepherdess* under the command of Don Francisco Loranzo who operated frequently off St. Helena Sound and Port Royal Sound. The presence of *Beaufort Galley* did not thwart privateers from sailing along the coast and sea islands. In 1747 a French privateer chased a schooner across the Port Royal bar. In 1747, two years after Glen's request for naval vessels, the 40-gun frigate HMS *Adventure* arrived in the harbor and was joined in 1748 by HMS *Rye*. The war ended shortly after the arrival of HMS *Rye* and the colonists once again settled into a peacetime routine. The peace was punctuated, however, with scares of pirates, and a renegade Spanish pirate visited the Port Royal vicinity in 1754 (Rowland et al. 1996:152-4).

War gripped Europe once again in 1756 with the advent of the Seven Year's War between England and France. The North American theater was called the French and Indian War. Spain sided with France during the conflict. South Carolina responded by building two new galleys. One galley was stationed in Port Royal and the other at Charles Town. The mission of the galleys was to keep a watch on the coast, and for the Port Royal galley also to gather intelligence. Additionally, English privateers were commissioned to assist in protecting the colony's coastline. Spanish privateers once again prowled the coast of Port Royal for prizes and interrupted trade (Rowland et al. 1996:155). In 1762 a prize schooner *Societe* (or *Society*), a vessel presumably captured by an English privateer, wrecked near the Port Royal bar (Spence 1984) probably en route to a prize court.

The defenses of Port Royal Sound once again proved inadequate during the French and Indian War. In 1758 an English privateer from Liverpool, *Cate*, provided security to the population for a brief time (Rowland et al. 1996:155). Port Royal citizens in 1756 petitioned for the establishment of a new fort, as Fort Frederick had fallen into disrepair. Spurred on during the war, construction of the new tabby fort continued throughout the years and was finally outfitted with cannons in 1762. Fort Lyttleton, named for the South Carolina Royal Governor William Henry Lyttleton, was built on Spanish Point to guard Beaufort. Ordnance at the fort consisted of eighteen cannon. During the 1760s only a skeleton crew manned the fort (Rowland et al. 1996:157). The signing of the Treaty of Paris in 1763 finally brought to a close the intermittent colonial wars fought between France, Spain, and Great Britain. Termination of hostilities allowed the stifled Port Royal and South Carolina economy to prosper and encouraged peaceful intercourse between South Carolina and St. Augustine. The population in the southern district of South Carolina doubled in the 1760s owing to the stability following the Treaty of Paris (Rowland et al. 1996:175-6).

South Carolina's Nascent Economy

The English settlers quickly determined that efforts to clear extensive lands suitable for agricultural use required a large labor pool which was nonexistent in the early years of the colony. Additionally, local environmental conditions limited the growth of the desired cultigens. These two difficulties stimulated many settlers to seek alternate paths to economic prosperity. They quickly engaged in the trade of European goods for fur and slaves with the local indigenous population, raised cattle, and produced naval stores. From 1682 to 1720 English settlers developed plantations in the surrounding Port Royal environs to exploit the region's natural resources and to graze livestock (Rowland et al. 1996:80). The early objective of the South Carolina colony was to provide Barbados and other sugar producing islands with provisions, mainly meat, through raising livestock (Rowland et al. 1996:85). Initially, the cattle ranches were probably nothing more than temporary camps in open areas and necks (small peninsulas formed by the marsh creeks) and by 1715 they developed into settlements and later into plantations. Official records state that in 1712 South Carolina exported 1,963 barrels of beef and 1,241 barrels of pork (Rowland et al. 1996:87). The burgeoning cattle herds were later decimated during the Yemassee War from 1715 to 1728 (Rowland et al. 1996:108).

Naval stores obtained from the surrounding forests also proved economically attractive, especially combined with a government bounty of 4 shillings per hundred pounds on pitch, 10 shillings per barrel on tar, and 3 shilling per hundred pounds on turpentine. South Carolina plantations in the early 1720s exported approximately 60 to 70,000 barrels of tar and pitch, and great quantities of turpentine (Yonge 1722:69). A prohibitive measure enacted 29 September 1724 stipulated that pitch and tar production follow the methods employed by Sweden and Norway due to the belief that Southern plantation commodities were inferior to those produced by these Northern European countries. The production guidelines hindered the continued growth of this trade (Yonge 1722:70). By the early 1720s the produce of South Carolina for export included beef, pork, pitch, tar, turpentine, rice, cedar, deer skins, and some silk, rice, and indigo (Yonge 1722:68).

The Lords Proprietors and the settlers realized early on that making the colony a profitable enterprise lay through the Indian trade. The first Englishmen to engage in the Indian trade was Dr. Henry Woodward in the early 1680s. He was quickly followed by others in this pursuit (Brown 1975:119). Promotional literature under the authority of the Lords Proprietors extolled the potential of Port Royal as an excellent sea port for tradesmen and merchants to ply their goods and wares. A chief incentive was that the port was conveniently situated to trade with the Indian nations. Additionally, the port was a perfect place for shipping and,

" . . . generally adjudg'd by those that knows well the river, that it exceeds for (safety and depth of water, for large ships,) the river that leads to Charles-Town, and they may very safely come up to the place where the town is design'd, and 300 acres of land reserv'd from being sold by the proprietors for that purpose." (Merrens 1977:52-3).

Furs were the primary export from the Carolina settlement and from 1698 to 1699 approximately 64,489 skins were exported from Charleston. For the next decade and a half, exports averaged 54,000 skins, and from 1706-1707 exports totaled 121,355 skins. These figures plummeted to only 5,000 skins in 1715 due to the outbreak of the Yemassee War, and for the next five years skins were exported to a third of the pre-war rate. A total

of 255,000 skins were exported between 1719 and the 1730s. Export duties for one four month period totaled £586 for peltry and furs. Indian slaves were also of value, although by end of the war, the market dried up. In earlier, peaceful years Indian slaves were worth £14 for an individual (Brown 1975:124-5).

Indian trade items in the southern colonies consisted mainly of buck and doe skins and other peltry. Beaver pelts brought higher prices. Various English import goods valued at £10,000 sterling yearly, including guns, bullets, powder, iron ware, cloth, coats, petticoats, blankets, hoes, shirts, and other sundry goods, were exchanged for the skins. Approximately 200 English Indian traders were employed as factors by Carolina merchants prior to 1715. However, these numbers were reduced as many of these traders and their families, along with a number of the planters were killed during the outbreak of the Yemassee War (Jones 1960: 58; Brown 1975:123). Historian Lewis Gray, noted that this Indian trade was a pioneer stage of economic growth for the colony and that, "The profits of the Indian trade supplied capital for agricultural development and sustained the infant colonial establishment until agriculture could gain a foothold." (Brown 1975:118). In other words, the accumulation of wealth from Indian trade set the stage for investment in indigo and rice agriculture, and the black slave trade (Brown 1975:118).

Agriculture

After the collapse of the Indian trade, cattle ranching, and the naval store industry due to warfare and consumer demands, the sea island plantations found a new means of attaining prosperity through the agriculture of rice, indigo, and sea island cotton. Planters overcame earlier labor shortages through the importation of black Africans for use as slaves to modify and create a landscape conducive to intensive agricultural production. A large influx of black slaves arrived in the 1730s to create the rice plantations (Rowland et al. 1996:113). From 1720 to 1740 the largest unrestricted inflow of black slaves to the American colonies entered South Carolina. The first slaves sold in Beaufort occurred in 1736 when a Savannah merchant arrived with a load of Angolans onboard (Rowland et al. 1996:128-30).

Rice agriculture proved especially labor intensive. To create and maintain an inland swamp plantation for rice production required damming the downstream end of swamp. The dam was built from the logs which were cleared from the land. The dam was also outfitted with a wooden rice trunk used to regulate the flow of water in and out of the rice field. An average 30 to 40 acre inland swamp produced about 20 to 30 bushels of rice per acre. These production figures remained constant throughout the span of rice agriculture in South Carolina. Rice production in Port Royal was located in the upper reaches along the Coosawhatchie and Combahee Rivers (Rowland et al. 1996:113). Rice exports from Carolina in 1719 totaled 13,623 barrels and in 1720 amounted to 21,879 barrels (Yonge 1722:68).

The planters on the sea islands did not participate in the economic boom wrought by rice agriculture until the introduction of indigo in the 1740s. Indigo became a cash crop suitable for the sea islands maritime geography of salty, sandy soils. The planters were induced to grow indigo by the Imperial Indigo Bounty of 1748, a British government subsidy that lasted until the Revolution. The *South Carolina Gazette* reported that 23,000 pounds of indigo were shipped from Beaufort and Georgetown while 177,000 pounds were shipped from Charleston in 1755. Indigo agriculture also required extensive use of slaves to clear the land to plant the seeds. Fields were kept clear of weeds and a planter could expect three cuttings from a plant a year. Indigo was obtained by steeping cuttings in

a vat until the water turned blue. The water was then poured into a second vat and agitated. Suspended particles of indigo were allowed to settle and the water was removed carefully to leave the residue on the bottom of a second vat. The particles were allowed to dry and then cubed and shipped in casks to market. Processed indigo was worth ten times as much per weight as rice (Rowland et al. 1996:161-4). Indigo was a very important aspect of Port Royal life and supported a rich lifestyle. In probate records for sea island planters, only cattle and slaves appear more often than indigo vats (Rowland et al. 1996:170). Indigo production waned during the 1790s and by 1796 indigo cultivation was abandoned in favor of sea island cotton during the antebellum years (Rowland et al. 1996:280).

Shipbuilding in Port Royal Sound

Little is known about the earliest shipbuilding activities in Port Royal Sound. Some researchers believe that the first ship to be built by Europeans in North America may have been constructed in the sound during the early sixteenth century, although recent research suggests a location further south near the Savannah River in northern Georgia (Hoffman 1990:70). Evidently, this vessel was constructed by the Spanish at San Miguel de Gualdape, the first Spanish municipality in the United States territory. The craft was apparently a "shallow draft open vessel that could be propelled by either oars or sails...well suited to the shallow coastal waters." (Rowland et al. 1996:18).

Documentary evidence further suggests that the French constructed a 20-ton sloop at Charlesfort, located on modern-day Parris Island, in 1563 (Rowland et al. 1996:24). However, it is not until the arrival of the English in the seventeenth century that interest in shipbuilding as an industry appears to have developed. In a letter written in 1680, Maurice Mathews, one of South Carolina's original settlers and eventually its surveyor-general and Commissioner of the Indian Trade, noted that, "ther[e] have been severall vessells built here, and there are now 3 or 4 upon the Stocks" (Mathews 1954:159). This is perhaps the first written record of boat building in South Carolina and probably refers to "vessells" capable of at least coastal trading. The earliest surviving South Carolina ship registers, those pre-dating 1735 are missing, indicate that the earliest known vessel built at Port Royal was the *St. Joseph*, launched in 1740 (Fleetwood 1982:44; Rowland et al. 1996:182).

In the years following the establishment of Charles Towne in 1670 interest in the southern coast of the colony increased. The English quickly recognized the sea islands as a viable source of raw materials and therefore considered them "the most proper place in the province for ships of Great Britain to take in masts, pitch, tar, turpentine, and other naval stores" (Smith 1908:141-142). Neither had the strategic value of Port Royal Sound escaped the Lords Proprietors attention when they noted, along with their request to the British Admiralty for a Royal Navy frigate, that in Port Royal "a large frigate may ride at safety, which is deep water and not barred" (Salley 1928-1947, v. 5:112,117).

The shipbuilding industry in Beaufort, like in other areas of South Carolina, got off to a slow start. Governor Nathaniel Johnson, in 1709, reported to the Board of Trade in London on the paucity of vessels being produced by the province, while 10 years later, governor Robert Johnson reported that, "Wee are come to no great matter of [ship]building here for want of persons who undertake it tho no country in the world is [as] plentifully supplied with timber for that purpose and [so] well stored with convenient rivers . . ." He notes that of the 20 or so vessels belonging to the port, "some" were built here (Merrens 1977:34, 65). Johnson's lament over a lack of skilled shipwrights was soon to be remedied. By the 1740s skilled artisans were emigrating to South Carolina and by the mid-

1700s Beaufort had become one of the three major shipbuilding centers of South Carolina alongside Charleston and Georgetown.

The range of craft constructed around Port Royal Sound no doubt reflected those being produced throughout the province. The vessels used to travel the river systems and ply the coastal water resulted from a variety of influences, rather than solely from the traditions of the English alone. Whether this influence came from indigenous populations, West African log boat traditions, or European influences, the design of all South Carolina vessels was perhaps most heavily influenced by the local environment. Many of the coastal plain rivers are slow moving and shallow, filled with sand bars and empty into bays and harbors with entrances obstructed by shallow bars. Hence, the vessels built in colonial South Carolina had to meet the requirements dictated by local environmental conditions. Perhaps the most versatile types of vessels built in the province that met these needs were coasting schooners and sloops. These craft were broad beamed vessels ranging from 17 to 20 meters in length, yet with a shallow draft of little more than a meter (Amer 1993; Simmons and Newell 1989:65-80). They were undoubtedly quite similar in many ways to those being built in Britain and the other American colonies. The wide, rounded hull shape of the ocean-going cargo carrier, with its blunt bow and tapering stern at the waterline - - meant to imitate the shape of a duck gliding through water - - and square stern cabin, had become, like the rigs themselves, fairly standard and widely copied by shipbuilders after centuries of development, innovation, and imitation. Since many of the shipwrights of colonial South Carolina were trained in the best English shipyards or in other parts of America, this is hardly surprising. A number of examples of these colonial craft have been documented in the waters of the state, including the Brown's Ferry Vessel (Albright and Steffy 1979; Amer and Hocker 1995; Hocker 1992; Nylund 1989; Steffy 1978a, 1978b, 1979) in the Black River, the Biggin Creek Vessel (Amer 1989) in the Santee Canal, the Hunting Island Vessel (Amer 1992) in Hunting Island State Park, Little Landing II (Amer and Thompson 1989) in the Cooper River, the Malcolm Boat (Amer et al. 1993; Amer and Hocker 1995) in the Ashley River, the Clydesdale Vessel (Amer and Hocker 1995) in the Back River, and the Ingram Vessel (Amer et al. 1995) located near the fall line of the Great Pee Dee River. Regardless, it would be hard to imagine that local shipwrights and boat builders were not being influenced by local conditions and preferences, and modifying the basic designs so that their vessels accommodated the needs of their customers.

Much evidence of colonial shipbuilding comes from the ship registers. Under English law, vessels used for intercolonial or transoceanic trading were required to be registered. Unfortunately, few of these records remain (Clowse 1984:221-222). Extant ship registers show that between 1735 and 1775, more than 300 ocean-going and coastal cargo vessels, ranging from five to 280 tons burthen, were built by South Carolina shipbuilders. These included ships, snows, brigantines, schooners, and sloops (Olsberg 1973). While Beaufort initially lagged behind the larger centers of Charleston and Georgetown in ship production, in the score of years before the American Revolution the shipbuilding industry in the Port Royal area grew rapidly, even surpassing the larger centers in vessel production.

Most shipbuilding in Beaufort took place outside the city proper. The areas in Port Royal Sound noted for shipbuilding included mainly the sea islands because of their many natural advantages--deep creeks, abundant timber resources and their proximity to the largest natural harbor in the province with the greatest tidal range in the southern colonies. Although no shipyard sites have been positively identified in the Port Royal Sound area, the colonial ship registers indicate a goodly amount of shipbuilding in the region. Between 1740 and 1760, more than 16 small coasting vessels list Beaufort as their place of

construction in the ship registers. Ten of these vessels are described as schooners, ranging from 14 to 25 tons, while sloops, snows, and two ships make up the balance. This included the 40-ton schooner *Mary Ann*, built for John Bull in 1745, which was the largest craft built at Beaufort prior to 1763 (Rowland et al. 1996:182-3). The *South Carolina Gazette* for 28 September 1765 notes that:

within a month past, no less than three scooners [*sic*] have been launch'd at and near the town of Beaufort, one built by Mr. Watts, one by Mr. Stone, and one by Mr. Lawrence; besides which, a pink stern ship, built by Mr. Black, will be ready to launch there next Monday, and very soon after, another scooner, built by Mr. Taylor, one by Mr. Miller, and one by Mr. Topping; there is also on the stocks, and in great forwardness, a ship of three hundred tons, building by Mr. Emrie; and the following contracted for, to be built at the same place, viz, a ship of 250 tons, and a large schooner, by Mr. Black; another large ship and a schooner by Mr. Watts; two large scooners, by Mr. Lawrence, and on by Mr. Stone.

The ship registers verify this abundance of shipbuilding and indicate a proliferation of construction activity between 1765 and 1774. By the advent of the Revolution vessels of up to 260 tons were being launched from the slipways of Port Royal shipyards with the largest ship built in South Carolina, displacing 420 tons, being built on Hilton Head in 1773.

It would be wrong to assume that all this shipbuilding was taking place at large commercial shipyards. Shipyards during this period ranged from the well-established yard such as John Rose's on Hobcaw Creek near Charleston which employed perhaps 20 persons building large ships (Amer and Naylor 1996), to the vernacular variety where one or two persons built small sloops and schooners without any help, and worked elsewhere between construction jobs. According to Rowland, Moore, and Rogers (1996) the only established shipyard in the Beaufort area was owned by James Black and located at Old Point or Black's Point. However, the bulk of shipbuilding in the area appears to have occurred at remote locations near accessible natural resources (Wood 1981) and deep water. Some locations noted include Spanish Point near Beaufort, Bloody Point on Daufuskie Island, Skull Creek on Hilton Head, and Factory Creek on Lady's Island (Wood 1981:185). The latter creek, also known locally, as an "old careening ground" is located across the Beaufort River from the town of Beaufort. Evidently, vessels of some considerable size were also constructed on Rose Island in the Broad River. On June 9, 1766 the *South Carolina Gazette* reported that a ship capable of carrying 1,800 barrels of rice, built by Mr. Emrie, had just been launched at Rose Island. Contemporary newspapers and records list numerous shipbuilders as working near Beaufort during the Colonial Period. These include Mr. Robert Watts, Mr. Stone, Mr. Lawrence, Mr. Taylor, Mr. Mills, Mr. Topping, Mr. Enoch Laurens, Mr. John Russell, Mr. John Emrie, Mr. Thomas Crotty and Mr. James Black. In addition to shipwrights, the construction of a vessel needed the services of joiners, coopers, blacksmiths, timber merchants, painters, chandlers, glaziers, carvers, plumbers, sail makers, block makers, caulkers, and oar makers, among others (Goldenberg 1976:55-56).

To date, no archaeological evidence of colonial shipbuilding in the Beaufort area has been found. Recently, during renovations to one of the buildings along the Beaufort waterfront, an architect working for the owner excavated and recorded part of a timber construct beneath the foundations of the building. While far from conclusive evidence for a shipbuilding facility, the layout of timbers and cobbles were reminiscent of the cribbing and

slipway timbers found during archaeological surveys conducted by the Division at the Pritchard Shipyard (Amer and Naylor 1996; Beard 1991) and Linn's Shipyard located on Hobcaw Creek in Mount Pleasant. Both shipyards operated through the latter half of the eighteenth century and into the early nineteenth century.

In Port Royal Sound, as elsewhere in South Carolina, the wooden shipbuilding industry declined during the first half of the nineteenth century. This was due to a general economic decline in South Carolina and the development of steamships and steel-hulled vessels (Coker 1987:193). However, small wooden vessels--yachts, fishing boats, oyster boats, pilot boats, and other purpose-built craft, as well as barges, canoes, skiffs, launches, dugouts, and batteaux--were still being constructed locally and used on the river and coastal waterways of the region. This small boat industry continued into the twentieth century (Fleetwood 1982 1995).

The Maritime Network

The development of settlements and economic prosperity in Port Royal hinged on the movement of goods and people over navigable waters leading to and within the harbor. The sea lanes of Port Royal Harbor and Savannah River converged twelve nautical miles out to sea, and the first visible landmark sighted by a mariner was Tybee Island whereby they steered either for Port Royal or Savannah. The English colonists maintained a lighthouse intermittently at Tybee Island since 1738 to serve as a geographical reference point for those at sea and to guide ships into the Savannah River or Port Royal Sound. Spanish, Scottish, French, and English mariner's relied on nautical charts or written directions to navigate the sound's channel which is fringed by treacherous shoals named Gaskins Bank, Joiner's Bank, Martin's Industry, North Breakers, and Coles Care. Accurate descriptions were especially crucial during the initial English attempts to colonize Port Royal in 1669 and while the vessels successfully negotiated the channel entrance, one of the principals remarked that the harbor opening did not seem to correspond as Col. Sandford related to them (1669-Voyage to Establish Port Royal but Charles Town:CCYB:263).

The four mile broad bar, called Martin's Industry, was located three leagues, or 8 miles, offshore of Port Royal's entrance and was safely under 19 feet of water at low tide. In 1770, Governor William Bull suggested the placement of a buoy or beacon on the bar to improve navigation (Milling 1951:262-3). Vessels desiring to enter Port Royal usually stopped first in Charleston to hire a pilot to ensure safe passage through the sound's channel (Crafford 1683:6). In the 1740s after the King George's War local citizens attempted to stimulate Beaufort trade by petitioning the Commons House to authorize Port Royal merchants to collect a tax and to build a pilot boat and hire a pilot which was granted (Rowland et al. 1996:153). However, by 1762 a petition circulated from area merchants to the House of Commons asking for more money to keep a full-time pilot at Port Royal Harbor, as the lack of a pilot caused many merchant vessels bound for Port Royal to proceed instead to Georgia to trade (Rowland et al. 1996:181). The situation must have worsened when the pilot boat *Lyttleton* was lost near Port Royal Bar in 1763 (Spence 1984).

The interior of the sound was interspersed with islands of high land and ". . . navigable [creeks] to the middle of them, and by ordinary fhips of 50 tuns. . ." (Crafford 1683:6). Strong tidal fluctuations made travel difficult in the Port Royal area and a ship usually required four tides to travel to Beaufort and back to the sound. Interior navigation of the Broad and Beaufort Rivers during the tidal fluctuations proved difficult for small

rowboats and canoes, especially during rough weather (Rowland et al. 1996:180, 257). Improvements upon the indigenous Indian canoe by the colonists, however, sought to overcome the difficulties of moving over the water. While surveying in Port Royal Harbor a Royal navy hydrographic survey party met two periaguas, one with ten oars, and the other with eight oars. Each was also rigged for sail. The vessel was made by splitting a worked log in half and then adding a section of log to increase the beam (Calmes 1973:74).

A transportation network to travel over land and water was developed from the early 1700s onwards. In 1707 a commission composed of local inhabitants was organized to lay out highways, bridges, etc. (Rowland et al. 1996:90). For the most part, the settlers relied on ancient Indian paths which were widened through traffic to highways. Indian fording places usually became ferry crossings or were bridged. Between 1711 and 1714 the Combahee River to Port Royal Island road was created. A road also connected the north end of Port Royal Island to the old look out fort in Beaufort. A regular ferry service started in 1733 crossing over the Whale Branch River between Port Royal Island and the mainland. The Port Royal Island Ferry concession belonged to Col. Samuel Prioleau as his plantation was on the island side. The ferry remained in use until the 1900s when the advent of bridges covered the historical crossing. Col. Prioleau's concession required that he maintain a good boat, two horses, and attendants. Ferry fees were between 7 1/2 shillings to 10 shillings, as well as a fee per animal head (Rowland et al. 1996:122). The crossing of Port Royal Ferry proved somewhat troublesome due to the strength of the current through the tidal river (Rowland et al. 1996:257). In 1737, a second ferry was added a mile to the west of the Port Royal Ferry and connected the island to Huspa Neck on the mainland. This ferry was operated by Hugh Bryan whose plantation was on the land side. Also prior to 1767 a ferry over the Beaufort River connected Beaufort to Lady's Island at Whitehall Point (Rowland et al. 1996:122-3).

Transportation along the coast between Charles Town and Savannah consisted of two routes: the old route and the new route. Travelers on the older route journeyed overland from the Ashley River to the Savannah River. The second and newer one, called the Scottish route, found the traveler sailing or rowing down the Savannah River to Port Royal Sound and through the connecting inland waterways to Charles Town (Rowland et al. 1996:81). Despite the network of roads and ferries in the Beaufort area the Commons House of Assembly in 1740 passed "An Act for Better Settling the Town of Beaufort," to stimulate building on vacant lots in the town and new roads. The main cause of Beaufort's failure to become a thriving commercial hub resulted from the unsettled nature of the colonial frontier (Rowland et al. 1996:147). Other contemporaries also suggested that the jealousies of the Charles Town establishment had limited the potential of the town and the region with its excellent harbor and country by preventing the construction of roads, bridges, and ferries leading to the area (Mills 1760).

Shipping interests in Port Royal Sound during the colonial period engaged in the exchange of natural resources and agricultural products for the products of Europe and other British colonies in North America and the West Indies. Maritime commerce in the Carolina colony consisted of a coastal network between Charleston, Beaufort, and Savannah, and some trade to the West Indies and to England. Most of the produce destined for local markets was transmitted via periagua through the inland passageway (Rowland et al. 1996:186). Coastal and ocean going vessels participating in the trade included sloops, schooners, brigs, and brigantines. The Carolina-West Indies trade consisted of Carolina rice, beef, and leather in exchange for West Indies rum, molasses, and sometimes for slaves. Beaufort commodities exchanged in the West Indies included beef, shipped in barrels and pickled in brine, and rice from the upland rivers. The rice and

beef was used to feed the slaves on the sugar plantations. In the 1750s a local shoe factory owned by a Beaufort merchant produced footwear made from cowhide for the West Indies slaves to wear (Rowland et al. 1996:153-4). The firm of Middleton, Liston, and Hope were the only Beaufort mercantile interest to pursue slave trading and shipped a load of slaves to Beaufort in 1765, the first since the 1730s (Rowland et al. 1996:188).

A significant economic consequence of the Yemassee War from 1715 to 1728 was the shift in the the Indian trade from Beaufort to Savannah Town and Ft. Moore (near present day Augusta). The removal of Beaufort from the Indian trade stifled the town's growth and subsequently never developed into an important colonial entrepôt (Rowland et al. 1996:108). The trade of beef and pork with Barbados, Leeward Islands, Bahamas, and Jamaica was greatly diminished when the vast majority of the livestock was destroyed during the war. The trade with these islands switched to rice, pitch, and tar in exchange for sugar, rum, molasses, and other products (Yonge 1722:68). In 1735 only two ships cleared Charleston bound for Port Royal. During this time a local resident, Captain William Lyford started a coasting trade with the schooner *Port Royal*, plying between Charleston, Beaufort, and St. Augustine. During the intercolonial strife from the 1740s through to the 1750s a series of Spanish privateers and French preyed along the southern coast on shipping and colonists on the sea islands which stunted the economic development of Beaufort (Rowland et al. 1996:148). In the 1750s Beaufort's maritime trade consisted primarily with coasting voyages between Charleston, Savannah, Sunbury, GA, and occasionally St. Augustine, and an occasional trading venture to the West Indies (Rowland et al. 1996:153). Apparently, English colonial merchants often ignored English and Spanish navigation acts and conducted trade between St. Augustine and Port Royal. Legal enforcement of the laws was lax, although a local Port Royal captain, Caleb Davis, was arrested for supplying provisions to the fort in St. Augustine between 1735 and 1737 (Rowland et al. 1996:148).

A Custom house was situated in Beaufort on the Port Royal Little River (Beaufort River) to regulate maritime commerce. The boundaries of the District of Port Royal extended from south of Charleston to the Savannah River. A government inspector, Mr. [?] Mills, was sent in 1760 to assess the custom house at Port Royal. He found that the custom records before the year 1760 were missing. The report also recorded the exports from Beaufort in 1760 included 14,729 bushels of corn; 9,270 pounds of indigo; 3,099 barrels of rice; 110 barrels of provisions; 103,344 feet of pine planks and boards; 21,903 numbers of staves and headings; and 196,000 numbers of shingles. He also found that custom regulations were not enforced properly and the numerous inlets and waterways allowed for effective circumvention of paying tariffs. The clandestine trade consisted primarily of smuggling foreign molasses, sugars, among other illicit products. Mills also reported that the produce of South Carolina and Georgia predominately went to Spain and Portugal and were negotiated in Bills of Exchange drawn on England and then used by the planters to spend on slaves (Mills 1760).

Besides the threat of privateering, the main threats to coastal shipping in Port Royal were the twin enemies of adverse weather and shoals. Most shipwrecks in the area occurred during storms which caused a vessel to strike the shoals forming the sea channel into the sound, namely Martin's Industry Shoal at the head of the channel. Twelve historically recorded shipwrecks occurred off the shoals from the 1740s and the 1780s, mainly victims of storms. These vessels may or may not have been on their way to Port Royal, and many were most likely passing through on the coastal route when a storm broke. The ships were either steering for sanctuary in the sound or they were driven onto the treacherous shoals. A couple of ships wrecked around Beaufort again most likely the

consequence of storms (Spence 1984).

Royal Navy Presence

In 1731 interest in exploring the potential of Port Royal as a naval station commenced by order of the lords of Admiralty for Captain Joel Gascoigne, HMS *Scarborough*, to survey the bar and harbor of Port Royal. Gascoigne worked intermittently in the area and elsewhere for three years and found the harbor suitable for British warships. Other captains found that a 71-gun ship could pass the bar and run within a mile of Beaufort on the Beaufort River (Milling 1951:262-3). In 1745 Governor Glen praised the virtues of Port Royal harbor stating that the water depth was sufficient for any warship and could contain the whole Royal naval fleet. He also suggested the harbor should be used for the West Indies fleet to sortie from (Milling 1951:91). In 1747 several warships were on station at Port Royal and Captain Hamar, HMS *Adventure*, a 40-gun ship, had orders to make a careenage wharf for use by Royal navy warships. He began the work on a creek about three miles below Fort Lyttleton, possibly near a battery at the mouth of Battery Creek. Work was terminated when the land owners demanded a higher price than the lords of Admiralty thought worth paying (Milling 1951:263). In the fall of 1748, HMS *Rye* was careened, most likely along the southern end of Port Royal Island at the confluence of Battery Creek and Beaufort River, which shows up in a 1777 chart of the region (Des Barres 1777; Rowland et al. 1996:152). Following the King George's War in 1748 the presence of the naval squadron provided economic stimulus to the town by providing people to purchase goods. Deserters from *Adventure* increased the population and sought employment in the woods, on shore, and on boats (Rowland et al. 1996:149-52). A later governor, William Bull, in 1770 again urged building a royal careenage wharf that would suit the needs of the fleets stationed from Virginia to Florida and could be used as a base to intercept French and Spanish ships passing through the area. Bull even offered 50 acres of land he owned a mile above Fort Lyttleton for the purpose of situating the wharf and where a 70-gun ship could easily lie (Milling 1951:263). Evidently the offer was never accepted and several years later the proposal was forever dropped when the colonists broke from the Mother Country.

Revolutionary War

Following an earlier precedence of agitating for more effective commercial and political rights by removing themselves from the control of the Lords Proprietors to the Crown, the South Carolina colony once again grew increasingly dissatisfied with the governing structure. Onerous navigation laws and political demands made upon them by the Crown caused many of the colonists to chart a course of independence from Great Britain. One of these measures included the creation of the South Carolina Council of Safety to organize resistance against the ruling government. The revolutionary government imposed a trade embargo on American exports with Great Britain throughout the Revolutionary War. On 6 December 1775, the Council of Safety ordered the local Port Royal committee to halt shipments of indigo, rice, and other goods that might benefit Great Britain. Implementing the edict proved troublesome for the local authorities due to the sea island geography and private landings. From 1775 to 1776, local Beaufort merchants of indigo engaged in smuggling through the labyrinth of tidal creeks to the port of Savannah (Rowland et al. 1996:205-6).

When war broke out the defense of Port Royal hinged on Fort Lyttleton and the nascent South Carolina navy. Fort Lyttleton on Spanish Point had 21 cannons and a small garrison of Continental troops and local militia (Rowland et al. 1996:215). One of the first

South Carolina naval vessels was the sloop *Beaufort* which had been confiscated for smuggling with Savannah and St. Augustine (Rowland et al. 1996:206). *Beaufort* was ordered to proceed to Beaufort on 28 February 1777 and to employ Mr. Black, a local shipbuilder, to make alterations necessary to complete the vessel. Later, *Beaufort* was again ordered to Beaufort to supply the *Beaufort Galley* with cordage, sails, and other stores in the summer. The sloop also required the necessary bolts, blocks, and other stores to complete arming the vessel with six carriages and ten swivel guns. Besides a combative role, the sloop also provided logistical support for the fledgling navy. In the summer of 1777 the vessel was ordered to Hispaniola or a French port in the Caribbean to buy rum with rice loaded in Beaufort. Any surplus money from the transaction was to be used to purchase duck cloth for sails (Jones 1960:119-21). The armed sloop later served during Count Charles Hector D'Estaing's siege of Savannah in 1779 (Rowland et al. 1996:206).

Beaufort and Port Royal was the scene of one engagement between colonial and British forces and two separate occupations by the British army. The British opened hostilities by attacking Port Royal Island in late January 1779. A small flotilla of privateers and longboats towing the HMS *Vigilant*, a large demasted vessel used as a floating battery, moved into Port Royal Sound via the inland waterway from Savannah. During the voyage the British force torched and looted plantations along Skull Creek and Pinckney Island. On 31 January the small garrison at Fort Lyttleton, facing a superior force, destroyed the bastions, spiked the guns, and abandoned the fort. The garrison retreated to Port Royal ferry on the mainland side to join mainland militia forces. A British force of 300 troops landed at Laurel Bay on the Broad River on 3 February (Rowland et al. 1996: 216). An American force composed of 300 militia and nine Continental soldiers crossed over from the mainland and defeated the British force who made their retreat to Laurel Bay and fled down the Broad River. In spite of the near rout of the British force in the field the main British strategic objective had been met, which was to destroy Ft. Lyttleton. The self-inflicted loss of Fort Lyttleton, which was manned afterwards but not effectively, afforded an opportunity for privateers to prey on the defenseless Port Royal Sound plantations on the Broad River (Rowland et al. 1996:219-20).

British forces returned in the summer of 1779 under the command of General August Prevost and occupied Beaufort and Port Royal Island after a march on Charleston. HMS *Vigilant* was anchored off the bay of Beaufort from July to September 1779. Twenty-four of the cannons from the floating battery were dispersed to small earthenworks distributed at several points to guard Port Royal Island. Some of the cannons were also used to arm large, flat-bottomed barges to move troops about the inland passageway. The floating battery was later joined by HMS *Vindictive* and *Scourge* (Rowland et al. 1996:226-7). At Mile-End, the narrow neck of land approximately 300 yards across and about one mile from Beaufort, with navigable water on either side, a contingent of Hessians erected several defensive works. At Paige's Point on the mainland side of Whale Branch River the South Carolina militia built a battery (Jones 1960:132-3). The British fell back from Beaufort to defend Savannah from Count D'Estaing's fleet in September 1779 (Rowland et al. 1996:228). Port Royal Island was reoccupied by the British in February 1780 where troops commandeered supplies and horses en route to capturing Charleston on 12 May 1780 (Rowland et al. 1996:231). During this time a privateer *Vigilant* was burnt at Beaufort (Marx 1994). The final abandonment of Beaufort by the British occurred in 1781 when they retreated to Savannah (Rowland et al. 1996:236). According to the *Royal Gazette* in Savannah, in mid-March 1782 members of the Royal Militia destroyed two American galleys on Port Royal Island (Spence 1984). The last engagement in the Port Royal Sound vicinity occurred at Port Royal ferry when a British galley was captured with its cannons and provisions. British forces abandoned Charleston on 14 December 1782

and the war was over in South Carolina (Rowland et al. 1996:241-2).

Antebellum Period (1785 to 1865)

Agriculture

During the antebellum period the devastated post-Revolutionary War economy began to prosper when sea island cotton agriculture developed in the sea islands south of Charleston during the 1780s and 1790s (Rowland et al. 1996:277). The development of cotton gins, both the roller-type and Eli Whitney's sawtooth-type, allowed for the efficient separation of seeds from the fibers to make cotton a viable crop (Rowland et al. 1996:281). Exports of South Carolina cotton from 1789 to 1790, totaled 9,840 pounds of cotton and from 1800 to 1801 increased to 8,301,907 pounds. A huge increase in production was also attended by price increases of 35 cents a pound in 1790 to 63 cents per pound from 1800 to 1818; a second boom in cotton prices occurred in the 1850s (Rowland et al. 1996:281, 420). From the 1830s through to the Civil War the areas plantations' principal crops consisted of rice, cotton, corn, potatoes, and livestock (Rowland et al. 1996:360).

War of 1812

Prior to the war of 1812, and due to the burgeoning amount of wealth from sea island cotton production, fears of naval attack again gripped Port Royal planters. In 1807 a local planter sent a plea to the Federal government to refortify Spanish Point, the site of colonial Fort Lyttleton. The planter suggested, at the very least, to build a bastion of palmetto logs armed with artillery (Rowland et al. 1996:288). A year later, an officer from the Army Corps of Engineers, Alexander Macomb, visited Beaufort to assess the defense of Beaufort. In a report accompanied by a map, Macomb suggested several defensive points along the Beaufort River for the placement of a tabby fort. He particularly favored the position of Mustard Island, a small low-lying marsh island located at the mouth of the Beaufort River between Parris and St. Helena Islands. The island was situated just forward of an anchorage in the river and commanded the river and sound entrance from sea marauders. Realizing the difficulty in building a sound foundation on the island, Macomb abandoned the idea and instead recommended building a tabby work at the ruins of Fort Lyttleton (Macomb 1808, NARA). Mustard Island was eventually subsumed below the waters of the Beaufort River by the early 1900s. Construction for the tabby work, Fort Marion, was delayed until 1811. When hostilities commenced with Britain the half-finished fort provided no protection to Beaufort. The fort, a semi-circular bastion built of tabby and earth construction, with barracks and a powder magazine, was finally completed in 1813-1814 (Rowland et al. 1996:289). Fortunately, Fort Marion saw no action, but two British warships, HMS *Mosell* and *Calabri* (or *Calibre*), blockaded the port. Sailors from the ships landed on St. Helena and Pinckney Islands and carried off several slaves and also burned a schooner (Rowland et al. 1996:289). A hurricane in August 1813, a week after the arrival of the British warships, caused the small fleet to disperse. One of the British ships, the sloop-of-war *Colibri*, went ashore either on Gaskins Bank off Hilton Head Island or on Cole's Scare (Care) off St. Phillips Island at the entrance to Port Royal Sound (Rowland et al. 1996:289; Spence 1984).

Live Oaking

An important resource on the Port Royal Sound sea islands exploited by shipbuilders, both southern and northern ones, were live oaks, *Quercus virginiana*, which

grew individually or in stands. Timber strength, curvature of the limbs, and resistant to rot made the live oaks attractive to shipbuilders. Live oaking began in the 1760s to supply local needs for ship construction, as well as the fabrication of machinery requiring strength (Rowland et al. 1996:171, 182), but it was not until around the beginning of the 1800s that live oaking became an industry in the region. Ebenezer Coffin, a St. Helena Island resident living on Coffin Point on St. Helena Sound, hired nine New England shipwrights to work with his slaves in 1816. The men fashioned live oak frames for local use and northern use (Wood 1981:73).

Typically, live oakers were a gang of northerners who were employed to go south and cut live oak into ship timbers for shipment back north. In October 1825, a live oaking enterprise to Port Royal Sound organized by the Swift family, entrepreneurs from Massachusetts, required a six day sail from Massachusetts on the schooner *Hope* to Port Royal Harbor where they anchored off Stations Creek. The crew then obtained a pilot to take them to Chaplins Bluff on Chaplins Island, present-day Pritchards Island, to establish a gang on the south end of Chaplins Island. Later the vessel proceeded on the ebb tide to St. Helena's Creek, presently Chowan River, to offload at a local planter's landing. The estimated amount of usable live oak on Chaplins Island was 10,000 linear feet or upwards. The timber on St. Helena Island was very scattered, but they managed to haul in 50 pieces (Wood 1981:144). One problem with handling live oak was that it did not float and therefore required overland hauling by oxen to a landing, usually the site of the camp, where it was stored before loading onto a ship. Live oakers also used ferries or lighters to move supplies or oxen between the vessel and shore (Wood 1981:107). A live oakers camp usually consisted of rough hewn shelters or tents, and was also near water at a landing hewn by themselves and possibly a small pier (Wood 1981:86). Oliver Swift, in charge of the gangs, went to Beaufort to buy oxen to haul the timber and then departed to Charleston. While traveling the inland passage he noticed a lot brimming with live oaks on Chisholm's Island to purchase. Assessment of the timber on St. Helena Island turned out not to be as good as expected and much of it was rotten. The return voyage to Massachusetts with the timber stock was delayed because the chartered vessel that had accompanied *Hope* had sprung a leak in the bow during the passage to Port Royal and required repairs in Beaufort prior to carrying the load back north (Wood 1981:145-6).

Shipping

The antebellum period transformed Beaufort from a port of destination to merely a way stop. Merchant ships arriving directly to Beaufort in the waxing antebellum period from the 1790s to the 1810s acquired live oak, cedar, pine, pitch, tar, and turpentine for export (Drayton 1802:209). However, as the period continued Beaufort devolved into a stop between Charleston and Savannah to load agricultural goods and to discharge passengers (Rowland et al. 1996:380). The appearance of steamboats was a major factor in regulating Beaufort's status to a secondary port. The first steamboat to Beaufort was the S.S. *Charleston* in 1817, ten years after the advent of the Fulton steamship (Rowland et al. 1996:292; Bauer 1988:70). By 1821 paddlewheel steamboats began regular service between Savannah and Charleston through the inland passages (Rowland et al. 1996:292). The steamboat route through Port Royal from Savannah followed the colonial route and passed through Skull Creek, Port Royal Sound, Beaufort River, a stop at Beaufort, and then to Brickyard Creek and finally out to the Coosaw River to continue the journey to Charleston. This was the main steamboat route although a planter on St. Helena Island in 1845 was surprised to see a steamboat pass through Stations Creek. Later he found out that a Savannah to Charleston steamer line was testing whether a passage could be made from St. Helena Sound to Port Royal Sound. In December another steamer, *Cincinnati*,

passed through the creek (Rosengarten 1986:381-2). In 1853 the two competing ports proposed linking themselves together by creating The Charleston and Savannah Railroad. The railroad was completed in 1860 but did not carry much trade as the outbreak of the Civil War interrupted commercial discourse (Kovacik and Windberry 1987:97-8).

Despite pathfinding missions and the advent of the railroad, the primary mode of travel between the sea islands, continued to be steamboats stopping at Beaufort to pick up freight and passengers. In some instances, a person desiring passage on a steamboat could hail the vessel to pick them up as often occurred along the private landings along St. Helena Island in the 1840s. Misunderstandings of intentions occasionally arose, in one instance a group of people were simply waving to the steamboat as it passed but the captain interpreted the signals for him to stop. Needless to say, the captain was not happy when he found out they did not require passage (Rosengarten 1986:386). The steamboat would continue to serve Beaufort for years to come and the railroad would not enter fully into the sea island transportation network until after the Civil War.

Ships continued to come to grief in and around the waters of Port Royal Sound during this period. Approximately 30 ships, schooners, and sloops were recorded lost. Of these shipwrecks, 26 of the vessels foundered on the offshore shoals at the sound's entrance. Again, as during the colonial period, these vessels most likely were traveling the sea lanes when they encountered a storm that pushed them onto the ship traps off Port Royal. During a hurricane in 1854, the light ship off Martin's Industry Shoals was swept away (Spence 1984). A replacement for the lost Martin's Industry Lightship was built at the Philadelphia Navy Yard in 1855 and measured 98 ft. between perpendiculars, had a moulded beam of 23 ft. and 6 in., a depth of hold of 14 ft., and was approximately 232 tons (Plates 54-6, no. 1-3, RG 26, NARA). Later, this vessel again would become a casualty, but this time by the flames of war. In some cases, the vessels were salvaged for auction, such as the *Mary Lord* which lay wrecked on Gaskins Bank off Hilton Head Island in 1831 (Spence 1984), and in other cases, local inhabitants retrieved materials from these luckless ships. On 24 April 1845, an English merchant vessel, *Clio*, wrecked off Bull's Point on Chaplin's Island. A local planter salvaged 200 fathoms of rope, 23 blocks, some old iron, among other miscellaneous items off the stranded vessel, along with other salvagers from the surrounding area. The hull was carrying iron and more than 20 tons of coal. Later in the same month, a Savannah man purchased the hulk for \$52.50 and began cutting the wreck to pieces (Rosengarten 1986:348).

Navigation of the sounds and rivers was also plagued by shoals and storms. During the 1808 assessment of the harbor defenses the Macomb reported that a sloop-of-war could easily pass up Beaufort River, but any vessel of substantial burthen without a skillful pilot would find the narrow river and shoals a dangerous trip. The Broad River was also an intricate and dangerous passage (Macomb, 1808, NARA). One schooner met disaster off Pidgeon's (Pigeon's) Point in 1839 during a gale, while two others at different times were simply blown ashore or out-to-sea (Spence 1984). Travel in small boats between the islands and to Beaufort for social, commercial, and recreational purposes was a necessity in a landscape dissected with waterways. A typical conveyance among the islands were barges which were rowed. One Spring Island plantation on the Colleton River had two 10-oared barges named *General Washington* and *General Jackson* (Baldwin 1966:16-22). Canoes also continued to ply the waterways in the sound. An English reporter sent to Port Royal to cover the gathering civil strife in 1861 rode in a large canoe, 45 ft. in length, narrow, wall-sided, with a high prow and raised stern, and oared by six slaves. The commodious canoe carried the oarers, extra slaves for fishing, provisions, water, and the passengers. They paddled from Barnwell Island at Whale Branch River to

Branch River to Skull Creek at Hilton Head Island and environs to fish and then paddled back all in one day (Jones 1960:190). Earlier, President Monroe had visited Fort Marion in 1819 and left Beaufort in a 10-oared canoe in accompaniment with the Charleston city barge and General Charles Cotesworth Pinckney's barge (Jones 1960:157). A simple excursion in local waters, however, was fraught with danger. In 1845, a planter crossing from St. Helena Island over to the western shore of Broad River nearly lost his life when a sudden squall overturned his boat. Returning after an absence of several days spent recuperating at a friend's house, the planter's family and friends had presumed he was dead and had come to grief on the Parris Bank, now called the Parris Island Spit (Rosengarten 1986:412-3).

Civil War

Clouds of war once again drifted over Port Royal as relations deteriorated between Southern secessionists and the Union. When war erupted after the shelling of the steamer *Star of the West* and of Fort Sumter in Charleston Harbor by Confederate artillery the defenses of Port Royal once again proved inadequate to protect the inhabitants. In anticipation of a Federal naval assault, the Beaufort Volunteer Artillery moved from the Beaufort Arsenal in the middle of the town to Fort Marion in the spring of 1861 (Rowland et al. 1996:450). Following a survey of the sound and recommendations by Confederate States of America (CSA) General P.T.G. Beauragard, local officers were instructed to build two forts to command the entrance to the sound in May 1861. Fort Beauragard, named in honor of the general, situated on Bay Point Island, was comprised of log and earthen works. The other fortification, Fort Walker, was named after the CSA secretary of war, L. P. Walker, and located on Hilton Head Island. By early September 1861 the forts were ready for the placement of artillery although they were not fully completed prior to the Union bombardment in November (Official Records of the Navies [ORN], v. 12, s. 1:312). At Ft. Walker, ordnance consisted of one 10-inch Columbiad rifled cannon, nine 32-pounders, one rifled 24-pounder, and one 8-inch Columbiad. Confederate land forces on Hilton Head totaled 1,430 men (Rowland et al. 1996:444-5). The Beaufort Volunteer Artillery was ordered to move from Fort Marion and to man Ft. Beauragard at Bay Point in June (Jones 1960:184). Naval support arrived on 2 November when Commodore Josiah Tattnall steamed from Savannah to Port Royal on his flagship, *Savannah*, accompanied by *Resolute*, *Sampson* and *Lady Davis*. The fleet of small ex-merchant steamers later became known as The Mosquito Fleet (Jones 1878:132-5). Confederate forces at Bay Point commandeered boats and flats and assembled them at Mr. Jenkin's house on Station Creek for a retreat, if necessary, from Bay Point to St. Helena Island (Jones 1960:204).

Initial Union naval strategy for coastal waters called for deepwater sailing and steam vessels to blockade Southern ports. This policy changed in late August when a combined military flotilla of naval and army forces successfully captured Forts Hatteras and Clark guarding Hatteras Inlet, North Carolina on the Outer Banks. The expedition's officers had been instructed to obstruct Hatteras and Ocracoke Inlets with sunken vessels to prevent the movement of blockade runners. The expedition's navy and army officers, however, believed that obstructing the waterways also prevented Union forces from venturing in the North Carolina sounds. They pressured the secretary of navy, Gideon Welles, the Blockading Strategy Board, and President Abraham Lincoln to reconsider their strategy of remaining offshore with a pacific blockade and to instead assemble strike forces to assault key Southern points (Spirek 1993:9). Agreeing with the officers' recommendations, Welles, the Board, and Lincoln and his cabinet prepared to assemble a combined strike force. As South Carolina was the heart of the rebellion, a Federal committee in July 1861 had earlier recommended to Lincoln three points to attack in the state: Bull's Bay, Saint

Helena Island, and Port Royal Sound (Jones 1960:209). Ordered to proceed in planning the first strike force, the navy and army began to assemble their forces in early fall to invest South Carolina.

The recommended points of attack in South Carolina compelled Union strategists to weigh the pros and cons of each individual target. Arguments against sending the strike force to Port Royal included the manpower necessary to occupy the sound which would require at least three points to be taken to secure the region, presumably Hilton Head, Bay Point, and Beaufort or at Port Royal Ferry. Furthermore, a narrow harbor channel (two miles wide) would expose an attacking fleet to fire from two sides. Ultimately, Port Royal was chosen because Union occupation offered opportunities to disrupt the region's interior communication and trade networks. The sound also contained several anchorages for a fleet. Tactically, taking Port Royal would also split Charleston and Savannah and subsequently require the Confederates to field a large force to defend the area from further encroachment by Federal troops. Additionally, Port Royal would serve as a coaling station and refuge for the South Atlantic Blockading Squadron (Jones 1960:209-10).

On the morning of 29 October 1861, a Federal expedition comprised of 77 men-of-war, transports, steam-tugs, double-ender ferryboats, colliers, supply ships, and assorted sailing craft carrying 20,000 soldiers and 5,000 sailors departed Hampton Roads, Virginia for Port Royal Sound under the command of Flag Officer Samuel Francis DuPont and General Thomas W. Sherman (Jones 1960:215; Ammen 1887-8:674). As the expedition moved south along the seaboard a hurricane struck on 1 November and scattered the fleet. Several vessels sank and others disappeared and were presumed sunk. On 4 November ships of the fleet began to reassemble off the coast of Port Royal and stragglers continued arriving the next day. Another bout of bad weather delayed the impending Federal strike into the sound by a day (Ammen 1887-8:675-7). Finally, on the morning of 7 November two lines of ships entered Port Royal staying a course in the middle of the channel while firing on Fort Beauregard. Vessels in the vanguard then turned and headed seawards and concentrated their fire on Fort Walker. The fleet repeated this elliptical maneuver until early afternoon when the Confederate forts fell silent. A Union naval officer was sent ashore under a flag of truce and found Fort Walker deserted. Shortly afterwards the Union flag flew over the fort. A day later the flag flew over Fort Beauregard (ORN, v. 12, s. 1:263-5).

Tattnall's Mosquito Fleet proved no match for the Federal gunboats and only fired on the invading fleet three different times before running into Skull Creek. There they assisted in evacuating Confederate troops from Hilton Head Island (Jones 1960:132-5). The retreat continued until the evening of 7 November as CSA army troops withdrew from the forts and surrounding islands. General Thomas Drayton's command transferred from Fort Walker to Bluffton, while Colonel R. Dunovant's command at Fort Beauregard moved to Gardens Corner above Port Royal Ferry on the mainland (ORN, v. 12, s. 1:299-300). After the hasty retreat the CSA army set a line of defenses by constructing batteries at Port Royal Ferry, Seabrook Landing, and at or near Boyd's Neck on Boyd Creek. They also placed obstructions in the Coosaw and Whale Branch Rivers (ORN, v. 12, s. 1:447-448). These defensive positions were held, despite several Federal challenges, throughout the war until General William T. Sherman's forces enfiladed the defensive lines in January 1865 (Emilio 1969:256-7).

After securing Hilton Head Island and Bay Point, DuPont sent gunboats to Beaufort. Two gunboats, *Unadilla* and *Pembina*, initially held the town, but they were later removed as Beaufort was not a strategic point and the vessels were used elsewhere.

DuPont had also hoped to improve navigation for Federal vessels entering the sound but found the light vessel had been destroyed by the Confederates in Skull Creek (Jones 1960:228). After mopping up and securing Port Royal Sound, the Federal victors reviewed their conquest. DuPont wrote, "This is a wonderful sheet of water—the navies of the world could ride here," while a quartermaster waxed enthusiastically that "we are now in possession of the finest harbor in the South where the largest ships can enter and ride at anchor in safety." (Rowland et al. 1996:457). One officer mused why Port Royal harbor had not been a more favored destination of trade in the South, especially in light of the navigable waterways, but concluded that the limiting factor was the geography of the sound with extensive marshes and islands (Jones 1960:256).

DuPont and Sherman decided to make Hilton Head Island the headquarters for the Federal troops and navy. For the next four years the Union forces solidified their hold on Port Royal Sound and engaged in several expeditions in attempts to achieve military objectives. The naval presence in Port Royal Sound consisted of a fleet of naval gunboats complemented by army gunboats to patrol and secure the sound, a steady coming and going of supply and logistical vessels, transitory naval vessels from the South Atlantic Blockading Squadron, and vessels under repair. Infrastructure to support the navy and army forces in Port Royal included docks, warehouses, repair facilities, and fortifications. At Hilton Head, the Union forces quickly renamed Fort Walker to Fort Welles, in honor of the Union's secretary of the navy, and commenced to build warehouses, hospitals, barracks, and to repair and strengthen Ft. Welles, along with building other earthenworks around the island. The Quartermaster Corps office occupied the Seabrook ferry landing on Skull Creek for supplying and repairing army transports, supply ships, and gunboats (Jones 1960:233). Along the sound channel the Federal forces constructed a "T" dock approximately 1,277 ft. in length which extended out to 23 ft. of water during low tide. The dock also was furnished with a rail line to move supplies from offloading vessels to the warehouses in the Union complex. Over time two other piers were constructed on either side of the large dock (DR 146-14; I 33-1, RG 77, NARA). Another notable feature at Hilton Head Island was the establishment of Mitchelville to house and to be self-governed by the recently freed slaves of the Port Royal region (Trinkley and Zierden 1983).

Across the sound on Stations Creek a repair and supply station was placed on two small islands for use by naval vessels. A machine shop had been constructed by lashing together two hulks, most likely the whalers *Edward* and *India*, both had been destined for use as obstructions in the Stone Fleet off Charleston Harbor, and mooring them in the middle of the stream. Shears placed on the decks hoisted heavy machinery and other ship parts up to the deck of the vessels (Hunter 1987:30). According to a sailor onboard a monitor undergoing repair:

"It [Station Creek] was not sufficiently broad to permit a vessel's anchoring and swinging about at each turn of the tide, but when we were anchored by both bow and stern, there was sufficient room for a lighter from the machine shop, or a coal schooner to come along side for necessary attentions, and at high tide a vessel could pass by to an anchorage above or pass out by us into the harbor." (Hunter, 1987:39).

Maps and photos also reveal that the facility occupied two small islets that consisted of several wooden structures, along with piers to reach the creek (165-S, Box 2, RG 165-S, NARA). Adjacent to the Stations Creek facility, Federal troops occupied Bay Point and constructed another "T" dock on Bay Point and several wooden structures for use as a

naval coal depot (I-54, RG 77, NARA). They renamed Fort Beaurgard to Fort Seward, in honor of William Seward, the secretary of state.

On Port Royal Island, Beaufort was occupied by Union soldiers and several earthenworks were built around the perimeter of the town. At the Narrows, or Mile-End during colonial days, they constructed a defensive cordon across Shell Road, the road from Beaufort to Port Royal Ferry, which stretched from marsh to marsh (I-44, RG 77, NARA). The two small tidal creeks in the marshes were deemed navigable during high tide, presumably for small boats, and required a watch (Jones 1960:271). Federal forces also seized Old Fort Plantation, which had derived its name from the tabby ruins of a fort locally supposed to have been built by the Spanish, whereas the occupiers thought the fort was French-built (Jones 1960:170). But in fact, the fort was Fort Frederick built by the British. This area became a large bivouac for the soldiers and the plantation house was converted for use as a school for the ex-slaves. A contemporary map and photograph show a makeshift pier of sandbags was constructed for vessels to off-load soldiers and supplies (RG 165-S, NARA: 165-S, Box 2). Federal troops also fortified Port Royal Ferry and by May 1863 a defensive line stretched 10 miles on either side of the ferry crossing, consisting of Union and Confederate pickets and small earthenworks (Jones 1960:271).

Confederate strategy after the fall of Port Royal Sound was mainly defensive to hold the mainland, to protect the Charleston and Savannah Railroad, and to prevent further Federal encroachment. Union strategy consisted of maintaining their position, although punctuated by several combined expeditions in an attempt to seize the C&S Railroad and to retaliate against Confederate presumption. The Battle of Port Royal Ferry, the first military engagement in Port Royal after the occupation, occurred on 1 January 1862, when a combined Federal force attacked several rebel batteries along Whale Branch River. The principal Union objective was to destroy enemy batteries on the Coosaw River and Whale Branch River, especially those at Port Royal Ferry and at Seabrook Ferry, in retaliation for firing upon the *Mayflower* while that vessel was sounding the channel in those rivers (Official Records of the Armies [ORA], v. 6, s. 1:44-5). The battle plan called for a "pincher movement" with one force assaulting from Brickyard Landing to land on the opposite bank and to march to Port Royal Ferry under cover of three naval vessels. A second force was to depart from Seabrook and land opposite that point and destroy confederate works under cover of two naval vessels (ORA, v. 6, s. 1:45). Also, a Union battery between Port Royal Ferry and Brickyard Landing, called Hamilton's battery, and armed with two guns, was to cover the advance of land forces on the opposite bank (ORA, v. 6, s. 1:48).

Confederate defenses included a fort at Port Royal Ferry, outfitted with two guns, a howitzer and a 12-pdr., located at the end of the earthen causeway of the ferry (ORA, v. 6, s. 1:69-71). An incomplete battery opposite Seabrook Landing, called the Island battery, was outfitted with an unknown number of guns (ORA, v. 6, s. 1:74). There was also a masked battery at Adam's Landing, one of the Union assault points, which was fronted by a marsh (ORA, v. 6, s. 1:53-5). Apparently, these batteries, along with several others, pestered Union gunboats with fire, already hampered by the tortuous and narrow nature of the Coosaw and Whale Branch Rivers, and made patrols along the northern boundary of the conquered dominion a perilous voyage (ORA, v. 6, s. 1:47).

On 31 December 1861, the Brickyard Landing force began to assemble at the staging points on the northern end of Port Royal Island. The force, under the command of Commodore C.R.P. Rodgers and Brigadier General Isaac Stevens, consisted of gunboats

and an assortment of boats and flats loaded with troops. These small vessels had been collected from throughout the area since the occupation of Port Royal Island and they had subsequently collected a large number of vessels for transporting troops (ORA, v. 6, s. 1:48). In the early morning hours of the next day, the Federal force began moving to Chisholm's Landing on the opposite shore. Under cover fire from the gunboats, the first wave of troops landed on Chisholm's Island. A second force moved to the second landing which was upstream of the first landing. Army units concurrently attacked the island battery near Paige's Point. The two antagonists skirmished, but the Confederates were loath to fully engage the Federal force protected from their gunboats. The Federal forces quickly took over both batteries which had been abandoned. At Port Royal Ferry they found one 12-pounder cannon and no cannons at the battery across from Seabrook (ORA, v. 6, s. 1:49-50). The following day a few skirmishes were fought but the Federal forces were content to level the fort and nearby houses and to recross back to the island. They were facilitated in the traverse by the repair of the old ferry, ropes, windlass and the rest of equipment. The large ferryboat and all its appurtenances were brought back to Beaufort for Union use (ORA, v. 6, s. 1:51-2). After Union troops vacated the premises, Confederate troops reoccupied the destroyed earthworks at Port Royal Ferry and the Island battery (ORN, v. 12, s. 1:448-450). Most of the Union land forces returned to Hilton Head Island (ORA, s. 1, v. 6: 54).

Several other minor engagements occurred in the area from 1862 to 1865. In October 1862, a Federal force of 4,500 men and a few gunboats were sent up the Broad River to cut the railroad bridge at Pocotaligo. Known as the Battle of Mackay Point, the foray was a complete Union failure with heavy losses (Thompson and Wainwright 1918, v. 1:162). During the waning years of the war, Federal troops attempted two expeditions to destroy the rails and trestles of the Charleston to Savannah Railroad. On 29 November 1864 a Federal naval and army assault force landed at Boyd's Landing on Boyd Creek off the Broad River. The Battle of Honey Hill began on the morning the next day and raged until 1 December when the Federal troops withdrew without accomplishing their objective (Emilio 1969:240). The last military engagement in the sound began on 6 December 1864 when Federal troops landed at Devaux's Neck and Mackay's Point at the head of the Broad River to once again attempt to cut the Savannah to Charleston Railroad. Skirmishes occurred throughout the next several days and Federal troops occupied the area as temporary winter quarters. The force stayed for a month until on 14 January 1865 they finally captured the deserted Pocotaligo River railroad trestle. The next day these troops rendezvoused with General W.T. Sherman's Western Army moving in from Augusta, Georgia (Emilio 1969:256-267). The war was effectively over in the sound after Sherman's troops moved in the area and the process of reconstructing the region's social and economy in the Postbellum period commenced.

Ship losses in the sound during the war resulted from defensive measures undertaken by the Confederates, a casualty of war, shipwreck, and abandonment. Confederate forces in 1861 removed the light ship off Martin's Industry Shoal and burned the vessel in Skull Creek in an attempt to stymie Union egress into the sound (Jones 1960:228; Spence 1984). Also in Skull Creek the rebels obstructed the creek with several sunken schooners (ORN, v. 15, s. 1:171). On the Union side, several vessels were stripped and abandoned at the Quartermaster Corps facility on Skull Creek. These ship losses transpired mainly through the expedient practice of leasing a variety of unfit ships and steamers from Northern ship owners. *General Winfield Scott*, an army steamer, accompanied the Port Royal expedition, but suffered damage during the hurricane causing the crew to pitch two rifled guns overboard to lighten the vessel. The steamer arrived in the sound and was promptly beached in Skull Creek and remained there for the duration of the

war. Near the end of the war, the steamer's boilers, engine, and other ship equipment were sold at auction (*Winfield Scott*, RG 92, NARA). The *T.F. Secor*, a 200 ton vessel, burned at Seabrook Landing, Hilton Head, and was salvaged of useful materials (Fortieth Congress Report 1868:154). The USS *Ellen*, a carpenter's ship, proved past repairing and was leaking so badly that the vessel could not be towed north and was beached, most likely at the Skull Creek facility (ORN, v. 13, s. 1:377). Four schooners also were stripped and scuttled in 1863 at unknown locations, although perhaps again at the Skull Creek facilities (Spence 1984). Two colliers, *Faith*, with 500 tons of coal, and *Alice Provost*, a coal bark with 700 tons of coal from Philadelphia, both hit the shoals entering the sound and sank (ORN, v. 14, s. 1:431; ORN, v. 15, s. 1:177). A third vessel, the bark *Marcia*, destined for the second Stone Fleet off Charleston Harbor also wrecked on the Port Royal Sound shoals (Spence 1984).

Only one vessel from both sides was lost due to enemy action during the conflict in the sound. An Army gunboat, USS *George Washington*, during a patrol of Whale Branch River was struck by a Confederate shot in the steamer's boiler or steam drum on 9 April 1863. The resulting blast and fire killed several crewmen, scalded others, and eventually forced the crew to abandon the boat. A navy gunboat, USS *E.B. Hale*, steamed to the area after hearing the cannonade and found the army gunboat abandoned, burned, and sunk at the edge of the marsh three miles below Port Royal Ferry on the Federal side, and some five hundred yards from shore (ORN, v. 14, s. 1:115-7). An army officer arrived on the scene and met the survivors struggling ashore over a large expanse of marsh (Jones 1960:273). The navy gunboat opened fire on the rebel battery and rescued two crew members from the wreck and another from the marsh (USS *E.B. Hale* Logbook, RG 24, NARA). Following the war, the gunboat was forgotten in the marshes until a couple of crabbers found an oyster-encrusted cannon muzzle sticking out of the pluff mud in the early 1930s. The local sheriff retrieved a 24-pdr. bronze howitzer and donated it to the Beaufort Museum (Roger Pinckney 1998, pers. comm.). The howitzer, cast in 1847, remains on display in the museum's courtyard (see Figure 7.2), but the final resting place of the gunboat remains to be recorded.

Postbellum Period (1865-1940s)

The postbellum economy of Port Royal Sound slowly recovered from the upheaval caused by the war. Agriculture continued to contribute important economic benefits to the region, but dwindling yields in cotton production caused by poor agricultural practices threatened post war recovery. One problem was the over use of a field, although planters had long known the benefits of adding nutrients to amend the soils. During the 1840s, local planters used portions of manta rays, known to them as the Devil Fish, as fertilizers (Jones 1960:173). Seabird guano collected from Peruvian coastal islands was also used by the sea island cotton planter as fertilizer to restore nutrients to the fields, but guano's high cost limited the use of the fertilizer only to well off planters. Prior to the war, the standard plantation practice after a field started to yield diminishing returns was to send slaves out to clear new land for cotton production, while the abandoned field lay fallow (Kovacik and Windberry 1987:101-2). After the war, with labor depending on paying wages or tenant farming, landowners and farmers resorted to relying on cleared fields which required fertilizers to maintain yields. Fortuitously, in the late 1860s, beds of phosphates were discovered in the coastal rivers and lands of South Carolina from Charleston to Beaufort. Besides providing an industry to revive the economy, the introduction of phosphates into the fields also helped to restore the depleted nutrients in the soils for greater agricultural production.

Phosphate Mining

Phosphate rocks were formed during the Miocene Period of the Cenozoic Age, or approximately 200,000 to 300,000 years ago, in shallow areas where the remains of millions of animal bones settled. By 1870, the South Carolina fields were determined to stretch from the mouth of the Broad River to the Wando River north of Charleston and extend 30 miles inland. Phosphate beds in the Port Royal Sound were located on the Beaufort, Whale Branch, and Coosaw Rivers and smaller lateral streams. Beds along the Coosaw River and Chisholm's Island also happened to yield some of the highest phosphatic content in the state once they were processed. On 1 March 1870, an exclusive title from the state legislature granted the Marine and River Mining and Manufacturing Company the right to mine navigable waters in the state. Immediately afterwards the company granted a concession to the Coosaw Mining Company to mine Coosaw River in the vicinity of Chisholm's Island. Other companies began to form after 1870, including the Pacific Guano Company which operated until the close of the industry around 1914 in South Carolina. The company purchased 1,500 acres of land and the same amount of marshland at Chisholm's Island. The company's land abutted property owned by the Coosaw Mining Company. The Sea Island Chemical Works operated from Spanish Point. By the turn of the century more than 10 companies had worked the phosphate beds in the sound. In 1878, the Coosaw Mining Company conducted half of the mining performed in Beaufort County (Whitney 1989). Turn-of-the-century navigation charts reveal docks and wharves at Spanish Point and Chisholm's Island associated with the phosphate industry.

Phosphate mining in South Carolina was accomplished by hand, steam shovels, and hydraulic dredging. Early phosphate mining of surface deposits along the riverbanks and marshes was accomplished by hand during low tides. Steam shovels were used for deeper deposits on land where digging by hand was impractical. Originally, bottomland recovery of phosphate deposits relied on divers who picked up the rocks and sent them up to the surface or by tonging for the deposits with oyster tongs from a vessel (Whitney 1989; Rogers 1914:210). Later river deposits were mined with steam dredges, equipped with clamshell buckets, after the shallow water deposits were exhausted. The deepest depth reached with these dredges was 52 ft. of water. River mining was also less systematic than land mining. Land mining systematically stripped an area of its deposits, which was determined through survey probes. River mining dredge captains received bounties for overages over minimum quotas and therefore only stayed in an area as long as it yielded high returns and then moved on once the supply seemed to dwindle (Rogers 1914:210). In 1886, the Farmer's Phosphate Company, operating in St. Helena Sound used two dredges, *Delaware* and *Cresfield*, to retrieve underwater and sub-surface deposits of phosphate. The phosphate rocks were then loaded onto small flats of which the company maintained a fleet of 50. A tug would then drag the lighters filled with phosphate to their factory on Lucy's Creek. The factory's facility was equipped with two piers, each with a pier head 40 ft. by 80 ft. in 18 ft. of water at low tide (Whitney 1989).

The Baldwin Fertilizer Company maintained a factory in Port Royal on Battery Creek, although their main office was in Savannah. The company's factory produced various vegetable fertilizers and acid phosphate (treated phosphate rocks) for sale. The cover to their 1890 brochure reveals a factory with an elevated platform equipped with rails to move the phosphate from the flats to the plant. A wharf and five railways in the yard of the factory could accommodate the loading or discharging of a steamer and two or three sailing vessels at a time. The finished products were shipped in 200 lb. bags (Baldwin Fertilizer Company 1890).

The phosphate industry in Beaufort County lasted from 1868 to 1914. By 1904, the lateral streams of Coosaw River had been worked out, and dredging operations struggled to get at deeper deposits in the channel of the Coosaw River. Beaufort River beds were still producing, but were of an inferior grade and some of the deeper areas proved difficult to mine (Chazel 1904:7). In addition to diminishing returns, three events crippled the phosphate mining in South Carolina. First, the discovery of higher quality rock in Tennessee and Florida limited demand for the lesser quality stone in South Carolina. Secondly, a permit dispute developed between the Coosaw Mining Company and the state, and thirdly, the hurricane of 27 August 1893 struck and destroyed the majority of the mining equipment. Phosphate dredges were lost along with their crews and immense lighters were driven into the marshes or ashore (Jones 1960:319, 326-8). Despite these events some of the companies hung on until the final collapse of the industry in 1914 (Whitney 1989). Reminders of the phosphate industry are present at the confluence of the Coosaw River and Brickyard Creek where several large barges are visible in the marsh surrounded by the tailings of phosphate mining, that is, fossils and small nodules of phosphate.

Shipping

The railroad entered into the transportation network in the sound in 1869 when the Port Royal Railroad was begun. The railroad was completed in 1874 and was essentially a spur from the Charleston and Savannah Railroad at Yemassee and terminated in Port Royal at Battery Creek (Port Royal Bicentennial Committee 1974). Beaufort was bypassed, mainly due to the inhabitant's objections of a railroad going through the town, although a terminal was situated outside of town. This resulted in relocating shipping from Beaufort to Port Royal and Battery Creek. By the 1880s much of the inland traffic of goods was conducted via rail lines. Products destined for export arrived via rail to the Port Royal wharves and were then reloaded onto the ships. Import goods were transferred to rail cars to bring into the interior (Stanley Consultants 1977:1-12). From 1880 to 1881, the port shipped 65,000 bales of cotton, which had a cotton press at the facility. In 1886, Port Royal shipped 92,022 tons of cargo (Jones 1960:397). Shipping in Port Royal began a downward spiral during the late nineteenth century which is still evident today. Exports dwindled from \$4,939,417 in 1894 to \$166,189 by 1901 (Stanley Consultants 1977:1-10). In 1902, exports of phosphate, coal, timber, and cement totaled an aggregate of 148,547 tons which were shipped out by 112 merchant vessels (Stanley Consultants 1977:1-12).

Steamers plying the age-old inland waterway still continued to visit Beaufort to discharge passengers and products. The waterfront of Beaufort contained several wharves including a wharf maintained by the Savannah and Beaufort Steamship Line. Many of these wharves and warehouses along the Beaufort waterfront were destroyed by the 1893 hurricane (Jones 1960:319), along with several steamboats cast ashore on the Beaufort River bank which were late refloated (see Figure 1.9). In 1909, a storm forced the SS *Clifton* to ground on a sandbar off Cuthbert Point just above Pigeon Point in Brickyard Creek. The steamer, built in 1864, had plied the Savannah to Beaufort line for 15 years and was carrying a load of potatoes from Chisholm Island to Beaufort when a violent squall arose. Once aground, receding water during low tide caused the unsupported weight of the stranded vessel's stern to snap the keel and beams. The vessel was declared a total loss except for the equipment and load of potatoes which were salvaged (*Savannah Morning News* 1909). Local residents salvaged other parts of the vessel as well (Roger Pinckney 1998, pers. comm.). The remains of the steamer (38BU484) are visible during low tide (see Figures 7.1, 9.30, 9.31, and 10.5).

In 1899 the shoals at the entrance to Port Royal Sound claimed another victim, SS *William Lawrence*, an iron-hulled steamer carrying a load of consumer goods bound for Savannah. A November gale forced the vessel onto the shoals as the ship sought safety in Port Royal, and after a harrowing ordeal in the lifeboats all but one of the crew survived freezing temperatures and frostbite. The *Lawrence* was carrying a variety of goods including clothes, shoes, medicines, S.C. Dispensary bottles, plates, toys, magazines and newspapers to name a few of the cargo items (Harris 1995). Over the years the wreck disintegrated while exposed on the shoals. Currently, the boiler is visible during low tide. Local divers have visited the site (38BU709) for years and have retrieved many objects from the wreck.

Navigation in and through the sound from the sea was vastly improved in this period with the addition of a lighthouse and lighted beacons on Parris Island, and the continued operation of Martin's Industry Shoal lightship. The Parris Island Lighthouse was erected in 1881. The lighthouse was an iron skeleton construct, triangular and pyramidal in shape, and equipped with a locomotive headlight with a parabolic reflector. The lighthouse rested on six circular iron disks mounted on concrete foundations. The lighthouse was the rear light of the Parris Island ranges (Espenshade 1995:57) by which mariners aligned themselves to ensure a course through the channel. The government continued operating the light ship until around 1904 when the light ship disappeared from nautical charts.

Military Installations

A continuous military presence was maintained in Port Royal following the Civil War until the present day. In 1883 the Federal government began purchasing lands on Parris Island to build a naval coaling depot (Espenshade 1995:57). An 1884 map shows the depot consisted of one L-shaped wharf with a railway, a warehouse, and a log breakwater along the Beaufort River. By 1894, the depot became a naval station owing to the construction of a drydock and additional personnel and infrastructure. The drydock was able to handle the navy's largest ships at the time, including the USS *Indiana* (BB-1), a coastal battleship, as evidenced by a photograph (USMC Parris Island Museum). The Port Royal Naval Station suffered great damage during the hurricane of 1893 and every boat in the station was destroyed but one launch (Jones 1960:332). In addition to the naval station, Parris Island also housed the Quarantine Station and a wharf on Ballast Creek. The station checked incoming passengers for infectious diseases from foreign ports. In 1903 the naval base reverted back to a coaling station several years after the naval base had been removed to Charleston (Espenshade 1995:58). On 28 August 1911 the base again changed from the U.S. Naval Station, Port Royal, to the U.S. Naval Disciplinary Barracks, Port Royal (Jones 1960:336).

As the naval presence on Parris Island decreased the U.S. marine contingent increased. Marines had been stationed on Parris Island at the opening of the Naval Station in 26 June 1891. A small detachment remained until the Naval Station was handed over to the Marine Corps on 28 October 1915. The entire island was eventually taken over by the marines in 1917. Commencing on 1 December 1946 the post was renamed the Marine Corps Recruit Depot, Parris Island (Jones 1960:336). The depot continues to prepare recruits for service as marines.

Following the Civil War, many of the fortifications and attendant logistical support structures remained, that is, piers and wharves. The Federal government retained the land occupied during the Civil War at Hilton Head Island and Bay Point as military reservations.

They later added the Fort Fremont Military Reservation at Lands End on St. Helena Island comprised of land confiscated from land owners delinquent on back taxes after the war. The Hilton Head reservation (803 acres) consisted of Fort Sherman, apparently abandoning Fort Welles (Walker) and the "T" dock. The president of the U.S. approved the area as a reservation in 1874 (DR 189, SC 7-1, RG 77, NARA). During the wave of coastal fortification construction as a result of the Spanish-American War (1898) the Hilton Head Island reservation was outfitted with a pneumatic gun. Apparently the gun was fired only once and in doing so set ablaze a portion of Bay Point (Jones 1960:355). Today the area is known as the "steam cannon site" and consists of the ruins of the brick furnace, casements, and foundations of the pneumatic gun. Fort Fremont was built to protect the naval drydock and was armed with "hideaway" guns designed to disappear during the recoil after the blast, however, the fort was not completed until after the Spanish-American War (Espenshade 1995:58). The fort also had a large "T" dock 800 feet in length. Fort Fremont was disposed of by the government in 1924 (DR 189, SC 10-1, RG 77, NARA). The military reservation at Bay Point was approved by the president in 1874, but apparently did not serve in any defensive capacity. The wharves and piers at Station Creek, Bay Point, and Hilton Head Island remained on nautical charts until the mid-1900s.

Modern (1940s to Present)

Shipping in Port Royal fell on hard times when no products moved through the port from 1922 to 1958. After the creation of the South Carolina State Port's Authority in 1942, the Beaufort-Port Royal waterborne movement of commercial products did not appreciably improve under the authority's direction. Commercial activity, however, continued to flow through the sound stimulated by the passage of various Congressional Acts that completed the Intracoastal waterway from Norfolk, Virginia, to St. John's, Florida, in 1940. Intracoastal waterway traffic consisted of barges filled with petroleum products, pulpwood, paper, oysters, oyster shells, and agricultural goods (Stanley Consultants 1977:1-12). In 1950 a report stated that no deep-water ocean-going vessels had used the port facility for 45 years. This lack of use resulted from the use of diverse transportation methods such as barges, highways, railroads, and airplanes to Port Royal (Stanley Consultants, 1977:1-13, 14). Additionally, a primary reason was that Port Royal lay between two important neighboring ports, Charleston and Savannah, that handled most of the bulk and container cargo in the region. Dredging to improve the channel from Martins Industry Shoal to Battery Creek at Port Royal in the 1950s greatly improved the ability of the sound to handle deep-draft ocean-going vessels (U.S. Army Corps of Engineers 1976).

Shipping was sparked to life in 1958 when the renovated port facilities at Port Royal reopened for business with the unloading of South American lumber from the German cargo ship, *Georg Russ*. The opening had been planned earlier but had been disrupted by Hurricane Helene on 27 September. This was the first commercial load since 1922 when the cargo ship, *Silver Leaf*, picked up a load of lumber (Jones 1960:348). In 1974, the port handled 180,646 tons of waterborne commerce, and over a five year period, from 1970 to 1975, averaged approximately 154,174 tons. Principal commodities passing through the port were clay, oilseeds, shellfish, grain mill products, pulp, paper and paperboard, fabricated metal products, basic textile products, residual fuel oil, and distillate fuel oil. Clay, shellfish, and agricultural products were outbound shipments while petroleum products were inbound shipments (U.S. Army Corps of Engineers 1976:15). Today, port traffic consists of a vessel periodically visiting the terminal. Imported products include river pebbles and liquid kaolin. Both products are stored on site prior to

transshipment by train.

The region remains lightly industrialized, unlike the neighboring coastal cities of Savannah or Charleston. In the mid to late 1970s, public outcry over the construction of a large German-owned industrial plant caused the company to seek a more receptive location elsewhere (SCWRC 1972). Today, the economy relies on agricultural products, the military bases at Parris Island and the Marine Corp Air Station on Brickyard Creek, recreation which is primarily centered at Hilton Head Island, and the service industry to support the residents and businesses in the area. Today, the predominant use of the waterways in the sound is for recreation (that is, for fishing and pleasure cruises), by watermen in the fishery industry, and commercial and pleasure transit via the Intracoastal waterway.

Chapter 4: The Seafood Industries of Port Royal Sound

The waters of Port Royal Sound have provided seafood for human consumption ever since the days of prehistoric Native Americans. European colonists continued this subsistence-level harvest of seafood. There is limited documentation of commercial fisheries based in the Port Royal Sound area until the 1880s when the U.S. government began to keep records of seafood industry statistics. This is in direct contrast to the Northeastern United States where highly productive commercial fleets and the far reaching salt-fish export trade have been documented back to colonial times (Fleetwood 1995:180). This is not to say that no commercial fishing took place in the Port Royal Sound area during the colonial period. As early as the 1760s, boats from New England states were catching finfish along the coast between Charleston and St. Augustine. By 1860 there were fifteen northern smacks plying the waters off South Carolina. But, “. . . virtually no seafood was shipped from Southeastern ports prior to the [Civil] war due to spoilage, problems in marketing, and the difficulty of keeping a steady supply with most of the labor force in agriculture” (Fleetwood 1995:182). So the limited amount of food landed by locals in the Port Royal Sound area was likely shared with family and friends or sold locally.

The fact that fishing did not thrive as an industry in the Southeast, as it did in the Northeast, is not surprising in view of local economic conditions. Prior to the Civil War, the predominant commercial export crop produced was Sea Island Cotton which commanded a premium price on world markets, and it was not profitable to use labor and capital to exploit fisheries resources (Fleetwood, pers. comm.1996). This pattern began to change in the last decades of the nineteenth century, when oyster canneries were established in the area. The first decades of the twentieth century brought the arrival of the plague of cotton-the boll weevil, and the collapse of the phosphate industry, which resulted in a gap in the local economy. By 1930 shellfishing and vegetable farming had replaced cotton farming and phosphate mining as the major industries in Beaufort County.

The Oyster Industry

History

By the late 1860s shucking houses in Beaufort County provided a limited output of raw oysters, most of which were shipped to Savannah for national distribution. In 1886, for example, the Oemler company was shipping its “Colossus” brand oysters from Savannah to Philadelphia (Keith and Gracy 1972). The huge subtidal oysters were harvested from Tea Kettle Creek. The subtidal oyster crop perished in 1911 when the borer worm invaded Beaufort County (Christensen 1998). All was not lost, however, as the area’s smaller intertidal oysters, known locally as “coon oysters” or “cabbage heads”, also proved suitable for canning. These oysters were the basis of a canning business that became the county’s second largest industry in the years before the Second World War. In fact, oysters were a more important product than shrimp during the first half of the twentieth century. Of 100,000 cases of canned seafood packed in South Carolina in 1925, 97,891 were cases of oysters. Of the state’s seafood canneries, only three canned shrimp while fifteen produced oysters (Radcliffe 1926).

The first South Carolina oyster bed lease was granted in 1889 to a Winyah Bay businessman. This required a special act of the state legislature. The oyster business grew from a cottage industry to a major economic force after an 1891 federal survey revealed that Beaufort was an ideal area for oyster cultivation. According to the report, there were 775 acres of natural oyster beds in Beaufort County. Another 20,000 acres of bottoms were deemed suitable for cultivation. By 1893 the leasing system had become systematic and there was a State Oyster Commissioner based in Beaufort. The commissioner did not have a salary or a budget and had to finance his

official affairs out of his own pocket (Keith and Gracy 1972).

Two Baltimore firms established oyster canneries in the county around 1895. The Hunt Company located its operations at Factory Creek on Lady's Island. The cans of oysters were warehoused there and then shipped by rail from the Beaufort Depot on Port Royal Island. George Lowden & Co. founded two factories, one at Club Bridge on St. Helena Island and the other in Bluffton. The Lowden products were shipped to Savannah by freighter for distribution to a wider market (Fleetwood 1995; Maggioni 1996).

In addition to the Baltimore-based companies, two local entrepreneurs founded factories in Beaufort County around 1895. A cannery at Dulamo, on St. Helena Island, was built by Capt. William Roberts of Beaufort. Savannah's L. P. Maggioni & Company, the largest and most active enterprise in the oyster industry, established its first South Carolina cannery on Daufuskie Island, and in 1903 transferred it to Port Royal. Like Lowden's, its products were shipped by freighter to Savannah (Fleetwood 1995; Maggioni 1996). Maggioni & Company quickly became the leaders in the oyster industry, both in Beaufort County and in the Southeast. At one point they had 2,500 employees on the payroll. In 1917 the Maggioni & Company's Port Royal cannery was moved to Lady's Island on Factory Creek when the company took over the Hunt Company's facilities. By 1924 they had added a shell crushing factory to the site (Sanborn Insurance Company 1924). Maggioni & Company also assumed management of the Lowden plant on St. Helena, and eventually took over the Roberts cannery at Dulamo (A. Jones, 1998). Additional Maggioni & Company factories in Beaufort County were located at Jenkins Island (Hilton Head area), Tom Fripp Community (on St. Helena) and at Lucy Creek (Sam's Point area of Lady's Island) (Fleetwood 1995; Maggioni 1996).

During the height of the depression the oyster industry did well compared to other South Carolina businesses. The proceeds from the oyster bed leasing system allowed the state's Fisheries Commission to operate on its own revenue. No additional tax funds were necessary to support the commission. The leases rented for \$1.00 per acre at that time. In the early 1970s the rent per acre was \$5.00 (Keith and Gracy 1972).

Harvest and processing

During the 1930s, the largest of the oyster canneries in the region, the Maggioni & Company operation on Factory Creek, Lady's Island, steamed 3,000 bushels of oysters per day. The four other Maggioni canneries steamed 1,000 bushels each per day. During a 100 day packing season the Maggioni canneries steamed 700,000 bushels of oysters and produced 300,000 cases of canned oysters (Maggioni 1996).

During the oyster season, from September 15 to March 15, Gullah men, a distinct African-American community in the Port Royal Sound sea islands, harvested oysters from the waters of Beaufort County. They used nail grabs, which also came to be known as oyster grabs or tongs, to wrench the oysters from their banks. The men could only gather the intertidal oysters during low tide. They could gather 100 to 200 bushels per low tide. Historical records often use the term "South Carolina bushel"; this is a different measurement from a US bushel. South Carolina oysters were typically clustered and oddly shaped, leaving a large amount of space between clusters. To make up for this irregularity, a South Carolina bushel basket was twice the size of a standard bushel (Maggioni 1996). Occasionally night shellfishing was done using large flambeaus that illuminated the oyster flats. The men would stay out for several days before returning to the factory. They had to carry provisions with them and slept in bunks on the larger boats in the fleet (Keith and Gracy 1972; Fleetwood 1995; Maggioni 1996).

Oystermen engaged in other occupations as well. In the era of prohibition, some of the men tended stills in the isolated islands near the oyster beds. High tide allowed time for the production of moonshine. Some of the fishermen turned to shrimping, crabbing, and farming in the off-season. Other men continued working for the oyster companies doing the yearly “culching”. This process, also called “planting”, involved hauling bateaux full of shell to the oyster grounds leased by the company. There the men would shovel shells onto the beds to provide a place for oyster seed, or “spat”, to settle on during the reproductive cycle of the oyster in the summer. Reseeding was required by state law and benefited the canneries by assuring oyster crops in the future (Keith and Gracy 1972; Fleetwood 1995; Maggioni 1996).

After harvest, the oysters were then taken to a cannery. Dock workers unloaded oysters, washed them off, then packed them into slatted metal steam cars that held twenty bushels. The lids of the cars were closed and workers twisted a handle tight to seal them shut. The cars were rolled along rails into a large steambox, heated, then removed to the shucking room (Maggioni 1996; W. Lubkin 1995).

The women who worked as shuckers hung their custom-made buckets on the sides of the steam car, and opened oysters. The buckets, made by a Savannah tinsmith named [?] Pacetti, held about five pounds of shucked oysters. Meat went into the buckets and the shells went on the floor for removal to the large outdoor shell pile. While the women were shucking, eight or nine men stood by with shovels and filled a wheelbarrow with shells. The shells were removed from the building and dumped on a pile that could reach as high as 12 feet. Shell piles reached as high as 35 feet after the plants began using dump trucks in 1969. Most of the shell from these piles have been removed from former factory sites and used for road construction among other purposes (Maggioni 1996). A typical shucker could open three gallons of oysters per day, while a fast worker produced six to eight gallons. In the 1930s, pay was around 50 cents per gallon shucked. Oysters were bringing \$1.05 per gallon on the market (Burn 1991).

The shuckers wore ample clothing to keep them warm on the cold winter days. At least one account says women wore croaker sacks (gunny or burlap sacks) to work. Aprons covered their clothing, and old rags or gloves were worn to protect the left hand from injury during shucking (Burn 1991; Lady’s Island Middle School 1996). Some of the women walked or rowed themselves to the canneries, while others rode together in a larger ferry bateaux (Singleton 1998; Wolcott 1939). They arrived around 9:00 A.M. each morning after cooking breakfast and getting children off to school. The work day lasted late into the night (Burn 1991). Before the advent of child labor laws, children could come work in the factories as well (Singleton 1998).

Because the need for shucked oysters was so great, each cannery also was supported by satellite shucking houses. Some fishermen, either independent operators with their own leases and equipment or factory-sponsored providers who lived in remote areas, brought the oysters home, where there was a family-operated shucking house that provided shucked meats to the canneries. In small shacks scattered throughout the islands, women working near their residences opened oysters, often those brought in by their husbands or other male kinfolk, to prepare them for canning at the main plants (Burn 1991; Singleton 1998; Maggioni 1996; B. Lubkin 1998). The women in shucking houses also processed raw oysters, which were more difficult to open. The women would knock the oyster on a nail embedded in a piece of wood. This chipped off an area near the mouth and a knife tip was inserted in the small gap and used pry the shell open (Burn 1991).

Each oyster cannery required around 200 workers, not all of whom were local. Sea Islanders were familiar with harvesting and shucking oysters and handled this aspect of the industry. However, the local labor force was not familiar with industrial cannery operations and

consequently skilled workers were brought in from Baltimore. Until the 1930s, experienced cannery workers, mostly of Polish descent, migrated each winter from Baltimore to the Lowcountry. Some settled in the area and assimilated into the area (Maggioni 1996). Eventually local workers were trained to work in the factories and the area's Gullah population became the main source of labor (Maggioni 1996). Oystering was a seasonal occupation and during the offseason summer months some of the canneries produced shrimp and vegetables. This provided year round employment to the cannery workers. During the height of the depression Maggioni & Company prided itself on providing continuous employment for its personnel (*Beaufort Gazette* 1933b). The federal government also provided oystering jobs during the 1930s when it paid workers to take part in culching projects (Maggioni 1996).

In addition to the oyster meats, the factories also stockpiled oyster shells for sale. In 1925 the South Carolina oyster industry produced 7,596 tons worth of shell byproducts worth \$79,518. These materials included poultry grit, much of which was shipped to England, and lime fertilizer. Shells were also used to form the new causeways that linked the sea islands beginning in the late 1920s. Almost half a million bushels of oyster shells were used to construct the 1927 causeway that stretched from Lady's Island to the new bridge to Beaufort. The long causeway to Tybee Island from Savannah was created in the early 1930s using shells from Maggioni plants in Hilton Head, Sams Point, and the Beaufort River (Savannah Electric and Power Company 1925; Radcliffe 1926; Keith and Lacy 1972; Maggioni 1996).

Fishing grounds

While pollution caused by human activity has increased in the latter part of the twentieth century, the problem is by no means a new one. For example, the federally sponsored 1890 survey of Beaufort County's oyster beds that the shellfish were not growing in the Coosaw River. The dredging and processing of phosphate had made the waters inhospitable for the oyster. Despite the environmentally insensitive nature of phosphate mining, the Coosaw River recovered and by 1937 was clean enough to be chosen as the site of a 23-acre state oyster hatchery near Whale Branch River. Phosphate mining was not the only threat to the oyster industry. Heavy timbering activity along the inland rivers increased the level of sediments in local waters and reduced the habitability of the oyster banks in the early twentieth century (Maggioni 1996).

The Port Royal Sound area has not experienced the sort of pollution that destroyed the oyster industry on Daufuskie Island by 1959 (Burn 1991). However, there are warning signs that indicate land development and increasing population are taking their toll. The bottoms adjoining the oldest urban area in the county, the city of Beaufort, are the most polluted according to maps from the South Carolina Department of Natural Resources Shellfish Management Division. Oyster grounds are also closed near islands whose populations have recently grown, such as Fripp, Dataw, and Hilton Head Islands. In addition to the threat of the reduction in fishing grounds, the size of Beaufort County oysters is decreasing - meaning a decrease in profits per unit of effort. The largest oysters used to measure four per pint (Maggioni 1977). In the first half of the twentieth century one could produce seven pounds of meats per bushel, but by the 1990s meat per bushel was reduced to three or four pounds (Maggioni 1996).

Boats

Three types of boats have been primarily used for oystering in the sound: bateaux, sloops, and engine-powered scows. Bateaux have been a fixture of Lowcountry life since the earliest days of European inhabitation. They are no longer ubiquitous, but some examples still ply the local waters. The larger, sail-powered sloops popular until the Second World War have disappeared. The engine-powered scows that replaced sloops have gone by the wayside as well.

A bateau was an open decked boat 12 to 20 feet long made of planks or scavenged materials. It featured a hard “chine edge” and flat bottom that was ideal for maneuvering in shallow Lowcountry waters. An 18 foot boat could hold 40 bushels of oysters, or 4,000 pounds of weight (Fleetwood 1995).

Oyster sloops are heralded as one of South Carolina’s only original boat designs; however references to oyster sloops in the Long Island area also have been found. Differences and similarities between the two have not been investigated. A typical South Carolina sloop was 30 to 40 feet long, and, like a bateaux, was flat-bottomed. Some sloops were diamond-bottomed (Fleetwood 1995). A centerboard helped steady the craft, but there was a disadvantage to this mechanism: centerboard boats were more difficult to build and maintain. Besides being more complex to construct, the centerboard cases were leaky and made the boats susceptible to rot and worms. A sloop’s five foot high cabin had a single bunk on either side and wood stove for cooking and heat. Drinking water was kept in a wooden keg on the deck. The typical crew size was two, usually a man and a boy (Fleetwood 1995). In 1941, there were thirty sloops sailing in Beaufort County waters. By 1950, most of these vessels vanished from the landscape (Fleetwood 1995).

Early on in the nascent oyster industry, public health concerns dictated a fundamental change in a sloop’s design. Turn-of-the-century sloops were built with covered decks and hatches located forward and aft of the centerboard. Oysters stored down in the hold could and often did suffer exposure to deadly bacteria in the bilge during this period. Around 1905 sanitary regulations required that sloops be built with well-drained open decks where piles of oysters remained out of reach of the contaminated bilge water (Fleetwood 1995; Georgia Historical Society ca. 1905).

In the 1940s the first motorized boats constructed in Beaufort included several oyster scows built by Gerald Watkins for the Maggioni Company. Some boats were brought from other areas and converted for use as oyster scows. Some of these gasoline and diesel powered boats were used to haul oysters. A photograph of the *Roy Fountain*, for example, shows the scow with 600 bushels of oysters on her deck (Fleetwood 1995). Other boats towed bateaux (Wechsler ca. 1965) or barges laden with oysters. Barges or lighters were also towed by power tug boats. At first the lighters were wood and had an average length of 42 feet. Eventually 50 foot steel lighters were common. The barges had bunk houses for their crews (Fleetwood 1995).

Equipment

Artifacts from the oystering industry likely to remain in the archaeological record:

- Lathrop engines for boats from Mystic Connecticut (Maggioni 1996).
- Lombard boilers, manufactured in Augusta, Georgia and distributed by Osborne-Judkins Hardware in Savannah (Maggioni 1996).
- Oyster grabs from a New York blacksmith (Maggioni 1996) Grabs were made of wrought iron in New York City by A. Hens until 1947. It was just after World War II, when the iron was difficult and expensive to obtain. The post-war grabs were made of steel by an African-American blacksmith at Savannah State College, and later by his students.
- Shucking buckets from a Savannah tinsmith, [?] Pacetti (Maggioni 1996).
- Seaboard Brass & Copper propeller shafts, Lombard Street, Baltimore (Maggioni 1996).
- Steam boxes, made by Edward Renneberg, Lombard Street, Baltimore (Maggioni 1996).
- Steam cars, made by Edward Renneberg, Lombard Street, Baltimore (Maggioni 1996).
- Oyster packing machines, made by Edward Renneberg, Lombard Street, Baltimore (Maggioni 1996).

- Canning equipment, 1940s-1950s, American Can Company, Florida (Brownlee 1998).
- Cans (Brands: Coosaw, Warsaw, De Soto, Daufuski, Broad River, Sambo, Maggioni [Maggioni & Company]; Colossus [Oemler Company]).
- Hardware (such as cylinder heads) in secondary use as anchor (Maggioni 1977).

Artifacts likely to have decomposed:

- Pitch tar made from pine trees used in boat building (Maggioni 1977)
- Anchor rope made of plaited palm grass (Maggioni 1977)
- Sails and rigging.
- Organic materials used as anchors, such as oak root (Maggioni 1977)
- Hand-hewn oars made of a rough two by six (Maggioni 1977).

The Shrimp Industry

History

The U.S. Bureau of Fisheries began keeping records of shrimp landings in 1880. In that year South Carolina, with landings of 630,00 pounds, was the leader in shrimp production in the United States (South Atlantic Fishery Management Council 1981:8-10). Until 1915 or so, shrimp were caught in small batches using haul seines and cast nets. Some of the catch was consumed locally, or iced and transported to nearby markets. In some areas of the southeast shrimp were canned or dried for the global market (Lord 1971:10), but the specifics of distribution of South Carolina shrimp are not well documented. Well into the 1920s shrimping in South Carolina was, at best, a cottage industry because of the technological limitations on production, processing, and distribution.

By 1925 shrimping had become a bona fide industry centered in Fernandina Beach, Florida (Lord 1971:7). Before 1924, when Beaufort County's first shrimp packing house was established at Port Royal, most of the catch was probably unloaded at Savannah. There the shrimp were cooked, peeled, and shipped on ice as far west as Los Angeles. Green, or uncooked shrimp were shipped by rail as far north as Boston and as far west as Chicago (Savannah Electric and Power Company 1925).

The earliest shrimpers in the Port Royal Sound area migrated from Florida on a seasonal basis. They did not bring their families with them. The shrimpers consisted of recent European immigrants, or subsequent second-generation Portuguese, Scandinavians, and Italians. African-Americans and "Native Americans" - the early twentieth century term used to distinguish English speaking Anglo-German descendants from the rest - were at the fringes of the industry (Johnson and Lindner 1934:8).

In the early decades of the shrimping industry, 1915 to 1945, these Florida fleets sailed to the Port Royal Sound area each spring. They could not go further south than Melbourne, where coral near the shore tore their nets and seeking less damaging bottom headed to more northerly fishing grounds (Johnson and Lindner 1934). Each April, two trawlers acted as scout boats and traveled from Fernandina Beach to Port Royal to test the waters. They then returned to report on the size of the catch. If the landings were favorable the entire fleet set sail to South Carolina. If the landings were scanty, however, the fleet stayed put, and two more trawlers were again dispatched to test the waters in May (Wilson 1995).

In 1924, Florida's Charlie Vecchio established the first shrimp dock and packing house in

South Carolina at Port Royal (Wilson 1995; Wilson 1998). In 1928 the Florida-based Davenport-Brooks Corporation set up a shrimp cannery in the quarters of a barrel company at Spanish Point on the Beaufort River. It was a state-of-the-art cannery with two Anchor Cap and Closure Company Pressure Processing System machines. Shrimp were preserved in cans and jars and labeled on site. Florida crews worked on the boats and at the docks, while local white women worked in the cannery. The Spanish Point cannery went out of business after two seasons when the company decided to focus on its Florida plants (*Beaufort Gazette* 1928a & 1928b; B. Lubkin 1998).

The shrimp industry declined during the Second World War. Shrimp boats that measured 50 feet and over were commandeered for use by the armed forces. At least one of the boats was sunk off the coast of South Carolina by a German submarine (Lettich 1998). For obvious reasons the usual trawling areas off of the beaches were closed (Farmer et al. 1977). Waters that were formerly off limits, including sounds, bays, rivers, and creeks, were opened to Beaufort County shrimpers, but fishermen in other counties did not have the option of trawling these “inside waters.” South Carolina’s shrimp industry no doubt suffered a fate similar to that of North Carolina, where “production dropped, the building of new boats decreased . . . fuel was rationed, and it was difficult to acquire spare parts for engines and fishing gear. The scarcity of twine and rope made it hard to buy new nets and repair old ones. There was also a shortage of manpower to run the boats . . .” (Kelly and Kelly 1993).

After the Second World War advances in technology allowed for a huge growth in shrimp production. With larger boats, more powerful motors, fish finders and depth finders, and advanced communications equipment, shrimpers harvested more shrimp than ever before. Improvements in technology also resulted in distribution changes such as refrigerated trucking and freezing that helped feed the boom. Another important turning point in shrimp industry history arrived when the Pink Gold Rush started in South Florida in 1949 (Bennett 1995). The Pink Gold Rush allowed some South Carolina fishermen to become full-time shrimpers, something that was never the case for the other seafood industries. There were tremendous riches to be gained by harvesting the pink shrimp off the coast of Key West. Shrimp boats from Port Royal and other areas of the Gulf and South Atlantic headed to the Keys each year. This tremendous resource had never been tapped until shrimpers experimented with night harvests and found that this was the key to shrimping in the Keys. Eventually boats made their way as far as Campeche and Belize. For the first time South Carolina shrimpers used their boats to trawl year round rather than on a seasonal basis (Bennett 1995).

Harvest and processing

The early shrimpers traveled from Florida on small, dangerously open boats powered by gasoline engines. They threw out their otter trawls by hand, and hauled them in without the aid of machines (Figure 4.1). A list of equipment used is provided later in this section. Shrimp were stored on ice until the boat reached the packing house. Some crews would dehead - or “head” - shrimp on the boat. At other wharves the Gullah workers would head the shrimp. Shrimp that was to be shipped green was packed in oak barrels and iced down for transport by train. Canned shrimp were peeled and deveined, placed in glass jars or cans, and steamed.



Figure 4.1. An early diesel-powered shrimp boat. (Courtesy of Laura Von Harten)

Fishing Grounds

During the early years state and federal regulations were few and lenient. Boats could trawl both inside waters and beaches without regard to seasons. By 1932 state law was tightened such that “the trawling for shrimp in any stream, bay, sound or rivers within this State is prohibited” (Farmer et al. 1977). An exception was made for Beaufort County shrimpers so commerce could continue despite the beaches being closed during the Second World War.

By 1948 South Carolina shrimpers were threatening to leave the state because of their dissatisfaction with increased fishery regulation (*Charleston Evening Post* 1948). Shrimpers in Beaufort County wanted sounds reopened, as they had been during the war years. So in 1953, Calibogue, Port Royal, and St. Helena Sounds were opened to shrimp trawling (Farmer et al. 1977). Since the 1950s the waters generally have been open to shrimp trawling between August 15 and December 15 of each year.

By 1959 trawling was regulated by the Wildlife Department which issued formal boundary maps and special seasons for shrimping (*Charleston News & Courier* 1959). The boundaries in place at this time remained relatively consistent until the 1970s, when state legislators altered laws related to Beaufort County sounds. This included expansion of Port Royal Sound trawling grounds up the Chechessee and Broad Rivers. Much of the Broad River area was untrawlable, however, due to rough bottoms (Farmer et al. 1977).

As of 1985, the trawlable area of Port Royal Sound extends from the Broad River Bridge seaward, from the point of Rose Island seaward in the Chechessee River, and from Parris Island’s Ballast Creek seaward. These waters have since been closed to commercial trawling, but are subject to intensive harvest by “baiters.” Each fall thousands of baiters descend on the inside waters of Beaufort County to cast their nets over bait balls made of mud and fishmeal. The catch is licensed for personal consumption, but there is reportedly a thriving black market for baited shrimp.

Trawlers

The watercraft used to capture shrimp changed dramatically as advances in technology led to increased boat size, engine power, and catch per fisherman. At first wooden sailboats were replaced by gasoline powered wooden boats (Figure 4.2). After the Second World War, boats with spacious cabins, powerful diesel engines, and fiberglass or steel hulls became standard. North Florida was the center of shrimp boat building activity, although some boats were built at Thunderbolt, GA, and a few at Beaufort.



Figure 4.2. Shrimp boat in the 1930s. (Courtesy Laura Von Harten)

Materials used to build a trawler could include wood, steel, concrete, and fiberglass. A boat was either diamond-bottomed (knuckle-chined) or round-bottomed. A variety of bow shapes included the “straight” (to describe a relatively perpendicular bow) or “rakish” (to describe a bow with a more pronounced angle).

The earliest shrimp boats were “small baldheaded schooners” that pulled haul seines. The first powered craft were open trawlers (McGiffin 1971:1). A typical boat in 1916 was the *Pelican*,

owned by John Santos Carinhos. The boat was 22 feet long, powered by an eight horsepower Vulcan engine (Lord 1971:13). These boats were “small, open skiffs,” but during the 1920s and 1930s they were “decked over, engines placed forward with a pilot house added, and the diesel engine introduced” (Farmer et al. 1977). The boats may have been modeled after the craft used by Greek spongefishermen in Florida (Kelly and Kelly 1993). After World War Two, standard boat sizes increased to meet the demands of long distance ocean voyages to the Dry Tortugas, Mexico, the Caribbean, Central America, and South America. By the late 1960s, 70 to 80 foot boats were common.

The earliest boatyards were in Fernandina Beach and St. Augustine, Florida, where Southern European boatbuilders and their descendants created trawlers that harkened back to their Mediterranean roots. These men did not have formal education in boatbuilding, but relied on knowledge handed down to them. The unnamed man who created the prototype of the trawlers used today could not read blueprints but was able to build fine boats (Lord 1971:1). After the Second World War, St. Augustine, Florida, became a center of boatbuilding activity mostly due to Diesel Engine Sales’ status as the largest producer of shrimp boats in the world. By 1971 the company had launched 1,700 vessels (Lord 1971:13-14).

Until the 1940s, trawlers and related equipment were obtained from Florida or Georgia. Paul Cesaroni, a former Maggioni & Company shrimp cannery manager, who in the 1930s established a packing house and fleet at Lucy Creek on Lady’s Island, commissioned the building of trawlers (including the *G. Philip Maggioni*) at Thunderbolt, Georgia (Maggioni 1996). During the Depression, many shrimpers relied on boats that were salvaged and recombined to create a trawler. For example, one boat, *Italia*, likely owned by visiting Florida shrimpers, had been sunk in the sound and in the late 1920s, Capt. Geech Von Harten raised the boat, rebuilt its gasoline engine, and placed it on another craft to create a trawler he christened *Catherine* (Von Harten 1995).



Figure 4.3. Lady's Island Boat Yard in 1947. (Courtesy of Laura Von Harten)

Master boatbuilder Joseph Mulligan, of Lady’s Island, was one of the first builders of motor-powered working boats in Beaufort County. He did his apprenticeship with a boatbuilder named Freeman in Savannah, and eventually moved up and down the East Coast perfecting his craft. He worked for the early shrimpers at Port Royal, and also worked for the Maggioni Company on Lady’s Island. He eventually operated a boatyard at his property on Lady’s Island around 1947 (Figure 4.3). There he and Gerald Watkins, of Bluffton, built the *Capt. Geech* and the *Miss Beaufort*. At the same time another boat, *Miss Ladies Island*, was being built by less experienced carpenters for John Hall and Willie Youmans (Mulligan 1998; Von Harten 1998). There was another boatyard on Lady’s Island in the 1950s, this one operated by Stanley Lawson at Wilkins. At this site Joseph Mulligan created the *Bertha V.* (for Capt. Geech Von Harten) and *Jordan Brothers* (for Sam Jordan, an African-American minister), along with other trawlers. Later boatbuilders in the Beaufort area included George Randall and Charlie Forcke. Randall constructed several trawlers at “The Triangle” in Port Royal. His boats included the *Miss Latina* and the *Little David*. Forcke, a native of Roatan, an island near Honduras, worked at Beaufort Industrial Marine Company on Factory Creek, Lady’s Island, in the late 1960s. His boats included *Sea Island Lady* (built for Harold Von Harten), *Lady Grace*, and *Young’n* (built for Syl-Van Enterprises) (Randall 1998; Von Harten 1995).

The Beaufort Industrial Marine Corporation (BIMCO) which was owned and operated by the Von Harten family, built three steel-hulled trawlers on Lady's Island between 1967 and 1969: *Sea Island Lady*, *Lady Grace*, and *Young 'n* (Von Harten 1995). Charles Forcke, the yard's general manager, designed the three boats. Buyers could choose between three stock models of differing dimensions: 72' x 20' x 11', 77' x 21' x 12', and 85' x 35' x 13'. One of its boats, the *Sea Island Lady*, featured a raised pilothouse that provided 360 degree visibility to the skipper. The engine was located in the stern, rather than the bow. It featured an 8.5 foot propeller shaft, shorter than most to simplify alignment and leave room for additional equipment. Fuel tanks, with 12,000 gallon capacity, were built into the bottom, so the boat had a low center of gravity, as well as a double layer of protection from the sea. The boat was equipped with a Caterpillar D343TA engine turning a four bladed 62/50 Federal wheel or propeller; a Stroudsburg 518T hoist; Lister/Winpower auxiliary power unit; Bendix DR-9 depth recorder; Konel KR-200 radio; and Wood Freeman automatic pilot (*The Fish Boat* 1968:71). As of 1998, the boat is still in the hands of its original owner and trawls the grounds between Key West, FL and Freeport, TX.

The third boat constructed in the BIMCO yard, *Young 'n*, was constructed for the Syl-Van Enterprises of Augusta and captained by Bobby Chaplin of Port Royal. This 60 foot steel boat could carry 30,000 pounds of shrimp. A headline about the boat's launching announced that "One of Beaufort's oldest industries helps the progress of the county as well as the nation" (*Beaufort Gazette* 1969). This ambitious declaration was premature, as BIMCO ceased boatbuilding operations by 1970 (Von Harten 1998).

Nets and engines

Until the arrival of the Florida fleets in the 1920s, South Carolina shrimp were captured by local fishermen using haul seines and cast nets in shallow creeks. Haul seines continued to be used commercially throughout the 1930s, but became obsolete at the end of the decade (South Atlantic Fishery Management Council 1981:8-4). The haul seines and cast nets were displaced by the otter trawl, a net developed in England in the 1890s, brought to New England, and carried south to Fernandina Beach by Massachusetts fisherman Billy Corkum (Lord 1971:13). A contemporary account of the early otter trawl states that it "consists of a large bag similar to the pocket of a seine, with short wings attached to heavy weighted boards on either side. These boards are tied to the boat by long ropes and are bridled in such a manner that the device is kept at the bottom and opened to its fullest extent while operating" (Tulian 1920). In the early years shrimp capture was "by the seat of the pants." There were no electronic devices to aid in communication and navigation. No winches assisted the men as they dragged their heavy nets into the boat's stern (McTeer 1972). Instead they used a "cat head" for pulling doors and nets up.

The otter trawl was considered superior to the haul seine because it was "adapted to a much greater range of activity, has much lower initial cost, requires few operators, produces a greater catch per fisherman, and is in general much more efficient" (Johnson and Lindner 1934:9). Equipped with the otter trawl, a pair of men could harvest as much as 20 men using a seine net. Another advantage was that fewer finfish were caught and killed unnecessarily. Most of all, fishermen could capture the larger adult shrimp in deeper waters where haul seines were useless (Tulian 1920). Shrimpers across the Gulf and South Atlantic began using the new technology in droves. By the end of 1916 there were 50 boats using the otter trawl along the North Carolina coast (Kelly and Kelly 1993). In Louisiana the otter trawl was introduced in 1917, and in three years there were 250 trawlers plying the waters (Tulian 1920). There is no reason to doubt South Carolina boats adopted the otter trawl just as quickly.

Engines were essential to the success of the new otter trawl. The gasoline engine was developed in Germany in the 1890s, and use of this technology for marine engines had reached

Florida by 1917 (Johnson & Lindner 1934:8). It was not until the 1920s, however, that gasoline engines were adopted by Beaufortonians for use in shrimp trawling in South Carolina (Wilson 1995). The early engines were eight and twelve horsepower gasoline engines (Lord 1971:14). Another source states that, starting around 1915, there were one cylinder “make and break” ignition two-cycle engines. Two cylinder and four cylinder engines were used later. Eventually a hybrid engine, called a “spark diesel” was used. These 50 hp engines started on gasoline, were warmed up, and then switched to diesel to run (McGiffin 1971:1). By the 1940s, full diesel engines were gaining in popularity. At one point, two shrimpers, one with a gasoline engine and the other with a diesel engine, challenged each other to see which was the most powerful. The diesel engine won the contest. The shrimper who had been clinging to the gasoline engine converted to diesel shortly afterward (Von Harten 1998).

The widespread conversion to diesel power was led, in part, by L.C. Burgman of Jacksonville, FL, who converted the Caterpillar engine to marine use and founded Diesel Engine Sales. Two popular Caterpillar models were the D-8800, 77 hp, and the D-13000, 115 hp. Other common engine makes were Atlas, General Motors, Cummins, Buda, Enterprise, and Lathrop (Lord 1971:13-14). Diesel engines remained the standard for shrimp boats in South Carolina until boatbuilding and outfitting activity declined. Larger trawlers continue to use diesel power, but smaller, gasoline-powered trawlers with outboard engines are still in operation.

Other Equipment

Artifacts associated with the shrimping industry likely to remain in the archaeological record:

- Hull, wooden or steel
- Single rig trawl blocks (ca. 1915-present)
- Double rig trawl blocks (ca. 1955-present)
- Winch
- Hoists
- Wire rope
- Shackles
- Chains
- Chain Reefer boxes
- Freezers
- Coolers
- Wire baskets
- Trawl door hardware
- Pumps
- Gasoline engine (ca. 1915-present)
- Diesel engine (ca. 1945-present)
- Gears
- Bearings
- Marine battery
- Anchor
- Anchor windlass
- Nylon netting
- Corklines (for hanging nets) of nylon, polypropylene, and other synthetics
- Stainless steel net hanging cables, snapper cables, long lines, trolling lines, leader cable, boat rigging
- Net hardware

Artifacts likely to have decomposed:

- Haul seines and cast nets (ca. 1880-present)
- Wooden barrels (ca. 1880-1950?)
- Wooden plank boxes (ca. 1940-1960)
- Wooden panel boxes (ca. 1960-present)
- Wooden trawl doors
- Bunks
- Twine
- Ropes (Lazy line)
- Wood lazy line poles
- Marine recording paper

The Crab Industry

The Port Royal Sound area played a major role in the development of the US crab fishery just prior to the Second World War. The nation's first successful commercial crab cannery - and one of the largest - was Blue Channel Corporation, located first at Factory Creek on Lady's Island, and later in the town of Port Royal. The company was so well known - and so picturesque - that it was featured in a 1950 *Saturday Evening Post* article, upon which most of this section is based (Adams 1950). By the 1960s, Blue Channel had some competition from Coastal Seafood, owned by the Lubkin family, when Coastal switched their focus from oyster to crab processing. But until the 1980s, Blue Channel remained the top crab processor in the county -- and one of the largest in the country.

History

Commercial canning of crab meat was made possible in 1936 when Dr. Carl R. Fellers, head of Food Technology at University of Massachusetts, took out a patent on an aluminum-sulfate dip that left crab meat white - and its taste intact. During standard canning procedures, the copper in crabs caused their meat to turn blue. The blue meat was safe to eat but not appealing to the public, and thus its value in the marketplace was diminished. Bleaches had been tested, but destroyed the crab's delicate flavor. Fellers' dip marked a revolution in processing which was perfected at a Maryland laboratory that belonged to entrepreneur Sterling Harris.

Harris had the solution to the canning problem at last, but was facing the problem of depletions in crab populations caused by overfishing in Maryland. In 1930 the Chesapeake catch was 69,000,000 pounds. By 1936 it had declined to only 43,668,000 pounds. Harris needed to find new crabbing grounds to make his dream of setting up a major crab cannery come true. He tested the waters of the South Atlantic until he reached the Beaufort area. There he procured a full bushel of crabs within an hour, and he knew he had found his place. An added enticement was the fact that labor in Beaufort was "plentiful and reasonable," so Harris rented the Roberts Building, across the river from Beaufort, installed vacuum-sealing machines, hired crabbers, and took on a handful of plant employees, and so began the Blue Channel Corporation.

Blue Channel shipped out nearly 500 pounds of crab meat in 1937 -- its first year of operation. Production increased and the company moved to newer, larger quarters in the town of Port Royal around 1940. By 1949, 150 workers were producing 300,000 pounds of canned meat at the factory, and 200 small craft, each with two or three workers, plied the waters on behalf of Blue Channel. Crab fishermen were independent operators, but some relied on company assistance to help them purchase a boat and equipment to start up with. Five company-run boats covered a huge area from 50 miles north, near Charleston, and south to Savannah.

By the 1960s most crabbers had acquired pick-up trucks and were subsequently liberated from daily negotiations with company-run boats. At this time Coastal Seafood, based on St. Helena Island, began to purchase crabs for picking and pasteurization. Fishermen who in the past might have sold only to Blue Channel now patronized whichever company was offering the best prices for crabs (Von Harten 1998). A few small crabbing operations, such as that of the Gault family, cropped up on Lady's Island in the 1970s. The Gaults eventually began to produce a high-value product, soft shell crabs. Coastal Seafood also operated a soft-shell crab operation on Cane Island in the late 1980s. W. H. Gay Seafood Company in Port Royal, located where Blue Channel's factories once thrived, also boasts a large soft shell crab production facility. Because of threats to the livelihood of crab fishermen, a Crabbers Association has been formed and is a vocal advocate for the seafood industry.

Harvest and processing

In the 1950s it was typical to have a crew of two or three on a small boat. Usually there was a man accompanied by another man, or a boy, or at times a woman. Those who did not live next to water would ride to their boat in an ox cart (Adams 1950; W. Lubkin 1995). Crabbers did not have to go to the cannery in this era to sell their catch. Instead, the crab companies operated run boats that delivered bait and picked up live crabs from the fishermen in their home waters. The run boats went to Dataw, Warsaw, Polawana, Edding, Albergottie, Combahee Bank, Ashepoo River mouth, Popo and Egg Bank. Crabbers went as far up as mouths of clear, fresh water streams (Adams 1950). A run boat would deliver bait, which was sold by the pound, in the morning. Crabs and bait were kept in wooden barrels, according to photos. To "bait up," the crew would use an eighth-inch cord with loops tied into it every two and a half feet. One crew member would tie a rind into each loop. The oarsman attached the end of line to a buoy made of a biscuit tin, "with anchor below." He rowed while the other crewman paid out the line. After 1/3 mile, a second buoy was anchored. When it was all laid out, 700 bacon strips (or pieces of sting ray, or ox ears) were stretched through the water as bait for the crabs.

Picking up the crabs was called "stripping the trot." To take the crabs off the line, the crewman would lift up the line. As the bait came into view, he would dip the crabs up with a net and shake it into a container. In most cases the net was not made of fiber but of metal. The Adams account says a net was "made from a chinaberry fork with five cents' worth of chicken wire forming the sack," and that only amateurs used those made of cord. Crabs clung to the fiber too tightly, whereas they would drop from wire with one shake. The "netter" was sometimes quick enough to catch crabs that let go when exposed to air. The catch rate while "stripping the trot" was around 30 crabs per minute. Not all local crabbers relied on trot lines and they became obsolete by the 1960s. As of 1953, trawling for crabs was permitted in Port Royal and St. Helena Sounds from December to March (Farmer et al. 1977). And by the late 1950s a new device was used that forever changed the crabbing industry: metal crab traps.

After a day of catching crabs, the runboat would return to pick up a catch by the end of the day. Fishermen were paid by the pound. By the evening the run boat would return to the plant with crabs. The daily goal was to obtain 5,000 crabs, but in one year during the peak season a day's harvest totaled 10,000 pounds - more than 25,000 crabs. Many plants started picking around 11:00 P.M. and the majority of the workers were African-Americans of various ages. The crabs were steamed, then the women picked them while seated on high stools at long tables. Some had family members who worked the water or in the plant, so a family could make a decent wage of \$75 per week (Farmer et al. 1977).

Boats and Equipment

The Blue Channel Corporation's "run boat" was called *Mary*. This craft was a surplus tug from the Army. She was "Potbellied, blunt-snouted, shallow-drafted, stripped down to essentials . . ." The fishermen typically used a bateau as their work platform. One was described as "twelve foot; cypress planking caulked with odd bits of cloth, sparsely painted." Oars were "a pair of peeled saplings to which flat slabs of wood had been wired for blades" (Adams 1950).

Artifacts associated with the crabbing industry likely to remain in the archaeological record:

- Metal oil drums
- Tail buoy at end of trot line

Artifacts likely to have decomposed:

- Trot lines
- Wooden barrels
- Non-anoded steel crab pots. Crab pots could be destroyed by storms, turbulence from boat traffic, mechanical damage, and rough handling, but most frequent loss was due to corrosion. Half a year maximum; unless sacrificial zinc anode bar attached to pot to retard corrosion.
- Store bought oars
- Hand hewn oars

Finfish and other Seafood Industries

Finfishing in Port Royal Sound from the colonial period to the early twentieth century was primarily destined for the fishermen's table. Drum fishing occurred in the Broad River in the early 1800s, and some men sold drum meat and roe as it was the only fish with a market value in Beaufort. Mullet and trout were also caught (Jones 1960:148; Rosengarten 1986:130). Antebellum fishermen also sank wooden arbors in the sound at spots known to themselves to attract barnacles and oysters which in turn attracted sheepshead. They also fished for other gamefish such as, whiting and blackfish which were taken by hook and line. They also supplemented their diet with gathered turtle eggs, and slaves were sent to rake for oysters and clams, and shrimped with seine nets (Rosengarten 1986:131). Men of leisure in the 1840s also fished for the devil fish, now known as the manta ray, by harpoon with a small boat equipped with a sail. The rays' livers were used agricultural purposes and the body used for fertilizer (Jones 1960:173).

There is little record of early commercial finfishing activity in the Port Royal Sound area. Late nineteenth century accounts mention wharves in Charleston where fish were kept alive in partially submerged wooden cages called "cars" (Fleetwood 1995:182) but there are no references of this type of activity in Beaufort. Companies in nearby Savannah entered the finfish distribution business around 1875. Within 50 years the city had become a major center of finfish distribution, with the 1920s being particularly prosperous years. The Port Royal Sound area was likely connected with these enterprises. During the 1920s fish were shipped from Savannah to New York and Philadelphia, where they were "considered the very best in quality" (Savannah Electric and Power Company 1925). Finfish byproducts were also not big business for South Carolina, either. North Carolina, Georgia, and Florida produced fish oils in the 1920s, but South Carolina businesses apparently were not engaged in this type of endeavor (Radcliffe 1926). As of 1925, fishing boats operated 40 miles off the coast of Savannah, and presumably off of Port Royal Sound as well. They ventured as far south as West Palm Beach, Florida. Red snapper, blackfish and grouper were caught by "large vessels, locally owned and operated" (Savannah Electric and Power Company 1925).

In 1936 Wallace M. Quinn of Quinn Menhaden Fisheries attempted to set up a menhaden plant on the Beaufort River. The operation was to be located at the site of the old Baldwin Mine between Beaufort and Port Royal. Oil was to be pressed for shipment to soapmakers and scrap was to be converted to fertilizer. The fate of the plant, however, is unknown (*Beaufort Gazette* 1936).

While fish oil enterprises were not documented for Beaufort, there was a mussel oil production facility. Neils Christensen operated out of the Roberts site at Factory Creek on Lady's Island. At the time the mussel population had not been destroyed and the shellfish were plentiful. Christensen paid local watermen to harvest the mussels. They were steamed and opened at the Lady's Island plant, then frozen solid in blocks for transport. The oils were used to add nutrients to soldiers' rations during the Second World War, and later were used for industrial purposes (Christensen 1998).

In the 1950s Blue Channel Corporation attempted to set up a tuna canning facility. The boats captured tuna off of the Pacific Coast of South America. The tuna was frozen on board and then deposited at Blue Channel's third site at what is now the Air Station. This enterprise was cut short when the government recommissioned the area as a Marine Corps Air Station (Waskiewicz 1995).

Wharves, packing houses & canneries in the Port Royal Sound project area

Sites are listed in rough chronological order according to the first occupation by seafood industries. Sources used to compile this list include Fleetwood 1995; Burn 1991, the State Board of Health Exports and an early Oyster Commissioner's Report (both on file at office of W. Keith, DNR, Ft. Johnson), Personal Accounts, *Beaufort Gazette*, and oral interviews.

Maggioni & Company Cannery, 1903-1917; Vecchio-Anderson-Kelly shrimp fleet docks 1924-?; Port Royal shrimp docks (Port Royal Sound, Port Royal Island). A comparison of the 1905 and 1912 Sanborn Insurance Company maps shows that the Maggioni oyster cannery was growing in the intervening years. Two new buildings were erected on the factory's north end, and two new steam boxes were added near the wharf. The first shrimp packing house documented in South Carolina was established here at Port Royal in 1924 (Wilson 1995); Wilson corrects McTeer, who wrote that the date was 1926 (McTeer 1972). The packing house, which was probably at the site of the Maggioni & Company wharves and cannery that relocated to Lady's Island, was shared by two sets of operators. Charlie Vecchio occupied the west side, and two men from Fernandina, Anderson and Kelly, had operations on the east side of the building (Wilson 1995). Two natives of Portugal, Manuel Santos and Leon Almeida, operated fleets out of Port Royal soon afterward (Lord 1971: 10). This site has been disturbed by the construction and expansion of the SC Ports Authority facilities (Figure 4.4).



Figure 4.4. Port Royal shrimp dock in the 1940s. (Courtesy of Laura Von Harten)

Hunt Cannery ca. 1895 - ca. 1917 ; Maggioni & Company Cannery 1917-1986 (Factory Creek, Lady's Island). This was the largest oyster cannery in South Carolina.

When it closed its doors in 1986, it was the only oyster steam cannery left in the state. This site has been demolished to make way for a 1990s residential housing subdivision.

Maggioni & Company ca. 1920-1930; 1936-1940 (Lucy Creek, Lady's Island).

Also known as Sams Point cannery which was located at the junction of Lucy Point Creek and the Coosaw River. The factory was closed around 1930 when the Depression caused a slump in the market for oysters. The factory was renovated in 1936 using equipment from the St. Helena Island cannery at Tom Fripp Plantation. After the plant reopened it also served as a major shrimp processing wharf. One hundred men or boys worked as crew on the 25 shrimp boats, and 100 more were employed at the docks. An additional 100 males were employed to gather oysters for this plant during the oyster season, and 200 men and women worked in the processing of oysters. The wharf measured 35 x 200 feet. The packing room was 35 x 65 feet. The factory was heavily damaged in the Hurricane of 1940 and was not repaired. This site was covered over when the bridge from Lady's Island to Coosaw Island was built.

Davenport-Brooks Company. In 1928 the Davenport-Brooks Corporation constructed a state-of-the-art shrimp wharf and cannery on the Beaufort River between Port Royal and Beaufort, in an area called Spanish Point. Twenty boats were based at the dock, which was connected by a railroad line to the Charleston and Western Carolina Railroad. At that time Davenport-Brooks was the largest shrimp canning corporation in the world; they claimed to be responsible for 65 percent of the global canned shrimp production (*Beaufort Gazette* 1928a; *Beaufort Gazette* 1928b).

Broad River Packing ?-1933 (Broad River). Oyster production.

Cesaroni Shrimp Docks ca. 1937-? (Lucy Creek, Lady's Island). Next to the Maggioni & Company cannery. Paul Cesaroni managed the shrimp canneries for Maggioni & Company. When his contract expired in 1937 he went into the shrimp business for himself. He had two boats constructed in Thunderbolt, the *Miss Angelina* and the *G. Phillip Maggioni*.

Capt. William Roberts Building 1926-ca. 1936; South Carolina Sea Foods 1936 to ca.-1937; Blue Channel Site Number 1 1938-1940; Neils Christensen mussel processing 1940-1947; Von Harten Seafood 1947-1988 (Factory Creek, Lady's Island). Capt. Roberts built a garage structure and operated a landing, repair shop, store, and gas station on Factory Creek from 1926 to around 1936. The services met the needs of increased intercoastal waterway traffic, and also served the motorists crossing the newly erected bridge from Beaufort. This was a site of boat repair for early shrimpers. In 1937 the building was converted for use by the South Carolina Sea Foods Corporation, whose mission was to encourage "the scientific development of the shellfish industry." The oyster and crab canning facility had a capacity of 3,600 cans per hour. A one story extension, to the Roberts building, 120 feet long by 30 feet wide, survived until the 1970s. A 20-foot oyster shucking house was also added. Sterling Harris rented the building from 1938 to 1940. His Blue Channel Company canned crabs for the most part, but they dealt with oysters as well.

Around 1940 the garage was rented as quarters for Tidewater Construction as they built the bridges to Hunting and Harbor Islands (Von Harten 1995). During the Second World War, Neils Christensen used the facility for his mussel oil production enterprise. In 1946 Capt. Geech Von Harten and Ezra Shipman initiated use of the site for Von Harten & Shipman Sea Food Company. Mutual Shrimp Company, based in St. Augustine, Florida, shared the dock (Skinner 1995; Kelly 1998; Von Harten 1998). The dock was constructed of palmetto logs that, according to some accounts, were floated up from a logging site in Florida (Skinner 1995; Kelly 1998). Oyster shells were used as fill to build a causeway leading down to a dock (Von Harten 1995). Finfish, oysters, and shrimp were unloaded and processed at the site. In addition to the activities at Von

Harten/Shipman and Mutual, Richard Politzer and Bob McDowell experimented with a shrimp pasteurization process in a building on the site during the late 1940s or early 1950s (Von Harten 1998). The site was dormant for seafood industry use from 1956 through 1965 during the Pink Gold Rush in Florida (Von Harten 1998). Use of the site for shrimping and finfishing activities resumed in 1965 and continued until the late 1980s. The remains of the *G. Phillip Maggioni*, as well as several other boats and cars, lie beneath the soil near the shore of this site.

SC State Oyster Hatchery (Whale Branch, Coosaw River). 1937.

Blue Channel Site Number 2, Port Royal, SC.

Paul Cesaroni's docks (On Lady's Island, at Lucy Creek, 1937-?). A wharf and building remain to the left of the bridge leading to Coosaw Island and was situated next to the Maggioni Lucy Creek Cannery, which was covered when bridge constructed (Maggioni 1996). Others say this dock was Alvin Dickey's (Randall 1998).

Maggioni & Company (Lucy Creek, Lady's Island). This site was used for the oyster industry and also used by the Maggioni shrimping fleets in the 1930s.

Joe Sola's docks. Beaufort waterfront, at site of MacDonald-Wilkins wharf.

Gulf Oil docks (Beaufort waterfront, 1933-1960). Boats would fuel up here; some would tie up here as well (*Beaufort Gazette* 1933a)

Silver Fish Company. Operated by Jimmy Hoffman at the Beaufort waterfront. Between Gulf Oil Dock and the Savannah dock, behind what is now Harry's Restaurant/Saltus House area. Retail operations at Saltus House and at Verdier House.

Mutual Fish Company Site 2. On Factory Creek, between Roberts Site/Maggioni site.

Blue Channel Site #3 (Port Royal Island, area now used as MCAS, 1950s) Shrimp breeding; use of trawlers not certain. Closed when military recommissioned base (Waskiewicz 1995).

Joe Mulligan's Boatyard/Beaufort Industrial Marine Boatyard. Behind Joe Mulligan's house on Lady's Island, next to the Capt. William Roberts/Von Harten Seafood Site.

Stan Lawson's Boatyard. On Lady's Island, at Wilkins, on Lucy Creek. Site of a former railway.

Bailey oystering operations (Lemon Island).

Beaufort County Seafood Industry Timeline

1889 Earthquake shakes the Lowcountry

1893 Major hurricane; phosphate industry is declining; oystering about to boom

1911 Major hurricane; phosphate industry all but gone; cotton soon to be consumed by boll weevil; truck farming becomes major industry.

1920s Major population shifts: Large numbers of African Americans relocate away from the area

as a result of federal hydroelectric projects in other parts of the state; many native African Americans migrate to northern cities; large numbers of Euro Americans migrate into area, and real estate sales boom, shrimp industry begins.

1926 Wooden bridge spanning Beaufort and Lady's Island is built.

1930s Shrimping season established, laws enforced more strictly. Board of Fisheries does not suffer losses in depression because of substantial income from oyster leases. Boats have to be numbered. Crab industry begins. Bridges built to Harbor, Hunting, and Parris Islands late in decade.

1940 Hurricane causes damage to commercial fishing boats in Beaufort area.

1950 Pink shrimp are caught in waters off Key West. South Carolina shrimpers migrate south.

1950s Beaufort to Ladies Island bridge is replaced

1959 Hurricane Gracie

1960 Direct route to Savannah is established by building of Broad River Bridge

1960s Beaufort-Jasper Water and Sewer Authority allows dramatic increase in population density in the Sea Islands

Chapter 5: Previous Archaeological Research

Three forces have driven previous archaeological exploration of intertidal and submerged cultural resources in Port Royal Sound: development, research, and collectors. The two most persistent agents affecting the discovery of archaeological sites in the project area are by contract archaeologists and collectors. Research-driven archaeology has also played a significant, albeit limited role in documenting archaeological sites in Beaufort County. The 64 previously recorded archaeological sites located within the bounds of our project area have been recorded by contract archaeologists, collectors, and researchers. One exception occurred during dredging operations in Port Royal Sound when the U.S. Army Corps of Engineers struck the No Name Wreck (38BU122) and subsequently reported the wreck to SCIAA. However cultural resources may be reported, archaeological work in Beaufort County has centered primarily on terrestrial archaeological pursuits, with very limited resources expended on underwater archaeological investigations in the region. For the most part, the bottom lands of Port Royal Sound are a virtual "sub-terra incognita" in regards to submerged cultural resources.

Contract Archaeology

The field of contract archaeology is a commercially motivated enterprise created in response to federal and state cultural resource management legislation designed to preserve the archaeological record from destruction by development projects. On those projects relying on federal monies or that may impact federal properties, mitigation or the study of any potential adverse impacts on cultural or natural resources, is required prior to land disturbance. For example, development of a federal property such as the Marine Corps Recruit Depot on Parris Island or the Marine Corps Air Station requires the completion of an archaeological survey prior to construction. The enabling act for federal properties is the National Historic Preservation Act, specifically Section 106, which mandates cultural resource surveys. In South Carolina, applicable laws and cooperative agreements govern cultural resource oversight to protect the state's heritage such as the S.C. Coastal Zone Management Act, the Beaufort County Historical Impact Assessment Ordinance, the Hilton Head Ordinance (90-16), and the S.C. Underwater Antiquities Act. The two state agencies responsible for cultural resource oversight are the State Historic Preservation Office (SHPO) and SCIAA. By law SCIAA maintains the state's archaeological site files and the database of archaeological reports, while the SHPO administers the National Historic Preservation Act for the state and historic standing structures in the public interest.

When a decision to begin a development project has been made the protocol is for a contract archaeology firm specializing in these kind of surveys to be hired to conduct the survey. After completing the survey, the firm prepares a report describing any sites encountered during the survey, among other information pertinent to the intended construction project. In Beaufort County, for the most part, development centers on land construction, and hence the contract archaeologists' focus is on locating terrestrial archaeological resources. Contract archaeology, therefore, has played a minor role in locating intertidal archaeological sites, usually limited to where the land meets the marsh fringe, and not beyond to the interface of marsh and water. From our research perspective, many of the intertidal sites found during the survey are anticipated to be connected to a terrestrial archaeological site. Therefore, review of contract archaeological reports provide one research avenue to assist in linking and interpreting intertidal and submerged cultural resources located during the survey, such as the purpose of piers, wharves, or landings, etc., with a previously documented terrestrial site.

A terrestrial archaeological investigation in 1974 occurred prior to construction of

the Port Royal Island and Ladies Island Connector (Bianchi 1974). Archaeologists from SCIAA examined the right of way of the bridge terminus's on either island. On the Port Royal Island side of the bridge, archaeologists located the remains of a nineteenth or early twentieth century brick factory (38BU109). Whole and broken bricks littered the area (Bianchi 1974). Presently, the terrestrial feature is buried under the bridge.

Mitigation prior to planned submerged bottom land disturbances is also mandated by federal and state laws. For example, if the U.S. Army Corps of Engineers were to widen or deepen the Port Royal Sound channel by dredging, a survey must be conducted prior to impacting the channel. In this case, a firm specializing in underwater archaeological surveying would be hired to locate sites and prepare a report. To date, there have been no contract underwater archaeological surveys undertaken in Port Royal Sound. There have been a couple of contract archaeological projects, however, just outside our survey's boundaries, in Hilton Head Island and on the Colleton River. Both of these projects were conducted by the SCIAA under two state contracts (Wright 1977; Beard 1989).

In 1976, SCIAA staff investigated portions of the Colleton River at Victoria Bluff prior to planned construction for the Chicago Bridge and Iron Company. A high potential to adversely impact submerged cultural resources existed due to the intended dredging operations and pier construction for a docking facility at the base of the bluff. Several known terrestrial prehistoric sites situated interior of the bluff, and one historic site eroding into the river, created a high probability of locating underwater cultural materials associated with the land components. Parameters of the survey ran along the shoreline of the bluff and out to the 40 ft. contour underwater to form a 20 ft. wide by 2,000 ft. long survey corridor. Divers encountered only isolated cultural materials, that is, two bricks and an iron pick, during the underwater survey. Pedestrian visual investigation along the beach of the bluff revealed several sherds of fiber-tempered pottery dating around 4,150 to 3,450 years B.P. Due to a lack of any significant underwater archaeological sites the area was cleared for construction (Wright 1977). Plans to build at the site and impact bottom lands, however, were abandoned and none of the proposed work was implemented, although subsequent residential housing has impacted terrestrial features.

Another contract project occurred in 1989 when SCIAA underwater archaeologists undertook a survey of Broad Creek, at Opossum Point, in the interior of Hilton Head Island to mitigate a bridge crossing for the Cross Island Expressway. The survey corridor was 24 m wide and 337.8 m long. The western end of the corridor terminated within the confines of the historic eighteenth to nineteenth century Wells (Wills) Plantation. Potential archaeological sites associated with the plantation included a wharf or landing, sunken watercraft, and discard areas. Project archaeologists, however, discovered no archaeological materials and the bridge was cleared for construction (Beard 1989).

Research Archaeology

Academic research in Port Royal Sound by archaeologists has centered on understanding prehistoric and historic usage of the sound. For the most part, these investigations have centered on archaeological sites along the shoreline of the sound. A project similar to this current one was undertaken in 1979. The main focus of the previous project, however, centered on studying prehistoric usage of the sound (Michie 1980). Historical archaeological investigations have occurred since 1976 at the sixteenth century Spanish occupation site of Santa Elena (38BU162), on Parris Island situated on Mean's

Creek. Recently, the remains of Charlesfort have been identified underneath the remnants of Fort San Felipe (DePratter et al. 1996).

SCIAA archaeologist James Michie completed an intensive terrestrial and intertidal survey of Port Royal Sound funded by a historic preservation grant administered by the S.C. Department of Archives and History in 1979 (Michie 1980). Research goals centered primarily on understanding prehistoric occupation and usage of the sound, although historic cultural materials were noted. Archaeologists conducted a pedestrian visual survey to record and evaluate archaeological sites and their preservation along the shoreline. Artifact collections by local collectors were also reviewed by Michie. The survey boundary started at the headwaters of the Broad River and continued to the entrance of the Sound and up to Port Royal on the Beaufort River. Prior to the 1979 survey, Michie, accompanied by collectors, had visited various sites in the project area in 1968 and 1974. More than 100 archaeological sites from prehistoric to historic times were recorded during the course of the 1979 survey. Of the 31 sites documented in 1979 that fall within our project boundary, there were 13 prehistoric sites, 2 historic sites, and 16 mixed prehistoric and historic component sites. The prehistoric sites span from the earliest occupation of the region through to the contact period. Historic sites dated from the 1700s to more recent times, although two sites yielded several sixteenth-century ceramic sherds of Spanish origin. No historic maritime remnants were mentioned, that is, pilings, landings, or remains of watercraft, in the survey report.

Over the course of 17 years of fieldwork and analysis, SCIAA archaeologist Stanley South, and joined by Chester DePratter in the late 1980s, have been unveiling many facets of sixteenth century Spanish and French activities on and around Parris Island. Material extracted from the terrestrial site has revealed the layout of Santa Elena, construction patterns, daily life, subsistence, and class stratification at the town. Recently, DePratter and South discovered the remains of Charlesfort under the remnants of Fort San Marcos (DePratter et al. 1996). Inhabited during two separate occupations, from 1566 to 1576, and from 1577 to 1587, along Mean's Creek on the southern periphery of the island, the town's alignment of houses and forts, roads, and vineyards is slowly beginning to emerge. Analysis of the spatial layout of the town suggests the Spanish settlement was apparently elliptical shaped, over a thousand feet long, and areally occupied 15 acres (DePratter and South 1995). Preliminary research of archival material indicates there are numerous constructs relating to sea-defenses, the anchorage, a wharf, shipwreck, and other loci of sixteenth-century maritime activity in the sound. The exact location of the two forts and their relationship to the town provide the necessary physical setting to reconstruct where various maritime activities occurred at the occupation site and elsewhere in the sound.

In 1989, DePratter and South organized a brief project in conjunction with the Underwater Archaeology Division to locate Charlesfort and a sixteenth century French shipwreck, *Le Prince*. Underwater archaeologists, assisted by Judith Woods of the U.S. Army Corps of Engineers, Savannah District, undertook a limited magnetometer survey off Parris Island. One transect was run from the Parris Island marina to the upper reaches of the north branch of Mean's Creek. Two search areas, one in the north branch of Mean's Creek and the other off Parris Island in the Beaufort River, detected magnetic anomalies. Ground-truthing by archaeologists in Mean's Creek revealed a substantial amount of military byproducts, mostly remnants of flares. The magnetic anomalies in the Beaufort River search area await future ground-truthing operations (Thompson 1990). The brief magnetometer survey did confirm one fact of remote sensing in a commercial waterway, especially one adjacent to a military base--an abundance of magnetic hits, no doubt due in

part to military byproducts from Marine recruit training exercises.

Collectors

While professional scrutiny of the sound's submerged cultural resources have been limited, sport divers, under the auspices of the hobby diving license program, have been quite active in diving certain locations in the sound. Seven out of ten previously recorded sites, including submerged archaeological scatter sites or remains of watercraft in the project area, were reported to the SCIAA by sport divers. The contribution of sport divers in locating archaeological resources is discussed more fully in Chapter 8.

Watercraft and Submerged Archaeological Sites in Project Area

A total of 64 previously recorded intertidal and submerged archaeological sites are located within the boundaries of the survey. Of these sites, 17 are prehistoric sites, 23 are historic, and the remainder, or 24 sites, are mixed assemblages of prehistoric and historic materials. Watercraft remains and historic artifact scatters account for 10 of the sites. Cultural materials from the prehistoric sites include shell middens or rings, lithics, that is, points and other tools, ceramics, and a canoe. These cultural remnants range in date from the paleoindian period through to the contact period. Historic sites include plantations, fortifications, and scatters of cultural materials, for example, bricks, ceramics, and glass.

The remainder of the chapter discusses the ten intertidal or submerged archaeological sites that are composed of watercraft remains and historic scatters. This section also serves to reveal a glimpse of the archaeological potential of the sound. Additionally, these sites provide an environmental perspective, especially in regards to site preservation, from which to gauge the condition of presently unknown archaeological sites in the sound. The ten sites are equally divided between five watercraft remains and five historic scatter sites. Two of the watercraft sites are canoes. One is a prehistoric canoe (38BU103) and the other (38BU57) is a historic canoe. The historic canoe, however, was recovered from the marsh by the SCIAA in 1970. The remaining three watercraft sites date from the late nineteenth to early twentieth century. For the most part, the scatter sites are offshore of known historical or archaeological sites, and most likely consist of material discarded into the river during the working life of the site. The primary cultural materials at these historic scatter sites consist of various types of bottles and ceramics from colonial to present times. Only two of the sites have been investigated by the SCIAA, while the remainder were reported, mainly by sport divers, to the SCIAA with no follow-up examinations.

Watercraft Remains

38BU57-Hemmings/Boyer Historic Canoe

An historic canoe was found in the marsh on the Beaufort River side of Lady's Island approximately a quarter of a mile downriver from the Highway 21 bridge. The east end of the canoe protruded from an oyster-shell-laden mud bank and spartina grass marsh. The wreck was exposed during low tide and identified by a local resident and brought to the attention of the SCIAA in 1970 (Figure 5.1).

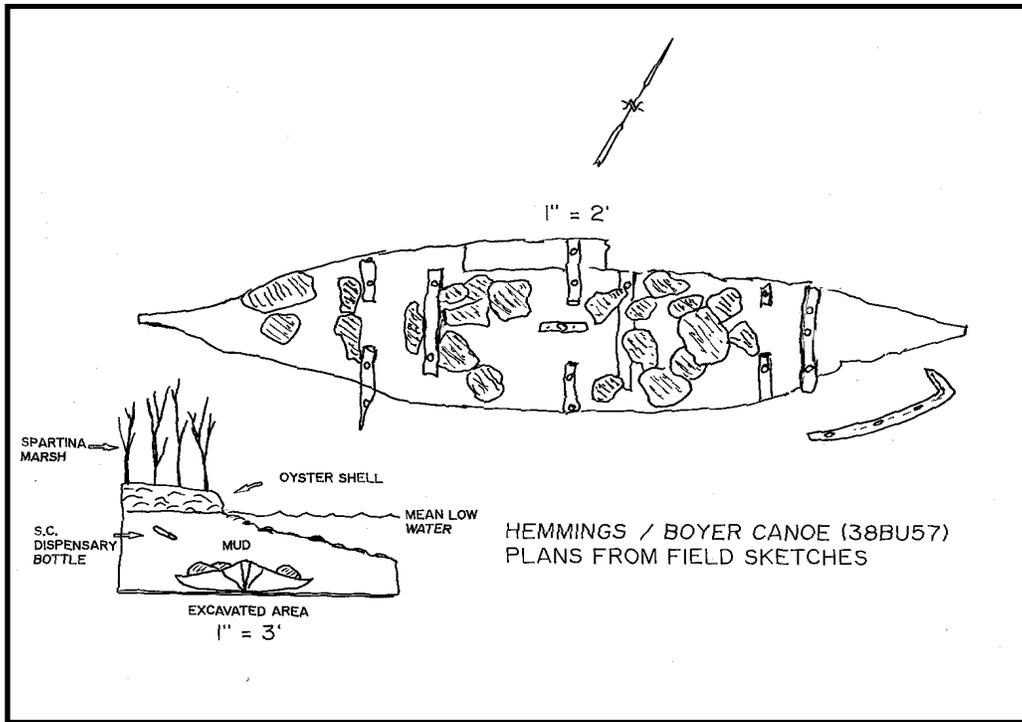


Figure 5.1. Plan view of the Hemmings/Boyer Canoe (38BU57) from Field Sketches. (SCIAA)

Upon investigation by SCIAA archaeologists, the canoe was found to consist of a preserved lower hull of a wooden canoe along with associated fragments. The lower portion of the canoe was fashioned from a log and then built up with planks by means of frames of which six were present. A small wooden block perpendicular to the frames appears to have been a mast step. A disarticulated wooden fragment on the southeast side of the canoe might have been a portion of the gunwale. The west end, which was buried in the mud, still retained evidence of the cutwater. The upper portions of the east end were eroded, but the lower portion of the cutwater was preserved. The similarity between the two ends suggests that the canoe was a double-ender with a sharp stem and stern (Figure 5.2). The canoe dates to colonial times and was of the dug-out variety. The size of the canoe suggests that it was average sized for the times and was paddled or possibly rowed with two oars or paddles (Fleetwood 1995:42-3). The presence of a mast step suggests that the vessel could also be sailed if desired.



Figure 5.2. Wooden remains of the Hennings/ Boyer Canoe (38BU57). (SCIAA)

The overall extant length of the canoe was approximately 12 feet, 5 inches with a preserved beam of 3 feet and a depth of 1 foot. The longitudinal axis of the vessel was oriented northeast to southwest. The vessel was tilted downwards 4 inches from the higher west end down to the lower east end. Twenty-two cobbles, either ballast or purposefully placed to sink the vessel, were found in the canoe (Figure 5.3).

Six existing frames were spaced from east to west, on center at 2 feet, 4 inches; 3 feet, 1 inches; 5 feet, 3 inches; 6 feet, 1 inch; 8 feet, 3 inches; and 9 feet, 3 inches. Frames 2, 4, and 6 were composed of two separate pieces on either side of the centerline. Frames 1, 3, and 5 were fashioned from single pieces of wood. Each of the single piece frames had a limber hole, three-quarters of an inch wide, carved in the middle of their lower side to allow the passage of water in order to prevent pooling in one section of the canoe (Figure 5.4).

Frame 1 measured 27 1/2 inches in length, and a width of 2 1/2 inches, and at the throat, or center, 2 1/2 inches thick. Four treenail holes approximately three-quarters of an inch in diameter fastened the frame to the hull, two on either side of the limber hole. The two treenails on either side of the frame arm were spaced 7 inches apart on center from each other. Frame 2 consisted of two separate pieces spaced 8 1/2 inches apart from each other with a total athwart measurement of 25 1/2 inches.

The dimension of the north piece was 10 1/2 inches in length while the south piece

measured 6 1/2 inches in length. Each piece was 2 1/2 inches wide and 1 1/2 inches thick. Each also had one treenail hole spaced approximately 3 1/2 inches from the inboard butt end. Frame 3 measured 27 1/2 inches in length, 3 inches in width, and 1 1/2 inches thick. Two treenails, one on either side, were spaced 8 inches from the centerline.

Frame 4, like frame 2, consisted of two pieces spaced 12 inches apart with a combined athwart measurement of 3 feet.

The north piece measured 12 inches in length while the south piece was 11 1/2 inches in length. Two treenails on either frame section were spaced approximately 7 1/2 inches from each other. Frame 5 measured 22 inches in overall length, 3 1/2 inches in width, and 1 inch in thickness. Two treenails, spaced 9 inches apart, were situated on either side of the limber hole. Frame 6, like the other even numbered frames 2 and 4, was comprised of two separate athwart pieces spaced 6 inches apart. The combined frame assembly measured 3 feet in length. The north piece measured 18 inches in length and the south piece was 12 inches in length. The frame pieces were 1 1/2 inches wide and thick. Two treenails



Figure 5.3. Rocks in hull of the canoe (38BU57). (SCIAA)

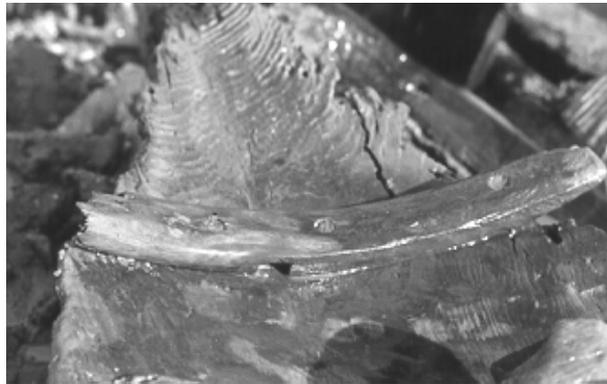


Figure 5.4. Frame of Hemmings/Boyer Canoe . Note limber hole at bottom of frame(38BU57). (SCIAA)

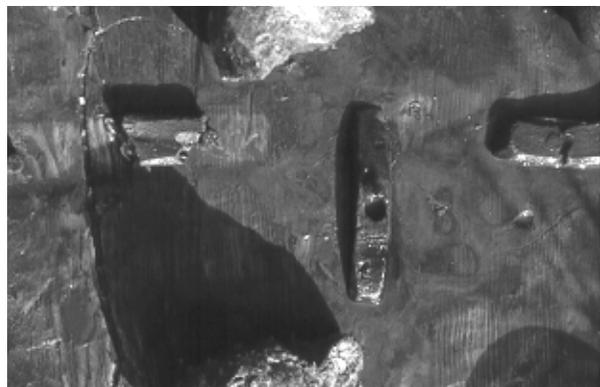


Figure 5.5. Mast step of the Hemmings/Boyer Canoe (38BU57). (SCIAA)

were located on either side and spaced approximately 8 inches apart.

A narrow longitudinal timber in between frame 4 and frame 5 was presumed to be a mast step (Figure 5.5). This piece was situated 6 feet, 3 inches on center from the east end of the canoe. The mast step consisted of a rectangular piece of wood measuring 9 inches in length and 2 1/2 inches in width. A hole, roughly 1 inch in diameter, was in the center of the piece, possibly to receive a small mast tenon. The piece was fastened with four square-headed wrought iron fasteners, two on either side of the hole and staggered to prevent splitting of the block.

A disarticulated piece of wooden structure was located on the southeastern periphery of the canoe. The timber measured 2 feet in length and was approximately 3 inches wide. The timber was characterized by a sharp bend on one end and a series of three rectangular mortises running the length of wooden piece. The original investigators posit that this timber was the gunwale, or uppermost portion of the built up section of the canoe.

Artifacts recovered from the canoe included a brown chert flake, 51 chips of marble, a small wood fragment, and two brick fragments. Intrusive finds included a South Carolina Dispensary bottle found in the sediment matrix above the canoe.

The canoe was recovered from the marsh along with associated fragments, including three planks presumed to be from the built up portion of the canoe and a section of the presumed gunwale, and brought to Columbia for conservation. The authors tracked down several key people instrumental in the recovery of the canoe to find out what happened to the canoe. Unfortunately, information obtained from these sources suggests that the canoe was lost in conservation. Fortunately, however, there are still black and white photos, color slides, and measured drawings and field notes, along with the recovered artifacts in curation at the SCIAA - - all that now remains of this historic canoe.

38BU103-Billy Partridge Canoe

A prehistoric canoe was reported to the SCIAA by Mr. Billy Partridge in 1973. The canoe rested on the southwest point of the marsh island at the confluence of the Beaufort River and Chowan Creek. The canoe measured 22 feet in length and was 28 inches in width. The sides and ends of the canoe were no longer extant. Twenty-one pieces of grit-tempered, cord-edged pottery recovered from the canoe by another individual were donated to the SCIAA for study. The collection of pot sherds suggests the canoe may be from the Woodland period. The site was no longer evident during our revisit in 1997.

38BU122-No Name Wreck

The No Name Wreck was reported in November 1975 by the U.S. Army Corps of Engineers. The wreck is located along the edge of the north side of the channel into Port Royal Sound. The Corps hit the wreck while dredging and then moved away from the site to avoid the vessel remains. No archaeological work has been done at the site since that time.

38 BU477-The 242 Site and Spanish Point Wreck

This site is comprised of two historic assemblages: a scatter and a shipwreck. Both of these sites were reported in the early 1980s during a SCIAA survey of hobby diving sites throughout the state. The 242 Site, named after a nearby channel marker in the Beaufort River, consists of a scatter of historic artifacts from the mid to late nineteenth and early twentieth centuries and dock pilings. The site environment inshore is comprised of a mud bank coated in oyster shell, and offshore, a bottom composition of sand and gravel. Most of the artifacts retrieved by local sport divers were found in the gravel area of the site. Maximum depth at the site is 20 feet. The site encompasses an area 25 feet wide by 117 feet long. The area was heavily collected by local divers who recovered bottles from the colonial era through the post-bellum period, including S.C. Dispensary bottles and various blob top bottles.

The Spanish Point Wreck is reportedly upside down, exposing a copper-sheathed bottom. One attempt was made by the SCIAA in the late 1980s to locate the wreck, but was unsuccessful in finding the vessel remains due to poor visibility. No archaeological investigations have since been conducted at the site.

38BU484-Whitie's Wreck, or the SS *Clifton*

The wreck is located on the Lady's Island side of the Beaufort River above Pigeon Point. The wreck is exposed at low water and is covered with silt, mud, and oyster shell. Reported to be 60 feet in length and 15 feet in width with only the bottom remaining the remains are composed of concrete and wood with brass fittings and the remains of a boiler. Water depth during high tide is 4 1/2 feet to 5 feet at the site. Sport divers at the time had spent a total of 36 hours collecting at the wreck and recovered brass and iron spikes and 6 inch by 6 inch square brass covers. The wreck has not been archaeologically recorded.

Underwater Historic Scatter Sites

38BU476-Tom's Site

Tom's Site consists of a scatter of historic artifacts from the late eighteenth and early nineteenth centuries, with the majority of artifacts recovered from the mid to late nineteenth century. The site is in the Beaufort River and is behind the Technical College of the Lowcountry. The river bottom consists of bricks, ballast stones, oyster, and gravel. Most of the artifacts were retrieved from the gravel area. The site extends out from a dock to approximately the center of the river where the maximum water depth is 20 feet. The informant who reported the site collected a brown salt glazed stoneware jug, mineral water bottles, one blown glass bottle, late eighteenth and early nineteenth century bottles, S.C. Dispensary bottles, medicine bottles, blob top bottles, and nineteenth century food jars.

38BU478-Fort Frederick Offshore Site

The site is located offshore of Fort Frederick which is on the grounds of the Naval Hospital. The site is roughly 300 feet long by 150 to 225 feet wide in the Beaufort River. A maximum water depth at the site is 20 feet, which starts from the shoreline and continues out to the river channel. The bottom consists of gravel and sand. A random scattering of late nineteenth and early twentieth century artifacts comprise the site. The site has been

heavily collected by Beaufort area divers. The two sport divers who reported the site had spent a total of 30 hours collecting artifacts from the bottom.

38BU479-Beaufort Waterfront Park Site

The site is located along the seawall of the Waterfront Park at the city of Beaufort on the Beaufort River. The site consists of a random scattering of artifacts from the eighteenth to twentieth centuries. Bottom conditions at the site consists of sand and hard marl-like sediments. The site extends from the seawall about one-third of the way into the river and is approximately 1,200 yards long by 100 yards wide. Artifacts retrieved by the two divers who reported the site spent approximately 60 to 70 hours collecting at the site. Artifacts retrieved from the site included one modern-type stoneware jug with a two tone brown and white glaze, nine bottles from the 1730s to the 1790s, a S.C. Dispensary bottle, and an assortment of ginger beer, medicine, and blob top soda bottles. The site is intensively collected by local sport divers.

38BU480-Brickyard Point Landing Site

The site is located off the boat landing in Brickyard Creek. The site encompasses an area 50 feet by 25 feet and extends about a third of the way out into the river from the landing. Maximum water depth at the site is 15 feet. Artifacts recovered from the site include two stoneware jugs of uncertain age, Civil War green glass bottles, and one food jar.

38BU338/482-Port Royal Site

The site is located in front of the shrimp docks at Port Royal in Battery Creek. The depth at the site is 36 ft. Recovered materials from the site date from the eighteenth and nineteenth centuries.

Chapter 6: Survey Methodology and Results

Port Royal Sound was chosen to inaugurate the Underwater Archaeology Division's comprehensive submerged cultural survey due to the region's potential archaeological wealth of sites consisting of prehistoric dug-out canoes, landings, and historic watercraft from the early contact period to the present day. The sound also offered diverse environmental conditions comprised of sandbars, intertidal marshlands, saltwater, and brackish water that represent a sample of the coastal geology of South Carolina. These varying ecological niches provided a framework for assessing the natural and cultural variables affecting preservation of archaeological sites in the coastal waters of the state. Presented with comparable environments and submerged archaeological materials throughout the state the methods relied on for this particular survey therefore prove applicable for investigating other state coastal and riverine waterways.

The scope of the survey's first phase consisted of defining potential areas in the sound for planned marine remote sensing operations to detect submerged cultural resources. To pinpoint areas in Port Royal Sound for future survey we embarked upon a multi-pronged research strategy to reveal the loci of past human activities through the historical record and previously recorded archaeological materials and residues resulting from maritime activities (McManamon 1984:226). The survey strategy consisted of weaving together historical, archaeological, oral, and geographical information to identify likely locales bearing underwater archaeological materials. The strategy was devised in an attempt to learn about relationships between the artifacts and landscapes not seen since the actual event or deposition (Kowalewski 1990:271), as well as to note subsequent transformations to the landscape and their effect upon an archaeological site. By identifying known historical and archaeological sites, we could begin to form connections to bridge terrestrial landmarks--plantations, canneries, piers, and wharves--to associated underwater components--abandoned watercraft or ballast mounds, and vice versa, to connect underwater sites with terrestrial features.

To understand the range and presence of underwater maritime resources in the sound and elsewhere, researchers must recognize the unity of terrestrial and submerged archaeological sites known collectively as the maritime cultural landscape. The term maritime cultural landscape expresses the human usage, or economy, of the maritime space by watercraft for settlement, fishing, hunting, shipping, and attendant services to maintain this use such as shipbuilding or repair facilities. Remnants from man's prehistoric and historic use of the sound range from the material remains, such as dug-out canoes, shipwrecks, abandoned watercraft, land remains, and natural topography, to the immaterial, such as place names and in folklore (Westerdahl 1992:5-7). To locate materials remains, the researcher must attempt to recreate the functional characteristics of the sound through historical, archaeological, oral, and environmental research. Comprehending the functional characteristics of the environment, that is, deep water close to shore for careening vessels, navigable streams, sheltered waters for anchorages, or particular shellfishing areas, aids in defining the archaeological potential of the bottom lands in proximity to these environmental features. Place names also may denote the functional aspect of an area in the sound. For instance, Fish Haul Creek on the west side of Hilton Head Island signifies past fishermen activity associated with the off-loading of a catch.

Limited funding constrained the geographical scope of the survey. We, however, placed no limit on gathering relevant information that may lay outside of the project's immediate boundary. We realized the necessity of maintaining a fuzzy border in regards to information about potential archaeological sites not strictly within the defined project area, but still situated within Beaufort's economic and social region. Future marine remote

sensing operations will extend beyond the currently defined limits of the survey to include the confluence of the Coosawhatchie, Tullifiny, and Pocatigo Rivers to form the Broad River, Whale Branch River, and out to the Martin's Industry shoals at the head of the Port Royal Sound channel entrance. A more complete examination of the maritime cultural landscape of Port Royal Sound and Beaufort will result to comprise a more complete regional boundary, rather than a financially constrained one.

Three information gathering avenues were explored to learn about the archaeological potential of Port Royal Sound: research, oral interviews, and field work. This strategy focused on locating areas of habitation, industry, archaeological sites, sport diver collecting sites, and geographical features in Port Royal Sound. The intended result of this strategy was threefold: first, we wanted to develop a maritime historical context by which to interpret archaeological remains found during the survey; second, to compile a database of known and potential archaeological sites; and third, to acquire knowledge about obstructions on the bottom of the sound. Each avenue of information would assist in compiling the data necessary to achieve the ultimate goal to select and prioritize areas of the sound for archaeological prospecting. While not all of these avenues were exhausted during this phase of the survey, we have at least begun the effort by which to construct a well-planned and efficient study of the sound over the next several years. And based on the positive public response to the survey, we hope to continue to enjoy the hospitality and assistance that characterized the first phase of the project. This chapter and the following chapters outline the fruit of these efforts to look for the archaeological remains from the region's maritime past.

Research

Historical

Historical resources consulted to build a maritime historical sketch for the interpretation of intertidal and submerged cultural resources included archival repositories, published historical works, and newspapers. Through the research of documents and other written sources, we intended to construct a database of known maritime historical activity areas, such as careening grounds, canneries, fortifications, ship repair facilities, and shipbuilding, among other activities. An extensive cartographic search for historical and more recent nautical charts and maps served to provide geographical points to locate these maritime industrial and military operations. Another product intended from the historical research was to create a list of known or potential ships wrecked or abandoned in the project area.

Initial historical research centered on gathering information from archival repositories and secondary sources to uncover information about the maritime development of Port Royal and the archaeological potential of the sound. Archival repositories visited included the South Caroliniana and Thomas Cooper Libraries on the campus of the University of South Carolina; the National Archives II at College Park, Maryland; the South Carolina Rooms at the Beaufort County Library and the Charleston County Library; the South Carolina Historical Society in Charleston; South Carolina Department of Archives and History in Columbia, and the United States Marine Corps Parris Island Museum. Research at these institutions uncovered various manuscripts, maps, photographs, published documents, and other sources relating to Port Royal Sound. A variety of secondary sources of published historical works were also consulted. The principal secondary source of information about Beaufort County was *The History of*

Beaufort County, South Carolina, 1514-1861, Volume 1 by Lawrence Rowland and others (1996). In addition to describing the historical development of the county, the work was also a source for leads to primary sources about certain episodes or events in the region applicable to the archaeological record.

To determine past areas of maritime activity emphasis was placed on locating cartographic information depicting the historical development of the sound. More than fifty maps, charts, and drawings were consulted ranging in date from the late 1500s to present-day navigation charts. Cartographic sources consisted of generalized maps of the sound system, details of certain sections of the waterways, and site specific information, such as fortifications. Information from these sources depicted the location of landings, plantations, ferries, docks and wharves, forts, navigation routes, and of course, geographical features of the surrounding islands, and submerged components of channels, sandbars, and shoals.

Aside from developing a list of historically recorded structures associated with maritime activity, that is, wharves, piers, marine defenses, etc., we also compiled a database of shipwreck sites. The shipwreck database was pieced together through a variety of sources, such as first hand accounts, recollections, charts, historical records, and secondary sources. Based on this list there were approximately 60 recorded shipwrecks in the region. However, of these 60 historically documented wrecks, only 10 fall within the survey boundary, and the remainder on the immediate fringe, primarily in the coastal area at the entrance to the sound. Two important sources of information about recorded shipwrecks were *New World Shipwrecks* by Robert and Jennifer Marx (1994) and *Shipwrecks of South Carolina and Georgia* by E. Lee Spence (1984). These works list shipwrecks from the earliest colonization of the New World to just after the Civil War. An impressive number of wrecks along the South Carolina coast, and specifically Port Royal Sound environs, are recorded in these works. Despite the apparently exhaustive research undertaken to compile these lists, the archaeological researcher using these lists must regard them critically, especially in the context of whether the wreck was salvaged or refloated in antiquity, thereby leaving no physical remains at the shipwreck site. The value of these books to the project was the identification of historically documented shipwrecks which in turn allowed us to search for supporting archival documents to learn more about the wreck.

Archaeological

Archaeological research consisted of identifying previous archaeological work in the Port Royal Sound region to pinpoint the loci of human activity from prehistoric to modern times. Several sources were consulted to obtain this information including the state archaeological site files, reports, and sport diving records. For the most part, the state archaeological site files maintained at the SCIAA provided site specific information for previously recorded intertidal and underwater sites located in the project boundaries. Approximately 70 site files were consulted to determine cultural affiliation and artifactual components present at a site. Additional information about a particular site was derived from accompanying archaeological reports also on file at the SCIAA. Many of these reports were prepared by archaeological contractors in compliance to federal and state cultural resource management legislation. One report in particular, *An Intensive Shoreline Survey of Archaeological Sites in Port Royal Sound and the Broad River Estuary, Beaufort County, South Carolina* by James Michie (1980), proved especially useful for information about archaeological sites, mainly prehistoric sites, in the project area, as well as a thorough description of the local environment. Another source of archaeological

information reviewed, unique to South Carolina, are the reports of finds by sport divers licensed under the hobby diving license program. The license program is administered by the SCIAA's Sport Diving Archaeological Management Program which is based in Charleston. Chapter 8 more fully discusses the contribution by sport divers to locating submerged cultural resources in South Carolina and specifically in Port Royal Sound. Essentially, evaluation of sport diving activity was intended to note correlations between known terrestrial archaeological sites and dive sites, in addition to other data, from records maintained by the SCIAA. The anticipated by-product from the archaeological research was to identify known archaeological sites and, augmented with the historical research, to judge the potential for associated intertidal and submerged archaeological resources in the vicinity of each site.

Environmental

Environmental research concentrated on assessing the changing landscape of the intertidal fringes of the islands and the submerged bottom lands of Port Royal Sound. The purpose of this research was to understand the role of the environment in the preservation and concealment of intertidal and submerged archaeological sites. Natural processes affecting site preservation included erosion caused by rivers and boat wakes, as well as marine organisms, especially the infestation of objects protruding above the sediments by the ubiquitous oyster. Concealment of intertidal or submerged archaeological materials by geomorphological evolution of the sound's bottom or shoreline may have radically altered the original event or deposition environment. For example, a site that was once close to shore may now reside further offshore due to erosion, or if accretion has occurred, may currently reside underground rather than underwater. All of these various manifestations of a site's preservation or concealment, whether brought on by natural or cultural factors, must be accounted for when conducting an archaeological survey.

A primary resource consulted was the *Port Royal Sound Environmental Study* by the South Carolina Water Resources Commission (1972). This document covered many aspects of the sound pertinent to the survey objectives. Other sources included site specific reports from geological contractors and graduate student theses. Archaeological reports concerned with the paleoenvironment provided information in regards to the evolving nature of the area from a river valley to a drowned one in present times. Cartography from historic to modern times also provided information about the changing landscape, especially in regards to the shifting nature of submerged navigational hazards like sandbars and shoals.

Oral Interviews

Another avenue of research to learn about the sound was to interview knowledgeable local sport divers, watermen, that is, shrimpers, fishermen, oystermen, and others. By talking to these diverse informants we hoped to compile a list of snags, obstructions, and dive sites bearing archaeological potential. The oral interview avenue proved especially fruitful in gathering information about potential archaeological sites in the sound. More than 20 persons were interviewed including shrimpers, sport divers, and avocational historians. Information obtained included Loran-C and Latitude/Longitude positional data as well as general areas of snags and sunken ships. The majority of this information was first-hand knowledge with only a few secondary or hear-say references to locations of underwater objects. This information will be used to identify potential survey areas in conjunction with the historical, archaeological, and geographical research. An

individual snag's significance to the survey will be based on its proximity to known archaeological sites, a reported location of a shipwreck, or to a navigational hazard. The results of the oral interviews are more fully discussed in Chapter 7.

Field Work

Intertidal survey

The primary field work for the project consisted of a visual survey of the intertidal fringes of Port Royal Sound and tributaries during low tides through pedestrian mode and aerial reconnaissance. The purpose of the intertidal survey was two-fold. First, we wanted to document intertidal archaeological features from which we could draw connections between land sites and the potential of associated offshore or intertidal cultural deposits. Second, we also wanted to become familiar with the local environment for implementing the second phase of the project. During the survey we documented several unrecorded archaeological sites, such as pier and wharf pilings and the lower structure of wooden watercraft, and revisited sites listed in the state archaeological site files, consisting of prehistoric shell middens, fortifications, among others. Each site, whether recently recorded or revisited, was assessed for potential or ongoing impacts to determine natural or cultural processes affecting these sites.

Discovery-related problems imposed on the intertidal survey included both natural and cultural factors that limited the visibility and obtrusiveness of archaeological sites. The term visibility refers to those portions of the archaeological remnants visible to the naked eye, while obtrusiveness relates to whether a site is below or above the surface (McManamon 1984:224). Natural factors limiting visibility of a site in the project area included vegetation growth, that is, marsh grass and tree canopies, shellfish infestation, and tidal fluctuation. Cultural hindrances affecting visibility included placement of rip rap for erosion control, modern rubbish disposal areas, extensive artifact collecting, or the wholesale placement of fill dirt for construction purposes into the intertidal zone. Obtrusiveness above the mud and vegetation line was affected by biological agents such as the shipworm, *Teredo navalis*, and other wood eating organisms, erosion which exposed materials to the elements, and natural sediment overburden. To overcome these obstacles we chose two survey methods: aerial reconnaissance and pedestrian surface inspection. Both survey modes were conducted during low tide to provide the best opportunity to observe intertidal or partially submerged sites.

Aerial Reconnaissance

On 14 October 1997 project personnel undertook the aerial reconnaissance in a twin-engined Cessna, with the owner and pilot, Don Coyle, and his friend and Archaeological Society of South Carolina-Hilton Head Island chapter member Gerry Thompson. Once in the air, we flew over the shoreline of the Broad River and Port Royal Sound. During the flight we photographed and observed the terrain to be covered during the pedestrian phase of the intertidal survey. Storms, however, limited our flight time but from our aerial perspective we did not observe any noticeable archaeological sites. Unfortunately, scheduling conflicts precluded a flight over the Beaufort River. Subsequent reconnaissance flights will serve to gather additional photography of sites identified during the pedestrian survey.

Pedestrian Survey

During a three week period in October and November of 1997, spaced every other week to take advantage of low tides which exposed large expanses of mudflats, we undertook a pedestrian survey to locate archaeological sites through the visual inspection of the shoreline. We covered the immediate shoreline of the Broad and Beaufort Rivers and Port Royal Sound by walking, assisted by a small boat to cross tidal creeks or particularly troublesome pluff mud flats. The survey covered approximately 80 linear miles of shoreline.

To ensure adequate time for thorough investigation of the shoreline, the survey area was subdivided into sections that could be covered in a day by walking and boating. These subsections, or legs, averaged about five miles in distance, although several sections were substantially shorter. On some occasions we were able to finish a leg in less time than anticipated and then move on to another leg. Fortunately, the decrease in time necessary to complete the pedestrian survey allowed us to spend additional time to record more in-depth a couple of watercraft remains. On average we spent approximately four to five hours per day on the water and walking along the tidal fringe. Only one area was not available for inspection during the pedestrian mode--the shoreline adjacent to a live-fire range used by the Marine recruits on Parris Island. Arrangements will be made in the future to undertake a visual inspection to fill this small gap in the shoreline survey. Volunteers were an integral component of the survey and during one period allowed us to operate two crews at the same time. In addition to using volunteers in the field, we also relied on professional assistance rendered by Christopher Judge of the South Carolina Heritage Trust of the South Carolina Department of Natural Resources, and the operation of a Trimble GeoExplorer hand-held GPS device by John Peterson of the Consulting Research Division of the SCIAA. The positional data is slated for differential correction in the near future. Bob Demas of the local chapter of the ASSC also loaned a hand-held GPS unit to the project.

In preparation for the survey, we constructed a binder composed of copied sections of nautical and topographical charts of the shoreline to undergo survey which were convenient to use in the field. On these charts we marked archaeological sites from the state site files and past maritime endeavors from historical or oral sources. We wanted to use this information as a reference in the field to ensure whether a site was previously recorded or needed documentation. This information was also used as an indicator to pay particular attention to a certain area for potential cultural material. Once a site was located, several standard archaeological recording methods were used including basic measurements, photography, and obtaining positional data by visual ranges with an electronic datascope. Each site was also marked on topographical charts. Several days were spent during the last week of the survey going to the newly documented sites and getting more in-depth measurements and precise locational data with a differential hand-held GPS.

Each site was given a project identification number based on the subsection and numerical order in which they were found. Later, those sites determined for inclusion into the state site archaeological site files were given a permanent state identification number. Additionally, the sites were assessed to determine ongoing natural or cultural impacts to the site such as erosion or artifact collecting. This segment of the intertidal survey resulted in documenting 16 previously unrecorded sites comprised of five watercraft remains, seven sites consisting of pilings for wharves or piers, and four sites of miscellaneous features. Chapter 9 describes in detail the individual sites located during the survey.

Marine Remote Sensing Operations

Economical use of the grant funds and an extension in the deadline allowed for several days of marine remote sensing operations. Three areas were chosen for archaeological prospecting: the northeastern tip of Daws Island on the Broad River, the southern portion of Spanish Point on the Beaufort River, and at the northern side of Cotton Island on the Whale Branch River. These three areas were chosen for preliminary remote sensing operations based on information derived from historical and archaeological research and on oral interviews with informants who stated that the remains of watercraft were in the vicinity. A brief acoustic search in the vicinity of the SS *Clifton* remains was also conducted. See Chapter 10 for a fuller discussion of the marine remote sensing operations in the sound.

Public Outreach

A corollary goal of the survey was to promote a greater awareness and appreciation of intertidal and submerged cultural resources to the local community. Several means were employed to accomplish this public-oriented goal. These approaches relied on furnishing information for media coverage, presenting our survey goals and results to the public, and providing volunteer opportunities. Through these activities we hoped to bring the survey's mission to inventory intertidal and submerged archaeological resources in the sound to a broad local and regional audience.

Initially, we prepared an introductory letter outlining the purpose of the project with a personalized statement regarding the potential assistance that might be rendered if they desired to assist in the project. These letters were sent to various individuals and local organizations, such as the historical and archaeological societies, and government agencies which we believed shared an interest in our research pursuit. Some of the organizations responded wholeheartedly in their support of the project, namely the Archaeological Society of South Carolina, Hilton Head Island Chapter, the Town of Port Royal, as well as numerous individuals. Each organization or individual that participated in the project shared our goal to investigate the sound in various capacities, ranging from active field work assistance to providing logistical support. The support network of people and groups built during the preliminary phase of the survey will facilitate the implementation of future remote sensing operations.

After informing potentially interested public officials and organizations, and private individuals and groups, we prepared a media statement outlining the project and its goals for distribution to interested news agencies. Two local papers, the *Beaufort Gazette* and the *Island Packet* (Hilton Head Island), picked up the initial story. Between the two, several newspaper articles have appeared regarding the progress of the survey. Additionally, the *Island Packet* posted their first newspaper article on the World Wide Web. This internet article was later linked to a web site that specialized in assembling various news articles related to archaeological projects throughout the world. Thus, the newspaper article reached a far-ranging audience from the local community to an international one. Other state papers also picked up on the project on the Associated Press including *The State* (Columbia) and *Post and Courier* (Charleston). Two national news organizations, the *Wall Street Journal* and Cable News Network, also featured a snippet about the remains of the sailing vessel documented on Port Royal Island. Besides informing the public about the project, these news articles also caused several individuals to call with pertinent information or to provide logistical support.

Several illustrated presentations introduced the purpose and preliminary results to both professional and public audiences. In early January 1998, SCIAA archaeologist James Spirek presented a paper at the Society for Historical Archaeology Conference in Atlanta, Georgia, and spoke about the survey to two organizations in the area: the Archaeological Society of South Carolina-Hilton Head Island Chapter and the Beaufort Museum. More than a hundred people attended the public lectures. Besides speaking in the Beaufort area, Spirek presented details about the survey during the 1998 Charleston Maritime Festival.

In addition to speaking about the project, we also developed a small exhibit of photographs and accompanying text. The exhibit was displayed at the Port Royal Tour of Historic Homes in the spring and was accompanied by staff member Carleton Naylor to answer any questions about the project or other aspects of underwater archaeology. The exhibit was also displayed at a local business in Beaufort.

Written information about the project was prepared for both professional archaeologists and the public through widely distributed newsletters. An article was submitted to the Council of South Carolina Professional Archaeologists newsletter for passing along information to other professionals, as well as soliciting advice or assistance for the project (Spirek and Amer 1997:6). Two articles were also written for the SCIAA's quarterly newsletter, *Legacy*. The *Legacy*, with a distribution of over 4,000 copies, reaches a broad cross section of residents and out-of-state individuals interested in South Carolina archaeology. One of the articles discussed the purpose of the project (Spirek and Amer 1997:23), while a second article focused on the plight of a barrel well in need of stabilization or rescue excavation (Spirek 1998:24-25).

Besides merely providing written, verbal, and visual descriptions to the public through media and presentations, we also offered an opportunity for interested individuals to actively participate in the survey. By providing a chance to assist in accomplishing the project's goal, the project staff worked with enthusiastic people who wanted a chance to learn about archaeology and to gain an appreciation of their local cultural resources. An especially warm response was generated by our introductory letter which solicited the assistance of the Archaeological Society of South Carolina-Hilton Head Island Chapter. Chapter president Margie Tolley organized those members willing to volunteer for the pedestrian visual survey phase of the intertidal survey. Several members, as well other individuals not associated with the organization, offered their services over the course of the three week survey of the sound's intertidal fringe.

We hoped that by bringing attention to the project, through the media, presentations, and use of volunteers, we would create a process of causing a greater awareness of the unique and irreplaceable cultural resources located in and around Port Royal Sound. It must be admitted, however, that many folks were already quite aware of the region's past and offered their support, advice, and expertise willingly. By these methods, we plan to continue public outreach efforts while completing the inventory process in the region over the next several years.

Final Product

This interim report outlining our findings will essentially serve as a guide for planning future surveys in Port Royal Sound. After analyzing the information gathered from historical, archaeological, and geographical research, oral interviews, and preliminary

field work, we obtained the basic ingredients to develop a remote sensing survey strategy. While each research avenue may not have been exhausted, for instance, not talking to every sport diver, shrimper or watermen, or not visiting all archival repositories, at least major forms of inquiry were preliminarily explored. Additionally, other avenues may present themselves at a later date that must be examined as they arise. By focusing on building a dataset of historical, archaeological, and environmental information, we will be able to efficiently use limited resources to survey areas bearing the highest potential for yielding submerged cultural resources. The report also contains general recommendations regarding future research efforts in the region and throughout the state.

Chapter 7: Oral Interviews

The purpose of the oral interview strategy was to locate persons with knowledge about intertidal and underwater obstructions, such as pilings, watercraft remains, ballast mounds, unidentified snags, and other items of archaeological or potential importance. Besides obtaining data strictly focused on archaeological or possible sites, we also sought information about seasonal water and weather conditions particular to the sound, bottom land characteristics, that is, mud, sand, and rocks, and deposits of modern debris. The intended product assembled from the oral interview research strategy was a database of snags, hangs, etc. Thereby providing another set of data to add to our historical, archaeological, and environmental research by which to select and prioritize certain areas of the sound and tributaries for electronic survey to locate submerged cultural materials.

Sources targeted included shrimpers and other watermen, sport fishermen, avocational historians, long-time residents, and sport divers. Several factors, however, limited the geographical knowledge of each category of informant. For example, shrimping in Port Royal Sound is currently confined by two boundary lines. These boundaries are the Beaufort River to Battery Creek and the other up the Broad River to the Highway 170 bridge which restrict commercial vessels from trawling beyond these two points. Therefore, a shrimper's knowledge about the sound is limited to below these boundary lines and out to sea. Also, geographical limits are imposed upon commercial fishermen, whether fin or shell, as they are confined to the resource exploitation area. Sources with the potential to provide the most wide ranging information about the waterways are local sport divers and fishermen. But again, these informants are also constrained by certain cultural and natural factors. In the case of the sport divers, they mostly dive at areas offshore of known terrestrial sites, while sport fishermen move with the habits of their targeted prey.

To ensure adequate coverage of the research area, we needed to locate a variety of sources to provide us with knowledge about specific areas of the sound. Thus, information about the southern section of the sound could be obtained from all categories of informants, while information about the northern section could be obtained by all the sources except shrimpers and some of the commercial fishermen. Review of the sport diving hobby reports, however, revealed that little diving was done in the Broad or Whale Branch Rivers. Information for these areas, like Whale Branch River, therefore had to come from avocational historians, long-time residents, and especially sport fishermen.

We relied on various methods to find sources with information about intertidal and underwater obstructions in the project area. Our initial effort centered on creating an awareness of the project through the local newspapers, the *Beaufort Gazette* and the *Island Packet*. The papers published articles about the project and also instructions on how to contact us. We also distributed flyers to bait and tackle stores, marinas, and seafood companies throughout the region. In this endeavor we were helped by our consultant, Laura Von Harten, in the Beaufort area and Bob Demas and the Coast Guard Auxiliary on Hilton Head Island. Project staff also called and visited these businesses to solicit information about potential informants who might be willing to work with us. In one case, an article about a sailboat colliding with a ship's boiler in a regional boating newspaper led us to an avocational historian and long-term resident of Beaufort who was quite familiar with the sound. In the end, it was up to the researcher to ferret out sources, as the flyers resulted in limited responses. Several of the articles in the local paper, however, did garner some responses from individuals with pertinent information. Once a source was found they were usually quite forthcoming in answering our questions and providing useful information.

providing useful information.

Project staff asked a variety of questions to elicit information about the sound from the informants. Some of the more important questions posed included: Where and what kind of obstructions do you know about? How did you obtain this information, that is, firsthand knowledge or hearsay? and, Could you provide us with any leads to other knowledgeable sources? Some of this information was obtained over the phone, but the best case scenario was to conduct a face to face interview huddled over a nautical chart for reference. In one case, we talked to a shrimper over the phone and obtained some useful information, but it was when we met at the shrimp dock, armed with a chart, that additional and more precise information was acquired.

The preferred outcome from talking with the informants was for them to lead us to a site or to provide us with electronically positioned coordinates, that is, Loran-C or GPS for underwater obstructions. Two local sport divers, James Cooler and Peter McComas, showed us a variety of sites, such as possible ferry landings, pilings, and remains of a sailing vessel along the shores of the Beaufort and Coosaw Rivers, and Brickyard and Factory Creeks. The precision of the reported geographical position of an underwater site or obstruction figures critically in reducing the amount of time and energy to conduct an electronic survey. Unfortunately, one of the interviewed shrimper's Loran-C logbook of hangs and snags was stolen over 10 years ago. Therefore, we had to rely on his recollections of various obstructions in the sound. For the most part, the shrimper was able to remember positional data by referring to water depth and bearings to channel buoys.

In addition to obtaining information about underwater obstructions, we wanted to know about local lore surrounding known or supposed archaeological resources in the sound. We sought out local avocational historians, as well as long-time residents, who may remember stories about these types of archaeological sites or may recall past actions regarding salvaging of artifacts from the sound. One local avocational historian casually mentioned the recovery of a bronze cannon from a Union gunboat, USS *George Washington*, whose present location is unrecorded, on display at the Beaufort Museum. Since there was no placard identifying the cannon, and no one from the museum had volunteered the information to us, we had not heard of its recovery. This site is a top priority shipwreck site to find so that we may assess the scientific, educational, or recreational benefits of the wreck to the public as mandated by state and federal legislation.

The rest of this chapter provides a brief description of the 14 phone or in person interviews with sport divers, shrimpers and commercial watermen, avocational historians, sport fishermen, and other informants. Overall, we talked to at least 16 people. The information collected was predominantly first-hand knowledge that hopefully will prove reliable when we implement our remote sensing operations. Also of importance were the names of other people provided to us by the informants to contact in order to continue the process of obtaining more information. By these means we have begun to create an extensive obstruction database of information to aid in selecting and prioritizing areas of the sound for survey.

Selected Interviews

Sport Divers

James Cooler

James Cooler has been an active sport diver and intertidal walker in Port Royal Sound for many years. By profession, Cooler is a construction contractor, and by hobby, an avid collector of archaeological materials from the local area. Cooler has also been active in the salvage of artifacts from *SS Lawrence*, wrecked on the sandbars at the entrance to Port Royal Sound. Due to his intimacy with the sound gained by walking the shoreline and diving in local waters, he has acquired extensive first-hand knowledge of the physical presence of cultural materials in the sound. Cooler has been quite willing to show us sites that he has found or knows about. In the past he showed SCIAA staff a prehistoric canoe on Parris Island. The canoe was later recovered by the Marines at the USMC recruit depot. Cooler also accompanied SCIAA staff on dives at the *Lawrence* to share his knowledge about the steamer's remains. On other occasions, Cooler has shown staff to other sites in the region. Due to this extensive knowledge of the sound, Cooler was contacted by project archaeologists James Spirek and Christopher Amer to discuss the scope of the project and to request his assistance.

In November of 1996, in anticipation of receiving the current grant, we visited Cooler at his home on Lady's Island. Cooler and the archaeologists spent some time over a nautical chart pinpointing underwater ship remains, historic scatter sites, and other historic maritime sites. Each of these locations was noted on the chart. Afterwards, Cooler invited us to see his extensive collection of S.C. Dispensary bottles and other materials salvaged from *SS Lawrence*, as well as fossils and other artifacts collected throughout the sound. We also made preliminary plans after the grant award for him to show us sites in the sound.

On 11 November 1997, Division archaeologists Spirek and Lynn Harris accompanied Cooler and a fellow sport diver, Pete McComas, in a small, locally built wooden boat along the shores of Factory Creek, Beaufort River, Brickyard Creek, and the north shore of Lady's Island on the Coosaw River. Parts of this foray went beyond the survey boundary, but as previously stated in the report, we intended for the survey to have a fuzzy border in order to note other sites within the region. Cruising along the shore of Factory Creek, Cooler pointed out the past locations of the Maggioni oyster factory, ferry landings, and a dance hall. As for watercraft, he mentioned the presence of five oyster boats and remnants of a barge submerged in the creek. Moving north up Brickyard Creek, Cooler pointed out the site of a colonial fur trader's establishment, remains of a sunken craft, and a couple of other landings. On the north shore of Lady's Island on the Coosaw River, Cooler showed us a wooden construct of puncheons arranged in a square, roughly 1.5 m by 1.5 m in dimension. These remains were possibly for a well shaft. East of this site were four barges embedded in the marsh. They measured approximately 20 m in length, but we could not determine the width of the barges as they were partially buried in the marsh. In several spots, pilings had been driven next to the gunwale of one of the barges. Perhaps these barges were purposefully placed as bulkheads. The barges most likely were associated with the turn-of-the-century phosphate mining operations in the area. Nodules of phosphate littered the beach attested to past mining activity. Crossing over the river to the opposite bank revealed a large amount of phosphate dredge spoil material, consisting of fossilized sharks teeth, sand dollars, and bones interspersed with small nuggets of phosphate.

After heading downstream from Brickyard Creek to the Beaufort River, we examined the barrier sand island stretching between Pigeon Point and Old Point, or the Point. Stretching along the shoreline were a series of piling stubs covered in oysters and barely protruding above the mud line. These piling remnants were arranged singly and grouped in pairs along a longitudinal axis and perpendicular to the river. Each piling group

were spaced at apparently random distances from each other. Speculation to the purpose of these pilings include piers or utility poles. Walking along the shoreline revealed no significant scatters of associated material cultural, especially in regards to iron concretions to suggest pier fastenings or the like. Moving down the small sand island upriver from the Highway 21 bridge from Beaufort to Lady's Island, Cooler pointed out the remains of a twentieth-century motorized watercraft.

From there we continued downstream to a site that he had previously shown Harris in the early 1990s. The vessel was completely embedded in the mud, with only portions of the frame tops encrusted with oysters that were sticking slightly above the mud. A couple of boards were also observed. Visual ranges were obtained with a datascope and marked on a topographical chart. Later in the week, we returned to the site and completed preliminary measurements of the site. Refer to site 38BU1813 in Chapter 9 for a more complete discussion of this site. Cooler and McComas were gracious hosts in guiding us around their neck of the river and helped immensely with the survey.

Bobby Black

Bobby Black is a local diver who mainly concentrates on collecting fossils from local waterways. While scouring the bottom, however, Black has come across submerged cultural resources. Black mentioned several wrecks in the Whale Branch, Beaufort, and Morgan Rivers. At one of the sites, Black found a copper pot with a corroded and damaged bottom that he feels was associated with a wreck that may be buried in a nearby sandbar. He also told of a site in the Combahee River that is possibly a Confederate obstruction. The reputed obstruction is a squared timber roughly 1 ft. by 2 ft. equipped with spikes across the beam. He also provided a brief environmental description of the Coosaw and Whale Branch Rivers. In the channels the two rivers have hard bottoms while the periphery consists of mud along the channel in towards the marsh. He feels that any wreck in these areas is most likely embedded in the mud along the shoreline.

Shrimpers and Commercial Fishermen

Bobby Chaplin, part-time shrimper and harbor pilot.

Bobby Chaplin was referred to us by our consultant, Ms. Laura Von Harten, and her father, "Bubba" Von Harten, a retired shrimper. Spirek first interviewed Chaplin on the phone. During the conversation he mentioned his logbook containing Loran-C coordinates of underwater obstructions had been stolen 10 years previously. Later during the survey, Spirek met Chaplin coincidentally at the 11th Street Shrimp docks in Port Royal. Spirek had asked a dock worker whether any shrimpers were on the boats and was pointed in the direction of Mr. Chaplin tending to his boat at the end of the dock. Fortunately, armed with a nautical chart, the impromptu interview reviewed the information solicited from him during our earlier phone conversation and also sparked memories of other obstructions in the waterways. We chatted about a number of topics including shrimping, the weather, and of course obstructions.

Chaplin stated that currently the prime shrimping grounds comprised an area off Station Creek and bounded by Land's End on St. Helena's Island and Bay Point. Since the 1950s, shrimp trawling has been limited up the Broad River to a quarter mile below the Highway 170 Bridge to Hilton Head Island and up the Beaufort River to Battery Creek.

We also discussed a few environmental conditions about the sound. He characterized the bottom of the Broad River as composed of fine sediments of mud and sand along with phosphate rocks and sandstone, while the bottom of the Beaufort River was comprised mainly of sandstone to Battery Creek. Shrimpers usually kept away from the sandstone, and hence the Beaufort River, due to their nets being torn apart by dragging along the sandstones. He also told of an island between Parris Island Spit and Beaufort River on which Beaufort residents used to camp and picnic until the early 1900s when the island disappeared under the river. As for a prime time to conduct remote sensing surveys and ground truthing operations in the ocean and more exposed areas of the sound, Chaplin suggested, to ensure the best water clarity and potential for smooth water, the last of March and early April during the morning hours, as by the afternoon the winds begin to kick up the waves. He suggested the best time to dive was during the last of the ebb through to the incoming high tide.

Chaplin was very informative regarding hangs on the sound's bottom. Out of the 11 hangs he mentioned, five were shipwreck remains, mostly from the early to mid twentieth century, the remains of a B-25 bomber, and the rest were of unidentified snags. One interesting snag, a riveted metal object, is located off Fort Walker on Hilton Head Island and believed to relate to the Union "T" dock used during the Civil War. Mr. Chaplin's son dove on the site after it was snagged and noted the metal object. Each of these locations was noted on a nautical chart for future reference.

Randy Higgins, watermen

Higgins is a watermen based on Lemon Island and mainly fishes the Chechessee and Broad Rivers. Higgins reported several underwater obstructions in the Broad River. He told of a wreck along the north end of Daws Island in 26 to 28 ft. of water. Other fishermen claim the wreck to be an old colonial wreck, while he says there is steel on the wreck and thus appears to be of a more recent vintage. In close proximity to the western side of Parris Island are several obstructions. Higgins's stumbled across one while motoring his vessel along the shoreline when his color fathometer revealed a large box like object, approximately 40 ft. long protruding from the bottom in 39 ft. of water. Additionally, remnants of the old Battery Creek bridge are off Parris Island in the Broad River. Higgins also suggested reviewing nautical charts from the 1940s and 1950s for two marked wrecks in the Broad River off Parris Island.

Charley Smith, crabber.

Smith has been crabbing in Beaufort waters, mainly in Whale Branch River, for more than 10 years. Smith related that a group of divers have been visiting a presumed shipwreck in the Whale Branch River off an island near the Broad River. The sport divers have been diving on the site in the winter months due to the improved visibility in the river. Smith also mentioned several areas of rocks in the Huspah and Haulover Creeks. On the Broad River, Smith has seen the remains of a well and a barge.

Mark Wise, shrimper.

Wise provided Loran-C numbers he had in his book and on his navigation instruments. He provided Loran-C numbers for the *Betsy Ross*, a well-known offshore

wreck. Other areas included offshore hangs along Martin's Industry Shoal; Bay Gall, the northeastern shore of Hilton Head Island on Port Royal Sound; the Slop Hole, the eastern end of the relict South Channel connected to the Port Royal Channel (it gets its name from the seaweed and other debris that migrates into the area); and along the Front Beach of Hilton Head Island.

Woody Collins, shrimper.

Collins, a long-time local shrimper, mentioned a shipwreck on the Front Beach of Hilton Head Island at the high tide mark. He remembered seeing ship ribs and ballast stones after the site was uncovered by Hurricane David. The site has since been covered over. The wreck had also been exposed earlier by Hurricane Gracie in 1959. Collins corroborated information from Higgins and Bogan about the remains of a vessel near Daws Island. Also, while shrimping in Stations Creek, Collins snagged up a bronze hinge and a plank with brass spikes.

David Bogan, shrimper.

Bogan is a long time resident and shrimper of Port Royal Sound. He had quite an extensive database of snags drawn from his memory and stored in his positioning instrument. He also had a list of snags from up and down the South Carolina coast, including Port Royal Sound, that he had obtained from another area shrimper. Bogan's snags from offshore included Gaskins Bank, Bay Point, and in the Port Royal Sound Channel. Inshore snags included areas around Parris Island, Daws Island, and Euhaw Creek. Several ballast mounds were identified in these areas, including the remains of a vessel. Off Hilton Head Island by Joiner Bank, Bogan had brought up a piece of a wooden ship, possibly dating to around the mid to late 1800s, which is residing outside the W.H. Gay Seafood Company's sales office, along with an assortment of other snagged materials. The wooden piece is reinforced with wrought iron pieces on each face of the timber. The timber had been grooved to receive the flat iron pieces. He also had information about where anchors were pulled up, as well as where other objects thought to be anchors are still on the bottom.

Avocational Historian

Roger Pinckney, Beaufort resident.

Spirek had two conversations with Mr. Roger Pinckney of Beaufort, a retired county coroner, dock and pier builder, engineer, World War II veteran, and presently a furniture maker. The first conversation by telephone followed on the heels of a newspaper article in a local paper in which Pinckney was quoted. The second interview was conducted at his house on the banks of the Beaufort River at Pigeon Point. Mr. Pinckney has plenty of years of experience on the local waterways, having worked on two important local projects involved with the sound and rivers: the Intracoastal Waterway and the construction of the concrete pier at the port of Port Royal on Battery Creek.

We initially contacted Mr. Pinckney by phone after his name appeared in an article in a local boating newspaper about a collision of a sailboat with the remains of a supposed Civil War wreck in the Beaufort River just above Pigeon Point. When we talked, Mr.

Pinckney said the reporter got it wrong, that it was not a Civil War-era wreck, but rather the steamboat SS *Clifton* from the 1900s. The steamer was carrying a load of seed potatoes when it got blown onto a shoal and was unable to extricate itself. The vessel was abandoned and declared a total loss.



Figure 7.1. Photograph of SS *Clifton*. (Courtesy of Roger Pinckney)

Local residents quickly found uses for parts of the abandoned vessel. The pilot house was removed by a local resident and served as a dockhouse. Others scavenged various pieces of the vessel, and over the years the wreck deteriorated to where only the boiler is now visible during low tide. Mr. Pinckney has a photograph collection that contains pictures of the *Clifton* (Figure 7.1) along with several other photographs of steamers that plied along the Savannah, Beaufort, and Charleston circuit during the early twentieth-century.



Figure 7.2. USS *George Washington* bronze howitzer on display at the Beaufort Museum. (SCIAA)

During our conversation about other sites, he mentioned the discovery and recovery of a bronze gun off the USS *George Washington* by a local resident in the early 1920s or 1930s. According to him, a couple of black watermen found the site and told this certain resident about the site, who then retrieved the bronze cannon from the wreck. The cannon was then accessioned by the Beaufort Museum (Figure 7.2). However, although the museum had some literature regarding the cannon, it had no information about the cannon's provenance or the whereabouts of the gunboat.

One of the jobs Mr. Pinckney did during his marine contracting days was repairing the wooden docks at the Beaufort waterfront. During the 1940 hurricane, he recalled that a barge sank in front of the Beaufort docks. He also has photographs showing the wooden wharves along the Beaufort waterfront, which have since been covered by the construction of Riverfront Park. He also noted that the new waterfront is built on a shelf, and that divers occasionally dive under the shelf to retrieve bottles and other artifacts littering the river floor. He also noted that besides the current seawall along the Beaufort front, there were a series of seawalls moving inland, one which is underneath the Belk building and another that is even buried further inland.

Sport Fishermen

Alice Jones and George Busby, bait and tackle shop managers.

On 12 February 1998, Spirek met Ms. Alice Jones, manager of the First Stop Bait and Tackle shop, in order to request permission to park and photograph the Highway 21 bridge over Whale Branch River connecting Port Royal Island to mainland. The area the highway now occupies was once the site of the Port Royal ferry. As the shop is conveniently accessible via water by fishermen and is centrally located on the river, Spirek queried Ms. Jones about potential informants knowledgeable about the river bottom. Ms. Jones rattled off a few names and agreed to contact them in order to ascertain their willingness to provide information about underwater obstructions in this area. Ms. Jones also mentioned a couple of interesting items regarding Whale Branch River including the presence of earlier bridge debris littering the bottom of the river around the present Highway 21 bridge and about a ballast mound downriver towards the Broad River. She also mentioned several other informants familiar with the local waterways. I later talked to George Busby, Ms. Jones's significant other, and he mentioned that about 10 to 20 years ago some folks reported seeing a cannon at the junction of Whale Branch and Coosaw Rivers.

Captain Trevor Strever, local fishing charter boat operator and guide.

Strever, a charter boat captain that fishes both in Port Royal Sound and offshore, mentioned several rock mounds between Bay Point and Hilton Head Island. These rock mounds are for the most part located along the channel and from the channel to either side of the sound entrance. He is not sure if they are ballast mounds or natural deposits of sandstone or phosphate rock.

Captain Bill Parker, charter boat operator.

Parker has been a resident of Hilton Head Island for the past 20 years and a charter boat captain for the last 13 years. He has sonar confirmation (200 mhz) of a wreck by the channel buoys at the bend of the channel as it reaches for the Beaufort River. Two sites are listed in this area on previous nautical charts but which have since disappeared from current editions. Local sport divers have attempted to find these sites but to no avail.

Other Sources

Tom Mikell, lawyer and resident of Lady's Island.

Mikell wanted to report a large shell midden located on his and adjacent properties. He stated that you could not turn a spade over without hitting shell. Recently, he had taken a collection of four or five points to be examined at a local antiquity store in Beaufort for identification. Checking with the state archaeological sites files the site is most likely 38BU366. A site visit would confirm whether it has been previously identified, or that it is a site that needs to be documented to the state archaeological site files.

Chapter 8: Sport Diving Activity in Port Royal Sound

Sport divers have played an important role in discovering underwater archaeological sites throughout South Carolina. Many sport divers frequent the bottoms of creeks, rivers, bays, and the ocean in pursuit of conversation provoking objects bound for the mantelpiece or mundane objects destined for the garage. And while scouring the bottom they often encounter historically significant sites ranging from prehistoric canoes to early twentieth-century watercraft remains, along with nearly everything else tossed into the water. By far, the vast majority of underwater archaeological sites recorded in the state files were brought to the attention of the SCIAA by sport divers. The purpose of this chapter is to discuss sport diving activity and how this information may serve to aid in implementing future underwater archaeological surveys in Port Royal Sound.

Information about sport diving in the region was obtained from sport diving hobby reports maintained by the SCIAA's Sport Diving Archaeology Management Program (SDAMP) based in Charleston. Sought after research data from these files included determining dive locations and conditions, and the spatial, temporal, cultural, and typological range of collected artifacts in the project area. Of special interest were hobby reports that mentioned the remains of prehistoric or historic watercraft. Additionally, review of these files provided names of divers from the past whom we could possibly contact for further information about a site.

South Carolina is the only state in the United States with a legislative mandate that encourages sport divers to play an important role in protecting the state's rich maritime heritage. The South Carolina Underwater Antiquities Act of 1991 (Article 5, Chapter 7, of Title 54) permits small-scale, recreational, non-mechanical, surface collecting of cultural material in state waters by licensed divers administered through the Underwater Archaeology Division of the SCIAA. The current 1991 law amended the original law enacted in 1976, which was amended in 1982, that created a license to retrieve artifacts from state-owned bottom lands. In return for the privilege of collecting archaeological materials from the state waters, a licensed diver must submit a report to the SCIAA outlining the type and number of artifacts collected. Detailed descriptions and maps of where the artifacts were retrieved must also accompany the report. Review of the submitted reports by the SCIAA provides a means to monitor sport diving collecting in the state and to implement management policies following the discovery of a site by a sport diver. Over time, this program has evolved to develop a system for extracting important and useful information from sport divers regarding submerged archaeological resources in state waterways (Harris 1996a:2-3). Currently, the sport diving program also provides an introductory course in underwater archaeological methods and artifact identification for the interested sport diver, as well as opportunities to assist in SCIAA projects.

Statistical analysis of sport diver collecting under license throughout the state indicates that more than 75 percent of hobby collecting dives undertaken in state waters occurs at artifact scatters that are off-shore of known terrestrial sites, that is, plantation waterfronts, landings, or fortifications. The remaining 25 percent of collecting areas frequented by licensed divers take places on the sunken remains of watercraft. The Ashley and Cooper Rivers are the most regularly visited areas for artifact hunting among state waterways. Of the licensed sport divers in the coastal region of the state, 30 percent are from the Beaufort area, while the majority, 60 percent, are from the Charleston metropolitan area. The remainder of licensed sport divers are from the Georgetown area. Of all licensed in-state and out-of-state divers, Beaufort area divers account for 11 percent of hobby divers (Harris 1996b:9-12).

Sport divers have been instrumental in exploring underwater archaeological resources in Port Royal Sound. In our project area, there have been only five watercraft remains and five underwater archaeological sites recorded to the state site files. Of the watercraft remains, two were reported by sport divers, two by landsmen, and one by the U.S. Army Corps of Engineers. All five of the historic artifact scatters, which are located off known terrestrial sites, were reported to the SCIAA by sport divers. The watercraft remains consist of a wide range of types that includes a prehistoric canoe and an early twentieth-century steamer. The scatter sites contain an array of bottles, ceramics, and other artifacts associated with on-shore terrestrial activity. An important incentive spurring collecting by divers in the region is the hunt for fossils, especially sharks' teeth. Sport divers engaged in fossil collecting, although licensed by the SCIAA, report their findings directly to the S.C. State Museum's paleontologists. While some divers are dedicated solely to recovering fossils there are others that are not adverse to collecting cultural remnants in addition to natural ones.

Information about past and ongoing sport diving activity in the state was gathered from the files of the sport diving hobby license program. The files contain reports submitted by licensed divers and chronologically span a 22 year period. The first report received on a dive site in the project area was in 1976. The most current report was submitted in 1998. Originally, the license required monthly reports detailing site location and artifacts. Recent changes in the requirements now stipulate submission of a quarterly report. Approximately 162 hobby diving licenses for individuals, instructors, and dive clubs were reviewed for reports that contained pertinent information to the project. Information elicited from the sport diving reports included location of dive sites, popularity of a dive site, types of artifacts retrieved, and bottom conditions. Most of the licensed diving occurring in the project area centered off known historical sites, for example, Fort Frederick and the Beaufort waterfront along the Beaufort River. Inspection of the reports revealed that divers have collected a prodigious amount of various types of glass bottles and other small artifacts. Most of these bottles date from the mid-1850s with patent medicine bottles and extend into recent times with Coke and beer bottles. One of the more ubiquitous genre of bottles recovered were South Carolina Dispensary bottles, manufactured from 1893 to 1907 (Huggins 1971). Occasionally, larger objects such as watercraft remains are mentioned in a report.

Information compiled from these dive reports does not construe that sport diving in Port Royal Sound occurred only in these spots, but does reflect those sites reported to us through submissions of monthly or quarterly reports by the licensee. But, this information does provide evidence to where reoccurring diving is taking place along with the range and amount of artifacts recovered by licensed divers during the program's existence. Other means to elicit information about diving locales prior to the advent of the hobby diving license in 1976 were obtained by interviewing sport divers and other sources about past dive sites and collected objects. One local resident mentioned past diving activity stating that one local diver in the 1960s or 1970s recovered a naval compass from the Coosaw River.

The hobby diving reports reviewed varied in degrees of location specificity where the collecting actually took place. Of the 340 hobby collecting dives reported to have occurred in Port Royal Sound, a total number of 93 reports, or 27 percent of the total reports, contained only the waterbody that the collecting took place, for instance Port Royal Sound or Beaufort River, with no other positional data to pin the location to a specific geographical or known archaeological site. Therefore, these particular reports provided no meaningful information to assess artifact provenance and their association, if any, to a

known or potential terrestrial or submerged archaeological site. Only those reports that specified geographical or cultural markers supplied the necessary information to determine a dive site's environmental and cultural material features. Currently, the SDAMP conducts Field Training Courses for sport divers to hone their hobby reporting skills, resulting in the recording of more meaningful archaeological information during future collecting expeditions. Reports that are not specific to location or artifact type are now sent back to the diver to provide more details.

Licensed diving activity in the sound mainly hugs the shoreline of the river and sound at known onshore historical or archaeological remains. Popular sites include Fort Frederick, the Beaufort Waterfront, and Spanish Point. All of these dive sites are in the Beaufort River. Battery Creek and Port Royal are also popular dive sites. Occasionally, a few dives are made off the beaten path at some of the creeks surrounding some of the smaller sea islands, such as Goat Island or Pinckney Island. The type of dive sites include artifact scatters, watercraft remains, remnants of piers and wharves, or simply prospecting around one of the islands. Approximately 91 percent of the total licensed diving reported occurred off known terrestrial archaeological sites, while 9 percent took place on watercraft remains. Four shipwrecks and a stone wall were mentioned in the reports. One of the wreck sites appears to have been listed in the state archaeological site files, 38BU477, while the other three were not reported to the site files. The seawall may be a submerged portion of one of the known forts in the area. Sonar operations in the area should reveal the location of the seawall. Additional inquiry by project staff may lead to obtaining a position for the wrecks mentioned but not reported in detail. The remainder of this chapter discusses each dive site and the range of artifacts collected by licensed sport divers.

Port Royal Sound Diving Locations:

Beaufort River

The Beaufort River was the most frequented collecting area in the Port Royal Sound region. Of the 340 recorded hobby collecting dives in the sound, more than half of the dives were made in various parts of the river. Fort Frederick, Spanish Point, and the waterfront of Beaufort were the most popular dive sites in the river. Each of these three dive spots were associated with a terrestrial archaeological site, for example, at Spanish Point the archaeological complex includes Forts Lyttleton and Marion, the late 1880s pier structures associated with the phosphate industry, fishery industry, and a WW I-era shipbuilding company. Another popular dive spot on the river was behind the Technical School of the Lowcountry. The archaeological site files do not list a terrestrial archaeological site in the vicinity, but the reported presence of pilings and stones attest to past usage of the site for some type of maritime activity. The majority of the hobby diver reports were relatively specific to a geographical point in the river. There were a large number of reports, however, that simply ascribed the collection site as the Beaufort River.

Spanish Point and Channel Marker 242

A total of 29 recorded hobby collecting dives took place from 1981 to 1989 around Spanish Point and channel marker 242 in the river. Divers during this period recovered approximately 100 glass bottles, one ceramic bottle, and one clay pipe. Bottle types included medicine bottles, whiskey bottles, ink bottles, drinking glasses, food bottles, and of course, S.C. Dispensary bottles. The earliest bottle, a blob top, dates from the 1840s to

the 1890s. Several patent medicine bottles were also found and were also manufactured for companies that operated in the mid to late 1800s (Fike 1987). Modern coke bottles were also found, including one stamped with Beaufort Coke on the body.

Of special interest at this dive site was the mention of a shipwreck and a submerged stone wall. The shipwreck site is apparently 38BU477, known as the 242 site or the Spanish Point Wreck. Underwater archaeologists from the SCIAA, along with a local diver, attempted a reconnaissance dive in 1983 but were thwarted by poor visibility from locating the wreck. Several divers in their hobby reports recounted the retrieval of brass spikes and brass rivets from the wreckage. Another potentially interesting site was a 1986 report of a stone wall, 10 ft. high and 30 ft. long, associated with a cave. The stone wall may have some connection with Fort Lyttleton, a colonial British and American tabby fort in operation from 1758 to 1781, or with Fort Marion, financed by the U.S. government from 1807 to around 1821. Commercial activities at Spanish Point included a late nineteenth-century phosphate factory, seafood processing, a World War I-era shipyard, and a warehouse that burned during the 1950s.

Fort Frederick

Many divers egress the Beaufort River at the public boat ramp at the tabby ruins of Fort Frederick which is adjacent to the Naval Hospital. The dive area encompasses the waterfront of the fort and out to mid river. Fourteen recorded hobby collecting dives were made between 1979 and 1989. Divers recovered 10 bottles and some ceramic sherds at the site. Artifacts recovered from this dive site included S.C. Dispensary bottles, an ink bottle, medicine bottles, and beer bottles. One diver had a particularly hard time finding historic materials--persistently recovering modern soda and beer bottles, and a flashlight.

Beaufort Waterfront

A total of 35 recorded collecting dives, from 1982 to 1991, were made along the Beaufort waterfront. Over 100 bottles, two ink wells, a clay jug and pipe, among other items were collected from the area. Glass types included the ubiquitous S.C. Dispensary bottle, wine bottles, blob top bottles, and an eight-sided ink well with a soft blue tint. There were also numerous medicine and food bottles found with embossed lettering attesting to their past use like *Poines Celery Compound* made around the 1900s, *Enos fruit salt* in use around the 1880s, *J.W. Bull's Cough Syrup* circulating around the 1850s, and *Barry's Tricopherious for the Skin and Hair, NY* in use around the mid 1850s and actually a product that stayed on the market until the 1980s (Fike 1987; McKearin 1978). Intriguing artifacts include a round ball approximately six inches in diameter marked with a red "Δ", and four glass [glass?] bungs.

Technical School of the Lowcountry

A total of 37 recorded hobby collecting divers occurred from 1981 to 1993. 85 bottles, two ink wells and two ink bottles, and several ceramic sherds were collected during this period. Types and functions included liquor, medicine, perfume, food, and soda bottles. A couple of the bottles attested to foreign imports *Ed. Pinaud Paris* from the 1810s to late 1980s, and *F. Brown Ess. of Jamaca Ginger* in production around 1822 to the early twentieth century (Fike 1987; McKearin 1978), while others made their way

through regional networks such as *Payne & King Druggists Macon GA.*, and a milk bottle from *Rubeins, Charleston SC.* Several pottery containers were recovered including one of the ink wells and both of the pottery ink bottles, one white and the other brown. A couple of ceramic jugs and bottles were also gathered including a jug 10 1/2 in. high and 26 in. around.

Other sites in the Beaufort River

In addition to the more frequented dive sites at Fort Frederick and the Beaufort waterfront in the Beaufort River there were several other spots visited by local divers. Fifteen dives from 1980 to 1994 occurred at Parris Island at the old Coast Guard docks, off Fort Fremont, a Spanish-American War-era fortification at Lands End, the western side of Cane Island, between Spanish Point and Memorial Hospital, and off the hospital. Approximately 26 bottles were recovered from these various dive sites that included beer, medicine, wine, milk, and liquor bottles. Bottles range in date from the mid 1800s to more modern ones. Besides reporting the collection of bottles, one diver notified the SCIAA about a canoe found in the marsh on the USMC Parris Island recruit depot. This canoe, 20 ft. and 4 in. long and 22 in. wide, was subsequently recovered by the marines.

Unspecified Beaufort River sites

A total of 43 reported hobby collecting dives from 1980 to 1990 occurred at unknown locations in the Beaufort River. Artifacts from these unknown sites were exclusively made up of bottles. Approximately 137 glass bottles and one clay bottle were collected, which again range in date from the mid 1800s to modern soda and beer bottles. Unfortunately, all of these bottles are unprovenanced in the river and therefore provide no archaeological information through association to known archaeological sites or any chance to divine the presence of an unrecorded historical site.

Several wrecks were mentioned in the hobby diver reports, but again no positional data was provided. One sport diver mentioned a wreck that seems to correspond to the Spanish Point wreck (38BU477) in which several brass spikes and large rivets were collected. Also a brass number "6" was retrieved from the wreck site. Another diver reported an old sailing ship around Port Royal. Structure at the wreck consisted of several frames and a small amount of deck. The diver recovered three brass spikes and one wooden pulley. Later the same diver reported a large wreck upside down with copper sheathing and three large anchors nearby. This wreck may again correspond to the mysterious Spanish Point Wreck. Hopefully, we will be able to track these divers down to get a firm position or general area for planning a remote sensing survey to locate the wrecks.

Brickyard Point

Thirteen dives from 1981 to 1989 at the point netted 44 bottles. The bottles ranged in date from the 1800s to modern types and included 3 piece mold black beer and whiskey bottles, food bottles, and a Chero cola bottle. The predominate type of bottle from the point were black beer bottles, pre-1860s, of which there were 25 recovered.

Sam's Point

Five hobby collecting dives took place during 1985 off Sam's Point on Brickyard Creek. The divers recovered numerous sherds of whiskey flasks, historic and modern beer bottles, and milk bottles. One diver retrieved a metal propeller and postulated that it may have come from a 1950s crab boat. Other recoveries included a lead sounding weight and in the adjacent Sam's Point River a diver observed a large amount of ballast stone.

Battery Creek

Eighty-five hobby collecting dives occurred from 1982 to 1996 at various spots in Battery Creek. Divers retrieved 242 bottles, several earthenware and stoneware sherds, three pottery jugs, and a ceramic saucer. Two unique items, a stone sharpening wheel and possibly a grenade, were recovered from the creek. The grenade, or cannon ball, had a white powdery substance in the center of the iron ball, which the diver likened to concrete powder. In addition to collecting cultural material, divers also brought up gallons of fossilized bones and a large amount of whale, camel, horse, mastodon, and sloth teeth.

One diver spent several months diving in the creek and noticed a 50 ft. barge buried on the river bank which was visible only at low tide. The diver surmised the barge was used for phosphate mining. He also noted the presence of several other barges in the creek. During earlier dives, the same diver reported finding various wooden structures, including the remains of a sunken boat. He stated in the report that he would inform the SCIAA if he found anything significant during future dives. Later hobby reports from the same diver do not mention finding any additional watercraft or other wooden structures, and presumably what was believed to be a sunken boat was subsequently determined not to be a vessel, or the diver may have failed to follow-up with the pertinent information.

Battery Creek at Port Royal

Sixteen hobby collecting dives occurred from 1984 to 1986 around Port Royal in Battery Creek. These dives were located off the commercial docks, the state docks, and by the eroded palmetto pilings of the old boat dock. Divers collected 20 bottles, one ink well, and one 2 in. clay pipe stem fragment.

Whale Branch River

There was only one recorded hobby collecting dive at an unspecified location in the Whale Branch River. The diver netted an 1850s green bottle, 17 in. high, in 1988.

Factory Creek

Two hobby collecting dives were reported in 1985. The diver mentioned diving off the remains of an old dance hall and the site of the Maggionis oyster factory. During one dive the diver retrieved a black whiskey bottle from the shoreline, and another whiskey bottle, as well as another type of bottle from the water.

Broad River

The Broad River was the least frequented dive destination of hobby collecting divers in the Port Royal Sound region. In fact, submitted reports only mention activities other than collecting. Two reported dives in the river were for salvage of more recent vintage material culture including one dive to recover a jeep and a trailer at the Broad River boat landing, and a second dive to recover a murder weapon for the South Carolina Law Enforcement Department (SLED).

Port Royal Sound

Divers mentioned diving in the sound proper, but unfortunately provided no cultural or natural landmarks by which to reference the dive site. One diver mentioned that some fossilized teeth and bones were brought up by a shrimper somewhere in the sound. The same diver also described an attempt to locate two shipwrecks on either side of Port Royal Sound channel. They found what they described as ". . . one set of irons that looked like old ribs to something." National Oceanic and Atmospheric Administration (NOAA) nautical charts show two wreck symbols on either side of the channel at channel markers 24 and R25. Perhaps these were the two sites in question referenced in the report. A local sport diver mentioned to us his unsuccessful attempts to locate these charted wrecks as well.

Miscellaneous sites in Port Royal Sound and vicinity

Eleven hobby collecting divers were reported from 1977 to 1990 at various locales in Port Royal Sound. One diver reported diving in the Coosaw River above Beaufort at gun emplacements, presumably Civil War-era. The diver collected two dark green bottles with push-ups, a hand-made brick, and noticed a large amount of ballast rock on the bottom of the river. Perhaps this diver was near Ballast Island. Off the east side of Goat Island, a diver recovered a large stone mortar, with an uneven depression in the center. Other sea island dive spots included Spring, Lemon, Pinckney, and Cole Islands where divers retrieved bottles, a broken stoneware jug, prehistoric cord-marked pottery, and one minie ball. At Cat Island Creek a diver collected a half-pint amber flask. Two dives in the marsh behind the Kmart store on Hwy 21 netted one diver five whole bottles and several broken bottle bases.

Offshore

Diving in the offshore region of Port Royal Sound at the entrance channel was primarily directed toward collecting artifacts from the S.S. *Lawrence*, although one diver does mention diving on some barges on Gaskins Bank. The *Lawrence* sank in 1899 during a storm that claimed the lives of several crewmen and a cargo of general consumer merchandise. The steamer was carrying a cargo of miscellaneous goods, such as S.C. Dispensary bottles, household goods, newspapers and magazines, and foodstuffs. From 1984 to 1993, there were 26 reported hobby collecting dives on the site. Items retrieved from the wreck included 63 S.C. Dispensary bottles, 36 medicine bottles, 15 baby bottles, as well as many other bottle types. Other items collected from the site included remnants of oil lamps, rubber teething rings with brass bells, pickled vegetables, ceramic dolls, buttons, toilet paper, artwork, and a harmonica to name a few of the artifacts.

General location:

The site is located on a mud flat on the west side of Cane Island on the Beaufort River. The vessel lies approximately 24 m from the marsh line surrounded by oyster clumps and is exposed during low tide.

Site description:

The site consists of the remnants of the lower hull of a lightly built wooden watercraft (Figure 9.2). Overall extant dimensions of the watercraft are 8.4 m in length and 1.86 m in width (Figure 9.3). Frames and planks are held together by wire boat nails, 4 mm in diameter and perhaps galvanized. On the southeastern side of the wreckage there is a scatter of wire boat nails and some corroded iron objects. Just southwest of the site is a section of an iron rub rail or boat rail. There are 13 frames or frame locations, and nine planks. The frames are 6.5 to 7.0 cm sided (wide) and 8 cm molded (thick). Frames are spaced on 42 cm centers. Sided dimensions of the planks are 13 to 16 cm, and one plank is 27 cm (Figure 9.4). The plank at the turn of the bilge is 8 cm wide. All planks are approximately 4 cm thick. In cross section the hull shows a flat run from the keel with a hard vertical chine at the turn of the bilge. Between frames 2 and 3, and 4 and 5, are two rectangular backing pieces for fastening the butt ends of two planks. There are also several disarticulated hose clamps throughout the site, an alternator, and a section of rubber radiator hose. A dull yellow metal slag litters the site. Some of the nails are coated with the yellowish material.

Potential threats:

The site is subject to erosion along the river bank, and during the tidal change exposed to wave effects that is exacerbated by wake from passing boats. Intertidal development could also affect the site. Natural degradation from oyster growth and marine boring organisms appears to be an ongoing process. Collectors could also pose a threat by retrieving materials from the site.

Assessment:

The remains appear to be that of a



Figure 9.2. Cane Island Wreck (38BU1817). (SCIAA)



Figure 9.3. Cane Island Wreck (38BU1817). Scale in decimeter increments. (SCIAA)



Figure 9.4. Close-up of planks and frames on the Cane Island Wreck. Scale is in decimeters. (SCIAA)

small, motorized wooden vessel from the twentieth century. The site is located within the parameters of a previously documented archaeological site (38BU1294), that is characterized as a low density historic scatter site approximately 70 meters by 130 meters. The scatter is described as consisting of oyster shells, brick fragments, ceramics, nails, and glass that date to the late eighteenth to early nineteenth century. A 1787 land plat reveals a structure that may account for the historical material at the archaeological site. The principal historic use of Cane Island was as farm land, although from 1909 to 1911, the Planters Fertilizer and Phosphate Company owned the land, possibly for industrial use of processing phosphates mined from the river (Kennedy 1992). Perhaps, the watercraft was associated with the phosphate company or alternately was used as a conveyance for the twentieth century land owners to travel from the island to Beaufort and other local destinations.

Recommendations:

Future work at the site should include determining whether the vessel was built locally from indigenous wood by obtaining wood samples from the hull. Conducted during high tide, a remote sensing survey of several transects in proximity to the site could reveal associated materials with the watercraft, and help to determine the overall extent of the historic scatter site.

Shrimp boat "Boll Weevil" (38BU1816)

General location:

The site is located 150 m offshore of the southwestern end of Daws Island. Heavily encrusted with oysters, the site is exposed during low tide and lies on a mud bottom, surrounded with a thick matrix of living and dead oysters.

Site description:

The site consists of a straight in-line engine block protruding out of the water at low tide, along with a propeller shaft, and iron deck plating (Figure 9.5). Visible remains at the site measure approximately 6 m in length and 3 m in width. The engine block protrudes approximately 2 m above the main portion of the site.



Figure 9.5. Christopher Judge (South Carolina Heritage Trust) studies engine block (38BU1816) at Daws Island. (SCIAA)

Potential threats:

Boat wake and human intervention may affect the site. Additionally, the infestation of the vessel's remains by oysters may also have some adverse effects on the site.

Assessment:

Based on the information provided to us by a local shrimp boat captain, the boat

remains may be from the shrimp boat "Boll Weevil" that burned and sank during the 1960s.

Recommendations:

No further archaeological work is recommended for this site. Periodic monitoring of the site is suggested, however, to study the effects of oyster colonization on historic resources.

Factory Creek Wreck (38BU1814)

General location:

The remains of a wooden craft lie embedded in a mud bank surrounded by marsh grass on three sides and pluff mud and oysters along the water on the Lady's Island side of Factory Creek. At low tide the site is around 8 m from the waterline.

Site description:

Observed structure is approximately 8 m long and 3 m wide. Structure includes the keel, keelson, planks, and frames of one side of a vessel (Figure 9.6). The keel and keelson are built up of several timbers placed on top of one another and are fastened together by iron straps on the side. In one instance a wood block also was used to strap the keel and keelson together. Frames are approximately 7 cm sided and 3.5 cm molded. Frames are spaced 25 cm apart on center. There are seven strakes visible. Plank widths range in size from 12 cm to 18 cm. One of the planks is thickened and may be a wale. A plank butt joint is visible between two frames and the amount of nails around the seam indicate that a backing plate once was used to hold the butt ends of the planks together (Figure 9.7). Planks were fastened to frames with treenails 3 cm in diameter along with nails. A rubber hose protrudes out from the inner hull adjacent to what appears to be a starter motor. Additionally, there appears to be a place for a motor mount.



Figure 9.6. Remains of the Factory Creek Wreck (38BU1814). Scale is in decimeters. (SCIAA)

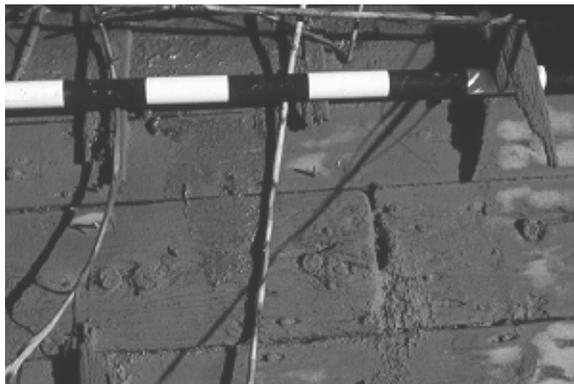


Figure 9.7. Close-up of hull planks and butt joint. Scale is in decimeters. (SCIAA)

Potential threats:

The site is embedded in the shoreline, but is subject to erosion, boat wake, and intertidal development.

Assessment:

The site is that of a small wooden watercraft from the twentieth century. From the 1920s to the 1980s the Maggioni's Oyster cannery operated in this area and it is possible that this watercraft was associated with the oyster industry until its abandonment.

Recommendations:

Limited work is recommended at this site to ascertain whether a portion of this wreckage lies underneath the adjacent oyster boat, 38BU1815. Also, wood samples taken from the craft may indicate whether it was built from local woods. An educational use for the vessel would be to use the site as a training project to acquaint field school participants on recording intertidal remains.

Factory Creek Oyster Boat Remains (38BU1815)

General Location:

The site is located on Factory Creek in the marsh below a bluff. The site is directly behind the smaller Factory Creek Wreck (38BU1814). The site is barely covered in water

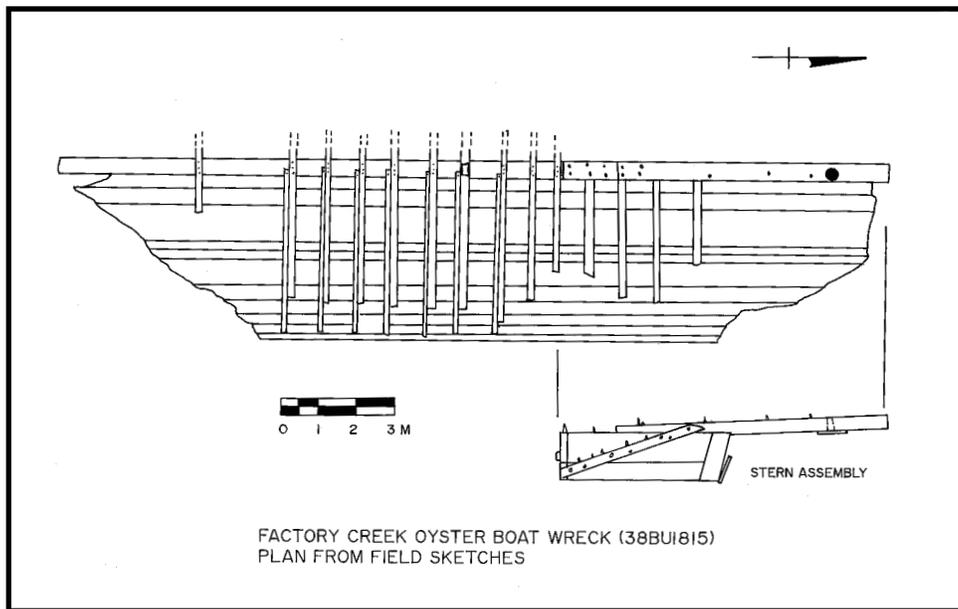


Figure 9.8. Plan sketch of the Factory Creek Oyster Boat Wreck (38BU1815). (SCIAA)

during high tide (Figure 9.8).

Site Description:

Overgrown in marsh grass, the vessel consists of the lower hull of a flat bottom boat with remnants of the lower stern. Structural elements of the vessel include the keel, floors and futtocks, planking, and the stern assembly. The vessel is roughly oriented from north to south along a bluff and lies roughly parallel to the creek. The measured sketch

depicts the port side of the vessel, although the starboard side is similarly preserved.

The extant remains of the vessel are 11.4 m with an extant breadth of 5 m. The keel is sided 20 cm. Approximately 5 m from the bow, the keel begins a gradual rise to the stern assembly. Fourteen floors remain and are sided 10 cm and molded 22 cm at the throat or center of the frame over the keel (Figure 9.9). Floors are spaced approximately 40 to 50 cm on center. Floors are attached to the keel by three iron fasteners. Floor 7 has a notch centered over the keel that may indicate an attachment area for the power plant. Seven futtocks are extant which are placed forward of the floor. Futtocks measure 5 cm sided and vary in molded dimension as they taper from a shim thickness at the keel and gradually increase in width as they move outboard. There are eleven strakes on the port side with a similar number on the starboard side. Plank widths vary considerably ranging from 10 cm to 50 cm and are 3 cm thick.



Figure 9.9. Frames of the Factory Creek Oyster Boat Wreck (38BU1815). (SCIAA)



Figure 9.10. Stern assembly of the Factory Creek Oyster Boat Wreck (38BU 1815). (SCIAA)

The stern assembly consists of a built up section of the stern that serves multiple functions (Figure 9.10). The assembly is 1 m high, 4.29 m long, and 20 cm wide. The assembly is fashioned with six timbers. The five lower timbers serve as deadwood to narrow the hull for better rudder performance, as the propeller shaft support, and as a means to attach the hood ends of the planks. The forward most piece, where the propeller shaft entered the construct, is heavily fastened with nine 2 cm diameter iron fasteners (Figure 9.11). The diagonal piece running up the side of the timber construct is fastened with seven fasteners. Five remaining fasteners on the upper sided edge of the timber attest to where the hood ends of the planks once were situated, which have fallen away to the mud below. The remaining timber, or the counter timber, is 3.55 m in length which once supported the rudder head. Three add-on pieces of plywood suggest that the last days of the vessel were spent as a barge. At the forward area of the construct is a small wooden plug in place in the propeller shaft hole, while the aft hole is plugged with a piece of plywood. The through hole for the rudder shaft was also plugged on the lower side of the counter timber.



Figure 9.11. Detail of forward section of the stern assembly. Note the wooden plug in the propeller shaft. Scale is in decimeters. (SCIAA)

Potential Threats:

The wooden fabric of the wreck is in good condition and appears to be free of oyster growth and shipworm damage. Deterioration of the wreck structure relates to the tidal fluctuations which constantly causes the wreck to get soaked and then dry during low tide. Chemical decomposition of the iron fasteners was also noted. The site contains no visible associated cultural material, and is practically invisible behind a screen of marsh grass, which limits potential artifact collectors from visiting the site.

Assessment:

The site appears to be a flat bottomed boat used in the oyster industry during the 1900s to the 1950s. At one time the vessel was motorized, but apparently the vessel ended its career as a barge as evidenced by the wooden plug in the propeller shaft and the two plywood plugs covering the aft hole for the propeller shaft and the hole for the rudder head to pass. The Maggioni's Oyster Cannery operated from the 1920s to the 1980s on the bluff and this vessel, as well as the adjacent vessel (38BU1814), were most likely associated with transporting oysters from the beds to the factory. Perhaps the two vessels were damaged or had outlived their usefulness and were stripped and abandoned at the creek's edge on the periphery of the cannery. This vessel is historically and archaeologically significant as an example of the South Carolina Oyster Boat, this region's unique contribution to vernacular watercraft in the world (Fleetwood 1995;308).

Recommendations:

Additional recording of the site is needed, along with obtaining wood samples to determine the type of woods used in constructing the vessel. The site could also be used as a training exercise for volunteers or field school participants to learn more about documenting watercraft. Survey in the waters nearby to the two sites may reveal other associated watercraft in the creek as mentioned to us by one of the informants. In any event, if the survey fails to reveal another example of the oyster boat, this site may be eligible as a National Register Historic Place due to the uniqueness of the South Carolina Oyster Boat.

Port Royal Island Wreck (38BU1813)

General Location:

The remains of this wooden-hulled vessel lie embedded in a marsh flat bordering the west side of the Beaufort River approximately 0.75 km upstream from the Naval Hospital and 1.35 km downstream from the Beaufort Marina (Figure 9.12). The craft lies parallel to the waterline of the river at the interface of the beach and marsh, with the bow pointing downstream and is exposed at low tide. While some portions of the vessel are exposed, the majority of the site is buried beneath a cover of sand, mud, and oyster shell that make up the matrix of the beach. Those portions of the structure that are visible have eroded to



Figure 9.12. Location of the Port Royal Island Wreck (38BU1813). Note dock upstream. (SCIAA)

where they present a minimal profile of perhaps one or two centimeters above beach grade.

Site Description:

The site was recorded during a two-hour session on a cold, rainy day in November 1997 (Figure 9.13). No excavation was conducted in the vessel. The description and measurements reflect only those timbers that were exposed through natural processes. A hole less than 10 cm square was placed alongside, and outboard of the port planking near the bow to a depth of 45 cm to assess preservation of the buried wood and to confirm the presence of a keel (Figure 9.14).

From stem to stern post the vessel measures 16.17 m, while the half-breadth is approximately 1.95 m (Figure 9.15). Probing indicates that the structure extends at least 70 cm below beach grade, while observations of the port side in the test hole indicate the presence of a keel. Fifteen frames are visible along the starboard side of the vessel, located predominantly near the bow and stern. Frames are spaced on approximately 40-50 cm centers, but average 45 cm suggesting that the vessel once contained at least 35 frames. In the



Figure 9.13. SCIAA staff record the outline of the hull. From left to right, John Peterson, Lynn Harris, and Jim Spirek. (SCIAA)

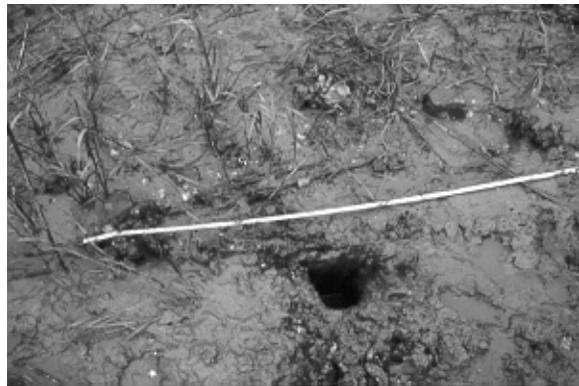


Figure 9.14. Bow structure of the Port Royal Island Wreck (38BU1813) showing limited excavation alongside port planks. (SCIAA)

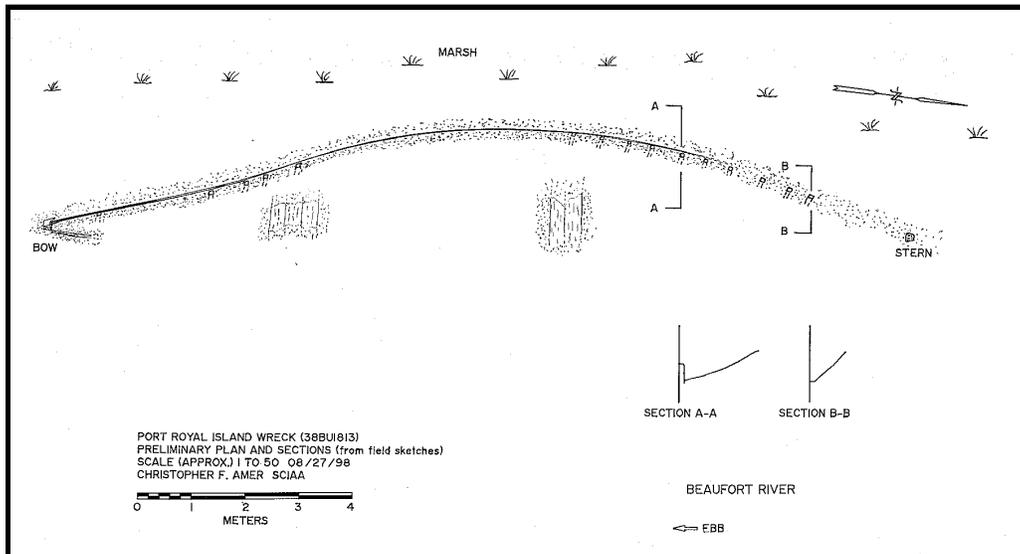


Figure 9.15. Plan of the port Royal Island Wreck Site (38BU1813). (SCIAA)

bow and stern, each frame is made up of two 2-cm-square timbers sistered together to form a frame approximately 2 cm molded and 4 cm sided. At this location, low in the hull, those timbers most likely represent floor timbers and first futtocks. Figure 9.15 presents sections taken along two frame locations in the stern which suggest the shape of the starboard quarter.

The eroded and teredo-riddled upper edge of hull planks are visible for three-quarters of the vessel's length along the starboard side of the hull and, on the port side, for less than a meter at the bow. The vessel appears to have been double planked making each strake approximately 4.5 cm thick at the hood ends. It is possible that the outer layer of planks were added as a sacrificial layer to protect the hull against teredo and grivel damage. Of the uppermost strake only 15 cm of its width survives. However the next plank down, possibly the garboard strake, is 35 cm in width. Both strakes are rabbetted into the stem and fastened to that timber with 4 by 5 mm iron nails.

The stem is formed by a single timber which is trapezoidal in section. The timber retains a 17 cm dimension fore and aft, while the sides flare from 8 cm at the forward face to 10 cm across the aft face. The stem is clad with copper sheathing fastened with copper nails. However, no evidence for copper sheathing was found elsewhere on the hull. The sternpost is approximately 16 m aft of the stem and appears to be more eroded than the forwardmost timber. Between the two ends of the hull a number of small planks lie athwartships across the centerline of the vessel. These planks are located between 4-5 m and 9.5-10 m from the bow and appear not to be fastened to the hull.

Potential Threats:

The site is located on an outside bend in the Beaufort River and so is subject to erosion from river and tidal currents. Wakes from passing boats further exacerbate the problem. As at many other sites in the brackish intertidal areas of the region, biological degradation is an ever-present and ongoing process, aided by relatively warm water temperatures. Biological organisms devour the wood while oysters further degrade the timbers. The vessel is somewhat protected from erosion by virtue of its location high on the beach and by a private dock located upstream, which deflects some of the river current away from the site (See Figure 9.12). However, in spite of its low profile against the beach the threat from collectors and curious individuals pose a potential threat to this site.

Assessment:

The site is a wooden vessel of indeterminate date. Its construction appears to be fairly light making it unlikely the craft was designed to carry heavy loads. The presence of copper sheathing suggests a late eighteenth to early nineteenth century provenance for the terminus ante quem. However, in the absence of further structural analysis of the hull, the presence and analysis of artifacts in direct association to the vessel and intensive scrutiny of local newspapers and records for accounts of a vessel lost or abandoned in that location may help to more precisely identify and date the craft.

Recommendations:

Future work at the site should include an intensive survey of the vessel and surrounding sediments to determine the extent of the site and to more precisely identify and date the vessel. The survey strategies should include test excavations at the bow, stern, amidships, and outside the hull to determine construction techniques, locate diagnostic

structures like the rudder, rigging components, and the location of the mast, or masts, and to retrieve artifactual, floral, and other evidence. A perusal of local shipbuilding records, ship losses, and newspapers from the eighteenth century onward should be undertaken to help identify and date the vessel and place it within an historical context developed in this project.

Pilings

Pilings behind Beaufort Hospital (38BU1821)

General location:

Situated along the bank of the Beaufort River on Port Royal Island, the site lies on mud and along the fringe of the marsh grass to form a small point protruding out of the shoreline. Immediately offshore of the site is a steep drop-off. The site is heavily encrusted with oysters and is exposed during low tide.

Site description:

The site consists of wood pilings and a composite iron and wood structure (Figure 9.16). The pilings run parallel to the shoreline and are eroded to points around 20 cm above the surface and covered with oysters. The structure is 7 m in length and 3 m in width. Three wooden planks cover an iron deck. The planks are fastened with threaded 1/4" diameter bolts and nuts, and nails.

Potential threats:

The site is subject to erosion along the river bank, and during the tidal change exposed to the effect of waves that is exacerbated by wake from passing boats. Intertidal development could also affect the site.

Assessment:

This construct may be the remnants of a collapsed wharf once associated with an earlier period of the hospital or from land use prior to construction of the hospital.

Recommendations:

Future investigation requiring some excavation may help to identify the composite construct. Additionally, based on the presence of the pilings, remote sensing offshore of the site should be conducted to determine the presence of more pilings and any other submerged components.

Line of Palmetto Pilings (38BU1824)



Figure 9.16. Oyster encrusted structure (38BU1821). (SCIAA)

General location:

The site is located on the Beaufort River side of St. Helena Island and upriver from Fort Fremont. Eroded pilings protrude from a sand and shell hash shore out into the Beaufort River. At high tide the pilings closer to land on the riverbank are exposed while those further down the line are covered by approximately 50 cm to 1 m depth of water.

Site description:

The site consists of a series of palmetto pilings once part of a wharf, or perhaps a bulkhead. The northernmost section is composed of a solid run of 33 palmetto logs. This section measures approximately 6 m in length. There are six other pilings located on the downstream side of the line of pilings. Some of these pilings occur singly, while others occur in pairs spaced from 3.0 m to 3.8 m apart. No other material culture was observed in the vicinity of the pilings (Figure 9.17).



Figure 9.17. Row of palmetto piling on St. Helena Island (38BU1824). (SCIAA)

Potential threats:

The site is subject to erosion along the river bank, and during the tidal change the pilings are exposed to wave action that is exacerbated by wake from passing boats. Intertidal development could also effect the site.

Assessment:

The use of palmetto logs in the construction of the wharf or pier suggest a pre-twentieth century date for construction. An 1882 nautical chart of the Beaufort River depicts a dock extending out into 15 feet of water during low tide, along with three adjacent terrestrial structures, in the vicinity of these palmetto pilings. This pier remains on the charts up to 1897.

The pilings are also within the confines of site 38BU242 that is described as a light scatter of prehistoric and historic materials. The site extends 600 feet along the Beaufort River. Also recorded in the site form is the presence of a sea wall along an elevated bluff on St. Helena's Island. The sea wall was not observed during the site revisit.

Recommendations:

As a possible point for the transfer of products from the water to the shore the area around the site should be electronically surveyed for the presence of any abandoned watercraft or associated pier or wharf structure.

Squared Pilings (38BU1818)

General location:

Located on the eastern shore of Hilton Head Island just north of Fish Haul Creek, the site extends from a sandy beach out to a bottom composed of a thin veneer of sand overlying mud. The site is exposed during low tide.

Site description:

The site consists of a series of rectangular pilings running diagonally to the beach in a southeastern direction, or at a bearing of 290°. Exposed pilings cover a distance of 27.3 m and the two rows of pilings are spaced 1.56 m apart. Pilings are spaced between 1.4 m and 1.56 m apart along the longitudinal axis. Each piling is approximately 6 cm thick and 15 cm wide. There are also several pilings randomly interspersed in the vicinity of these pilings (Figure 9.18).



Figure 9.18. Pilings (38BU 1818) angling towards the Atlantic Ocean. (SCIAA)

Potential threats:

The site is subject to erosion along the sound and during the tidal change exposed to wave effects. Intertidal development could also affect the site.

Assessment:

The site may have some association with the federally constructed town of Mitchellville (38BU805), a National Register of Historic Places site, built for freed slaves during the Civil War. The pilings may also date to the antebellum period or be associated with a later period plantation. Archaeological reports about work completed at Mitchellville do not mention the presence of these features (Trinkley and Zierden 1983).

Recommendations:

A magnetometer survey of the area may reveal traces of discarded materials from the pilings or abandoned watercraft in the vicinity to aid in determining the time period of the pier.

Channel Marker 242 Wharf Pilings (38BU1820)

General location:

Remnants of a wharf are located on the Beaufort River adjacent to Channel Marker 242 on Spanish Point. The pilings extend from small sand dunes and a shell wash-up out into the river. The site is covered in shell hash overlying mud and is partially exposed during low tide.



Figure 9.20. Pilings (38BU1820) at Spanish Point. (SCIAA)

Site description:

The site consists of eroded pilings for a wharf (Figure 9.20). There are seven rows of pilings with approximately six visible pilings in each row. The site covers a distance of 80 m along the river shore and 23 m in width. Pilings range from 46 cm to 62 cm in diameter and are spaced about 3.8 to 4 m apart. Each timber appears to have been fashioned from pine stock. On the upriver side of the pilings are the eroded tops of several squared timbers. Inland of the back row of pilings, towards the upriver side of the construct, several planks protrude out of the bank. Each plank is approximately 36 cm wide and 3 cm thick. Interspersed among the pilings are iron drift fasteners 2.5 cm in diameter. These fasteners were most likely used in the construction of the pier as holes in some of the pilings matched the diameter of the fasteners. Other associated materials included coal, slag, ballast stones up to 20 cm in diameter, and concreted iron and wood fragments. One nineteenth century brown flask was observed.

Potential threats:

The site is subject to erosion along the river bank, and during the tidal change exposed to wave action exacerbated by wake from passing boats. Intertidal development could also affect the site.

Assessment:

The earliest appearance of a pier in the vicinity of these pilings occurs on an a 1889 nautical chart that shows a "T" dock at the Sea Island Chemical Works. However, a later 1893 nautical chart shows no structure at this point, either on land or in the intertidal area, perhaps indicating the structure was destroyed during the August 1893 hurricane. A structure reappears at Spanish Point on an 1897 nautical chart revealing a complex of three piers. Two piers are shorter than a third pier which terminates in 15 feet of water at low tide. There are no associated depictions of terrestrial features on the chart.

Site 38BU477, known as the 242 Site or Spanish Point Wreck, lies just offshore of the pilings. The underwater site, encompasses an area 25 feet wide by 117 feet long with a maximum depth of 20 feet. The site is described as a scatter of historic artifacts ranging from colonial times to the modern era, some pilings, and a wreck. One unsuccessful attempt was made by the Underwater Archaeological Division in 1983 to locate the wreck which was reportedly upside down and copper sheathed. Presumably that was the last effort to document the site as there is no follow-up correspondence regarding the site in our files.

Divers have extensively collected around the pier remnants and offshore out to channel marker 242. Between 1982 and 1986, one local diver collected approximately 23 bottles during 10 dives at the site. Five of the bottles were from the South Carolina Dispensary which date from 1893 to 1907. Several other recovered bottles also cluster around this time frame of the 1890s to 1910s including medicine, aqua tinted, and blob top bottles. Several onion bottles, that are possibly associated with Fort Lyttleton, in use from the 1760s to the Revolutionary War, were also recovered. The majority of the collected bottles at the site seem to corroborate the date for the appearance of the piers around the late 1880s to the late 1890s.

Recommendations:

An electronic survey of the locale around the pier should be undertaken to locate and document the shipwreck and any other associated structures with the pier.

Technical School Pilings (38BU1822)

General location:

The site is located on the Beaufort River behind the Technical College of the Lowcountry campus on Port Royal Island. The site environment is characterized by a small bluff covered in live oaks which descends into marsh grass towards the river and finally into pluff mud at the intertidal zone of the river. The site is visible during low tide.

Site description:

The site consists of pilings and miscellaneous artifacts arranged in three distinct mounds of cultural debris spanning a distance of 76 m along the shoreline of the Beaufort River. The central core area of the site consists of three rows of palmetto and pine pilings, each is approximately 20 cm in diameter, which extends 18.45 m from the toe of the bank to the low water mark (Figures 9.21 and 9.22). Cultural material extends 36 m upstream and 40 m downstream of the pilings. There are a prodigious amount of ceramics at the site including alkaline-glazed stoneware, yellow ware, and a decorated terra cotta rim sherds. Glass sherds were also noted that included one dark green glass neck and shoulder and a glass seal stamped *Le West Tilbury Hall*. Downstream of the central site, a large amount of U.S. military ceramics were observed. Large rocks and iron overlay the earlier material present at the site.

Potential threats:

The site is subject to erosion along the river bank, and during the tidal change exposed to the effects of waves and exacerbated by wake from passing boats. Intertidal development could also affect the site. Collectors could pose an additional threat to the site through the removal of diagnostic cultural materials.

Assessment:

The presence of pilings and diagnostic ceramics suggest a maritime activity site used from at least the late eighteenth century to around the turn of the century, although it has been used up to modern times as a disposal area. There is a recorded underwater archaeological site (38BU476), reported by local divers, that lies offshore of the terrestrial component. The underwater site extends from low water out to the middle of the channel in 20 feet of water. Artifacts collected by the diver reporting the site included a brown salt glazed stoneware jug, mineral water bottles, late eighteenth and early nineteenth century bottles, including S.C. Dispensary bottles, medicine bottles, blob top bottles, and food



Figure 9.21. Pine pilings and historic artifacts at 38BU1822. Scale is in decimeters. (SCIAA)



Figure 9.22. Pine piling and rocks at 38BU1822. Scale is in decimeters. (SCIAA)

jars.

Recommendations:

The presence of the pilings and artifacts that extend from the shore out into the middle of the river suggest a long period of activity at this site. Remote sensing operations should occur offshore of the site to determine the presence of any additional submerged cultural materials in the near vicinity.

Cat Island Pilings (38BU1823)

General location:

The site is located on the west side of Cat Island on Cat Island Creek at a shell hash beach which extends out into the mud.

Site description:

The site consists of palmetto pilings at a landing that is accessed by a dirt road. Also present is a concrete bulkhead that is highly deteriorated (Figure 9.23).

Potential threats:

The site is subject to erosion along the river bank, and during the tidal change exposed to wave effects. Intertidal development could also affect the site.

Assessment:

The presence of the pilings suggest that some type of maritime activity occurred in the past. Perhaps, the site was used by the residents of the island to access the Beaufort River via Cat Island Creek. The concrete bulkhead was most likely built for erosion control by the property owners. Access to the area is provided by a dirt road which leads down to the pilings. This area could also be in use currently as a landing for small boats.

Recommendations:

Remote sensing operations should occur offshore of the site to determine the presence of any additional submerged cultural materials, such as, pilings and abandoned small watercraft in the near vicinity.

Laurel Bay Palmetto Pilings (38BU1819)

General location:

The site is located on the Broad River on Port Royal Island and is roughly in the middle of the Laurel Bay Naval Housing complex (Figure 9.24).



Figure 9.23. Pine piling and cement bulkhead at 38BU1823. Scale is in decimeters. (SCIAA)

Site description:

Approximately 15 to 16 palmetto pilings are visible along a bearing of 82°. The pilings are spaced 1.5 m apart athwart and 2.5 m apart on the longitudinal axis. No other cultural materials were noted.

Potential threats:

The site is subject to erosion along the river bank, and during the tidal change exposed to wave action that is exacerbated by wake from passing boats. Intertidal development could also affect the site.



Figure 9.24. Nanci Blackwood and Carl Naylor measure palmetto pilings at 38BU1819. Scale is in decimeters. (SCIAA)

Assessment:

Current USGS topographical maps show a pier in the vicinity of these pilings indicating that activity took place at the site, perhaps for recreational use like fishing. Laurel Bay, once a plantation, was the landing area of British troops during the Revolutionary War. American and British troops fought a brief battle in January 1779 in which the British retreated from the battleground and headed down the Broad River.

Recommendations:

Remote sensing operations should be conducted offshore of the site to determine the presence of any additional submerged cultural materials such as, pilings and abandoned watercraft in the near vicinity. Also the survey may locate any items jettisoned by the retreating British forces if this area was the staging point for their assault on Beaufort.

Miscellaneous Sites

Telegraph or Telephone Pilings (3B2-3B4)

General location:

A series of pilings extend along the intertidal fringe on the northeastern side of Parris Island. The shore is characterized by mud and shell hash. The pilings are exposed during low tide.

Site description:

The site consists of a row of pilings over 140 m in length. Associated artifacts included insulated wires and ceramic conductors.

Potential threats:

The site is subject to erosion along the river bank due to the effects of waves and boat wakes. Intertidal development could also affect the site.

Assessment:

The pilings appear to be the remains of a telegraph, telephone, or power line poles that once linked Parris Island to Port Royal Island.

Recommendations:

No further archaeological investigation is warranted at this site.

Riveted Iron Boxes (4C2)

General location:

The site is located adjacent to Bermuda Bluff on the St. Helena Island side of the Beaufort River. Site environment is characterized by mud and oyster shells along with marsh grass.

Site description:

The site is composed of a group of eight riveted iron boxes in a seemingly random dispersal pattern (Figure 9.25). The main group consists of five boxes, with one box 25 m to the south and one box 8 m to the north of the central cluster. All the boxes are hollow, heavily encrusted with oysters, and are actively corroding. The individual boxes vary in dimensions, one measures 80 cm in length and 50 cm in width, while a second box is 35 cm in length, 85 cm in width, and 40 cm in depth. Each iron plate is 1 cm thick.



Figure 9.25. John Peterson investigates oyster-encrusted iron boxes. Scale is in decimeters. (SCIAA)

Potential threats:

The boxes will continue to degrade through chemical decomposition and wave action.

Assessment:

These metal containers may be water tanks. The use of rivets to fasten the plates together suggests a date no later than the mid-twentieth century for their construction. The boxes are within the confines of site 38BU32/245 that is simply described as featuring very limited prehistoric and historic materials.

Recommendations:

No further archaeological investigations are warranted unless historical research uncovers some potential archaeological or historical significance.

Lady's Island Dump Ground (4A2)

General location:

Located on Lady's Island, the site is adjacent to channel marker 239 in the Beaufort River and directly across from the City of Beaufort. The site environment is characterized as a mud bank with oyster shells in front of marsh grass.

Site description:

The site consists of a dump ground of wire cable, cement blocks, asphalt, pilings, broken timbers, and corroded iron amid a fossil field of shark teeth and bones.

Potential threats:

No potential threats are discernible.

Assessment:

This dump may be the remains of an earlier bridge, along with debris from the construction of the current bridge, that spans the Beaufort River from Lady's Island to Port Royal Island.

Recommendations:

Limited work at the site is recommended as this site may have been used over the centuries as a dumping ground and thus may contain earlier materials further out in the water. Therefore a side scan sonar survey of the area should be undertaken to determine the time depth and sequence of the dumping site.

Artifact Scatter Site (3B1)

General location:

The site is located on a stretch of Port Royal Island beach along the Beaufort River.

Site description:

Site consists of a scatter of late nineteenth and early twentieth century iron bolts and a 6 inch diameter case gin bottle base.

Potential threats:

No discernible threats are evident, although collectors may remove some of the materials.

Assessment:

The site appears to be of limited historical or archaeological significance.

Recommendations:

No further archaeological work at the site is recommended.

Archaeological Site Revisits

Since all of the following sites we revisited are in South Carolina and Beaufort County, we have therefore dropped the alpha-numeric prefix for each site, and instead have retained the individual site number as they are listed in state archaeological site files maintained by SCIAA. Officially, each of these sites is prefaced with 38BU, for example 38BU238, the 38 designates the site as located in South Carolina, the BU as located in Beaufort County, and 238 the individual site number. For each site, a brief description of the site is provided from information derived from the sites files and then is followed with our observations (Figure 9.26).

Site Number;

9-A prehistoric site containing a Stallings Island shell midden with earthenware sherds, hammerstones, points, animal bones, etc.; During the revisit we noted several large sherds of Stallings pottery eroding from the shoreline.

32/245-Prehistoric/Historic; No visible cultural materials were observed during the site revisit which appeared to be heavily eroded.

38-Prehistoric points; No visible cultural materials were observed during the site revisit. The site appeared to be heavily eroded.

65/329-Woodland/Historic; This portion of the beach is covered in stone rip-rap. No visible cultural materials were observed during site revisit.

78/1155/1156-Multi-component site of Fort Sherman Reservation, consisting of Fort Sherman (1861-1864), an earthwork fort built by Federal forces, and Coggins Point, an antebellum plantation; We did not observe any historic structures along the shoreline. The

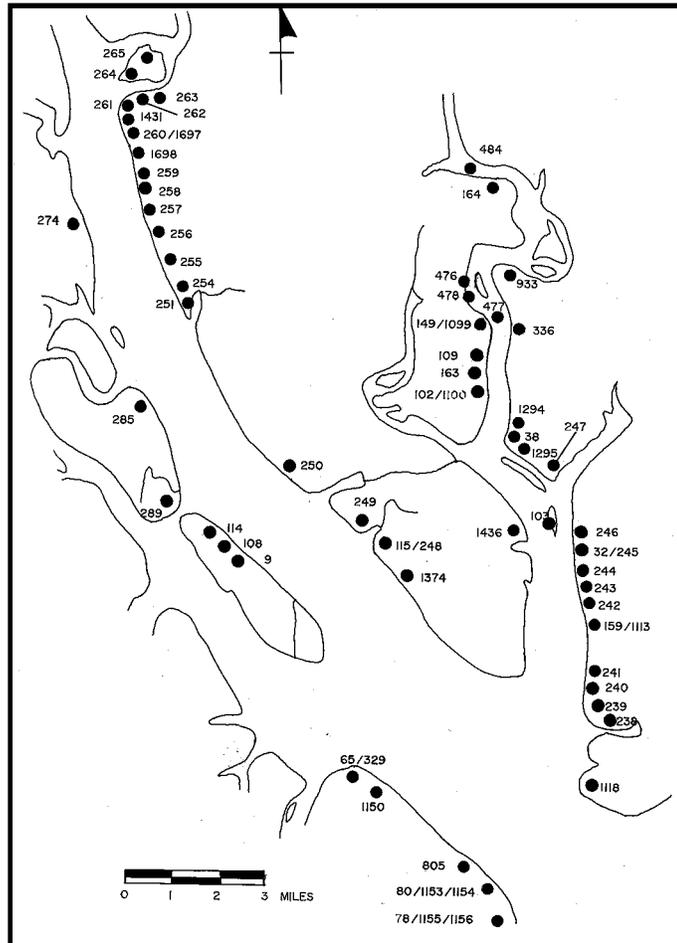


Figure 9.26. Archaeology sites revisited during the survey. (SCIAA)

shore had also recently undergone beach renourishment from the Atlantic Ocean to Fish Haul Creek which may have covered any cultural materials.

80/1153/1154-Confederate earthwork fort, Fort Walker (1861) and renamed Fort Welles after capture by Union forces; also commonly known as the "steam cannon site" which was built in 1898 during Spanish-American War. The gun was actually a pneumatic gun that used steam to build up pressure in order to send a round noiselessly through the air;

During the site revisit we photographed the remains of the concrete tunnels leading to the cannon mount and ruins of brick structures behind the cannon mount (Figures 9.27 and 9.28).



Figure 9.27. Concrete pivot structure for pneumatic gun. (SCIAA)



Figure 9.28. Margie Tolley examines brick structure at pneumatic gun emplacement. (SCIAA)

102/1100-Fort Frederick; in addition to observing a range of small ceramic sherds littering the site, a barrel well was documented approximately 52 m upriver of the north tabby wall (Figure 9.29). The barrel appears to be fairly complete and is slightly distorted into an oblong shape. The barrel is roughly 65 cm in diameter. The barrel is made up of 28 staves that are 16 mm thick. The croze grooves for the header pieces are visible along the upper part of the staves. A wooden post, 20 cm in diameter, runs through the center of the barrel. While visiting the site, waves were crashing into the barrel caused by boats passing the area during low tide. Therefore, on a subsequent visit we placed Geofabric™ and sandbags to help protect the barrel. Erosion caused by the wake and natural processes will continue to affect the barrel and some plans are necessary to develop some long term solution, including excavation as one potential course of action.

103-Prehistoric canoe embedded in a shell midden; During the site revisit we did not observe the canoe.

108-A prehistoric site composed of a shell midden; During the site revisit we observed some undiagnostic prehistoric pottery sherds.



Figure 9.29. James Legg with barrel well at 38BU 102/1100. (Christopher Judge)

109-Ruins of two brick kilns; The site is now under the Lady's Island Connector and no cultural material was observed around the area during the site revisit.

114-Paleoindian through Woodland ceramics and quantities of lithics; No visible cultural materials were observed during site revisit.

115/248-Paleoindian through historic materials; During the site visit we observed two shell middens at the site, but did not see any cultural material.

149/1099-Fort Lyttleton, colonial British and American tabby fort (1758-1781); Fort Marion (1807-ca. 1821); late nineteenth century phosphate factory; WWI shipyard, and a 1950s warehouse; During the site revisit we observed remnants of tabby walls along the intertidal fringe of the Beaufort River. Also noted pilings most likely associated with the phosphate and WWI shipyard complex.

159/1113-Fort Fremont, a Spanish-American war coastal fortification consisting of concrete gun emplacements, built in 1898, is located on the bluff overlooking Port Royal Sound at the mouth of the Beaufort River; During the site revisit along the shoreline we noted tabby walls, but no small artifacts were observed, although evidence of pot hunting was visible in the surrounding area.

163-Prehistoric/Historic scatter; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.

164-Nineteenth/Twentieth century house ruin; No visible cultural materials we observed during the site revisit.

238-The site consists of an early woodland shell midden that forms a small island located adjacent to Station Creek. During the Civil War, Union troops used the island as a ship repair facility; We noted remnants of an iron working area and a causeway, about 10 to 15 cm below the mud, that extends from the island to the creek. Two posts were visible at the creek terminus of the causeway. Surface inspection of the island revealed slag, coal, glass, iron fragments, and prehistoric pottery.

239-Historic earthen causeway; Possibly a part of 38BU238's historic use by the Union navy; The remains of a bridge over the small tidal creek that separates 38BU238 and 38BU240 were observed.

240-Woodland oyster midden/Historic; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.

241-Historic site, mid-1800s, composed of oyster shells and ceramics; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.

242-Woodland/Historic materials along with remnants of a seawall; During site revisit palmetto pilings were recorded (See 38BU1824)

243-Woodland/Historic; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.

244-Woodland/Historic; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.

- 246**-Formative; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.
- 247**-Woodland/Mississippian; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.
- 249**-Prehistoric/Historic; Access to this site was restricted due to live fire from marine recruits.
- 250**-Historic scatter, very light; No visible cultural materials were observed during the site revisit.
- 254**-Archaic/Woodland oyster midden; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.
- 255**-Archaic; No visible cultural materials were observed during the site revisit.
- 256**-Formative period; No visible cultural materials were observed during the site revisit.
- 257**-Archaic; Located lithics, and prehistoric and historic ceramics during site revisit.
- 258**-Prehistoric scatter of ceramics and lithics; No visible cultural materials were observed during the site revisit.
- 259**-Prehistoric/Historic; No visible cultural materials were observed during the site revisit.
- 260/1697**-Archaic/Historic scatter; No visible cultural materials were observed during the site revisit. A modern pier is within the site confines.
- 261**-Archaic/Woodland/Mississippian; No visible cultural materials were observed during the site revisit.
- 262**-Archaic/Woodland; No visible cultural materials were observed during the site revisit which appears to be heavily eroded.
- 263**-Early Archaic/Woodland site consisting of chert flakes; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.
- 264**-Archaic points recovered from site; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.
- 265**-Archaic; Site appears to be heavily eroded, but did locate one piece of lead sheathing, 27 cm long by 16 cm wide and 1 mm thick, with regular rows of tack holes.
- 274**-Prehistoric debitage; No visible cultural materials were observed during the site revisit.
- 285**- Prehistoric and historic artifacts; During revisit we noted a pearlware sherd with a brown feathered edge along the rim, an eroded thin reddish earthenware sherd possibly of prehistoric origin, several brick fragments, small chert stones, and shingle. The terrain consisted of compacted mud overlain with a thin veneer of sand. The beach terminated

with a shell wash to the marsh grass.

289-Woodland shell midden; No visible cultural materials were observed during the site revisit.

336-Two late archaic shell midden; No visible cultural materials were observed during the site revisit.

484-Wreck of SS *Clifton*; During the revisit we photographed the boiler remains (Figures 9.30 and 9.31). We also noticed various iron fasteners protruding from the bottom that made navigation potentially hazardous in our small boat.

805-Prehistoric Stallings Island seasonal village superimposed by Mitchelville (1862 to 1920), a freedman's village built by Union troops during the Civil War; During site revisit noticed remnants of Bohicket soils with a scatter of animal bones (cow, pig, and bird), bottle and ceramic sherds, coal, brick, and shoe leather interspersed with modern beer cans and bottles.

933-Historic scatter of ceramics and glass sherds, and marble fragments; No visible cultural materials were observed during the site revisit.

1150-Prehistoric middens, and the antebellum Elliot Plantation; This area of the beach is covered in stone rip-rap and no visible cultural materials were observed during site revisit.

1118-Fort Beauragard, a confederate earthen battery (1861), or Fort Seward (1861); During site visit did not notice any cultural alterations to the land or materials along the shoreline, although informants have reported seeing an earthen berm in the interior of the spit of land.

1294-Historic scatter of bricks, oysters, ceramics, and nails; Some scatter of historic materials observed during site revisit. We also documented a historic watercraft within the site boundaries (38BU1817).

1295-Early 20th century house bulldozed into river; No visible cultural materials were observed during the site revisit.

1374-Mississippian/Contact, shell midden with earthenware sherds; No visible cultural materials were observed during the site revisit. The site appears to be heavily eroded.



Figure 9.30. Boiler of SS. *Clifton* (38BU484). Scale is in decimeters. (SCIAA)



Figure 9.31. Boiler of S.S. *Clifton* (38BU484). Scale is in decimeters. (SCIAA)

1431-Historic site with tabby ruins of a domestic site; No visible cultural materials were observed during the site revisit.

1436-Possible ballast dump composed of small stones, sixteenth to nineteenth century ceramics, glass, and brick fragments; Noted the presence of artifacts including green glass, high kick-up bottle bases, milk bottle top, lots of brick and stones mixed with modern debris ranging from glazed tiles and concrete.

1698-Prehistoric scatter/Historic structure; No visible cultural materials observed during site revisit. The site appears to be heavily eroded.

Chapter 10: Remote Sensing Operations

From 21 through 23 September 1998 SCIAA's Underwater Archaeology Division conducted marine remote sensing operations at four locations in Port Royal Sound. These locations were along the northeastern tip of Daws Island on the Broad River, the southern side of Spanish Point on the Beaufort River, the northern side of Cotton Island on the Whale Branch River, and at the remains of the SS *Clifton* in Brickyard Creek (Figure 10.1). The first three areas were chosen for archaeological prospecting owing to reports noting the presence of ship remains, while the last one was chosen to gather additional information about a known wreck. Results of the three prospecting areas revealed several magnetic and acoustic anomalies while the equipment detected additional site information about the steamship *Clifton*.

Marine Remote Sensing Ensemble

The marine remote sensing ensemble, called ADAP III, was custom designed for the Division by Steve Shope of Sandia Research Corporation, Albuquerque, New Mexico and delivered to our office in September of 1997. The system consists of an all-digital information gathering system with towed sensors. The primary data gathering instruments include a Geometrics G-880 marine cesium magnetometer, used by marine archaeologists to detect deviations in the earth's ambient magnetic field caused by ferro-magnetic metals, that is, iron and steel, and a Marine Sonics Sea Scan PC 600 khz side-scan sonar, used to acoustically picture the bottom. A Cetrek fathometer collects bathymetric information of the survey area. A Trimble AgGPS 132 Differential Global Positioning System equipped with a helmsman control display determines position and guides the research vessel during survey transects.

During the Port Royal Sound Survey, the magnetometer and sonar were operated via computer controls during data collection (Figure 10.2). MagSea™ software permitted manipulation of the data gathering parameters of the magnetometer. The magnetometer collected data every tenth of a second, or ten gamma readings every second. Marine Sea Scan PC software controlled sonar image quality. Survey lanes were guided by the Trimble DGPS unit which collected positioning data every second and outputted data to the helmsman control display to maintain straight survey lanes. A third computer installed with GPSLog™ software provided visual survey controls of boat speed, headings, and a real time survey position map.

After data was collected at the three survey areas or “blocks,” the disparate information was

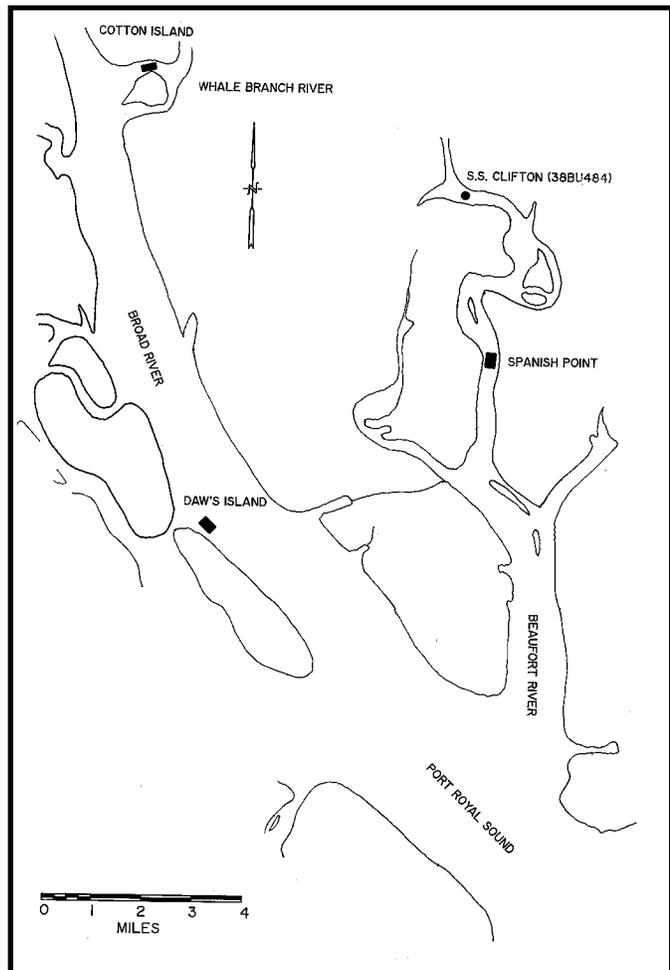


Figure 10.1. Locations of remote sensing surveys. (SCIAA)

collated to allow postprocessing and interpretation of the magnetic and acoustic files. All of the data was integrated by time and by geographical reference, for example, latitude and longitude. The magnetometer and bathymetric data is currently being contoured by Surfer™ software to aid in interpretation and identification of magnetic anomalies. The contoured data from each block surveyed is being compared to the sonar records for the same block to determine if any magnetic and sonar anomalies correspond to each other's location. Based on the post-processed information reviewed to date, dozens of magnetic and acoustic



Figure 10.2. Jim Spirek (back) and Steve Shope operate the computer systems. (SCIAA)

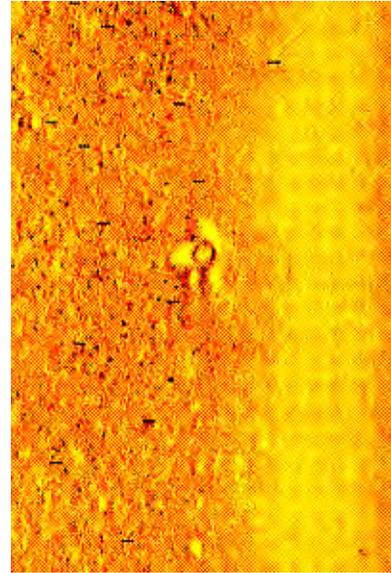


Figure 10.3. Side-scan image of a car tire. (SCIAA)

anomalies were recorded at the three survey areas. One sonar image (Figure 10.3) proved relatively easy to identify—a car tire lying on the bottom. Other anomalies await future interpretation and visual inspection, or ground-truthing, by archaeologists and volunteers to identify their potential archaeological or historical significance.

Daws Island

At Daws Island, two different watermen reported the remains of a vessel thought to be a schooner lying along the northeastern periphery of the island. On 21 September we conducted a block-survey in the Broad River adjacent to the northeastern side of the island. Lane spacing was set at 15 m and transects were 1,000 m in length covering an area of approximately 225,000 sq. m. Review of the magnetometer and sonar data revealed several anomalies worth investigating. The sonar also pictured in fine detail the presence of oyster beds surrounding the island (Figure 10.4).

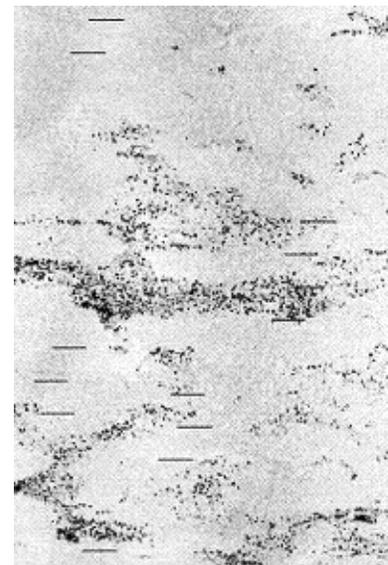


Figure 10.4. Side-scan image of oyster beds off Daws Island. (SCIAA)

Spanish Point

The survey of the southern portion of Spanish Point between channel markers 242 and 244 in the Beaufort River was undertaken on 22 September to locate the remains of a copper-sheathed vessel. Several licensed sport divers during the 1980s reported the remains of a vessel in proximity to the point. SCIAA staff, guided by local divers, made an attempt in the mid-1980s to locate the wreck, but were hampered by poor visibility and did not encounter the reported site. Spanish Point has been used extensively in the past and may have been the location of Stuart Town, established in the 1680s.

The tabby fortifications of Forts Lyttleton and Marion were erected at the point, as was a phosphate mining wharf, a WW-I era concrete shipbuilding facility, a 1950s warehouse, and , most recently, a number of private residences. Today, archaeological evidence of these past activities can be seen at the point, including the highly deteriorated remains of the tabby fortifications and the stubs of the phosphate wharf pilings. Besides these evident cultural remains, each historic episode had the potential to leave behind associated submerged cultural remnants, including piers or wharves or abandoned watercraft in the vicinity.

The survey was conducted along the southern side of Spanish Point and extended across the channel to the Lady's Island side of the river. Survey lanes were approximately 1,000 m in length and spaced 15 m apart covering an area of approximately 300,000 sq. m. Review of the data revealed several magnetic and acoustic anomalies. Environmental conditions pictured by the sonar indicate a river bottom characterized by rocky protrusions less than 50 cms in height. Preliminary analysis suggests that these protrusions may be caused by phosphates and sandstones. In some places ridges indicate a bottom composed of sand or comprised of mud and sand mixture.

Cotton Island

Cotton Island was chosen for survey due to a waterman who reported seeing divers visiting the area during the winter months. He suggested that they may be diving on a wreck site. Reportedly located along the south side of the channel a 75,000 sq m area was blocked for survey. Lane spacing was 15 m and transects covered a distance of approximately 500 m. In some cases the length of the lane was reduced due to the presence of a mud bank along the eastern terminus of the survey block. One magnetic anomaly was detected along the eastern terminus of the search area. The sonar recorded some anomalous materials, but no corresponding magnetic signatures were associated with the acoustic targets. Again, the bottom resembled that found in the Beaufort River in the vicinity of Spanish Point with rocky protrusions from the bottom. In some cases discrete outcrops protruded from the bottom. Preliminary analysis suggests that these protrusions may be caused by phosphates and sandstones. A subsequent telephone conversation with a local sport diver verified our tentative analysis of the bottom. The diver reported that in some areas of the river there are large phosphate boulders sticking up approximately 10 ft. off the bottom. He

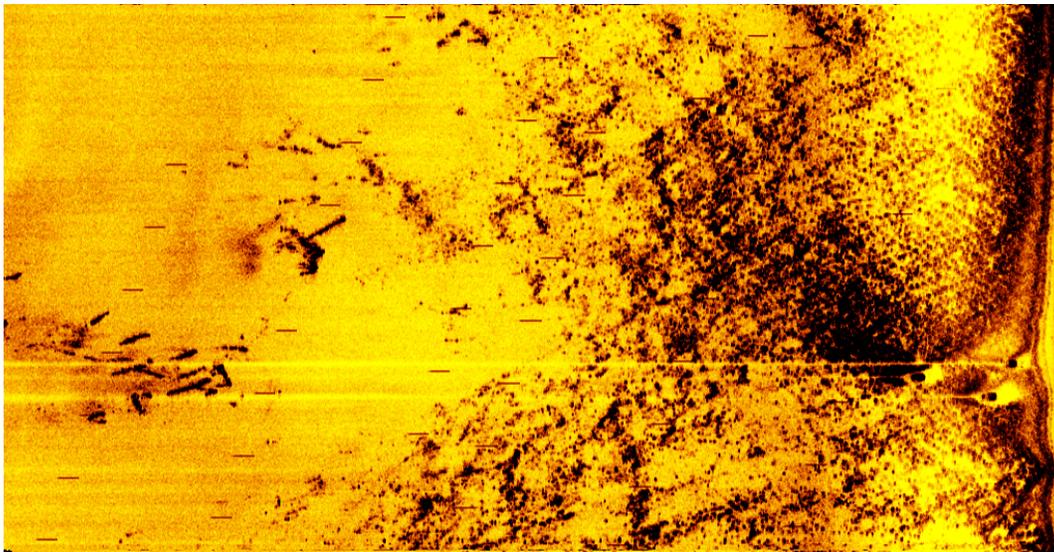


Figure 10.5. Side-Scan Sonar image of S.S. Clifton. Boiler is rectangular object (l.center). Ship structural components are to the left and right of the boiler. (SCIAA)

also stated that divers visit this area to retrieve fossils, mainly sharks teeth, and had not heard of a wreck in the this location.

SS *Clifton* (38BU484)

On 21 September the survey crew deployed to acoustically image the remains of the turn-of-the-century steam ship *Clifton* with side-scan sonar in Brickyard Creek located just above Pigeon Point (Figure 10.5). The purpose of this brief inspection was to gather acoustic data from a known site and to determine the visible extent of the physical remains. The survey lanes consisted of random north to south passes along the western side of the wreck site during high tide. Acoustic imaging detailed the submerged remains of the boiler, which is exposed during low tide (See Figures 9.30 and 9.31), as well as the presence of additional wreck structure. Future marine remote sensing operations of *Clifton* will include the magnetometer to determine the extent of associated ferromagnetic materials by which to define the site boundary.

Chapter 11: Potential and Ongoing Impacts to Sites

Many natural and cultural factors affect the preservation of archaeological resources along the intertidal and bottom lands in Port Royal Sound. These impacts, however, are most likely not unique to the area, but reflect present conditions throughout the state. Natural factors that adversely impact sites include erosion, marine organisms, and chemical decomposition. Cultural factors that impact sites include artifact collecting and development projects, that is, residential, commercial, dredging, and the by-products of these activities--pollution. Generally, the watercraft remains found along the intertidal shoreline were either buried with only a small portion exposed, completely exposed on the mud flats, or encountered in the salt marshes amid the spartina grass. These archaeological sites, along with other sites in the sound, are currently or most likely will experience a combination of natural and cultural impacts that will either hasten or stabilize their rate of deterioration.

Natural Impacts

Erosion

Local environmental conditions greatly affect the integrity and preservation of intertidal and bottom land archaeological sites. Erosion at a site occurs when the stabilizing fabric of sediment or spartina grass begins to wash away. Natural riverine dynamics, accelerated by poor land management practices, certainly cause the protective overlay to wash away by river currents and waves. Of the 55 previously documented sites revisited

32 percent, or 18 of the sites appear to have suffered extensive erosion. Erosion was especially pronounced along the Beaufort River shoreline at the barrel well at Fort Frederick, where boat wakes have compounded the problem by pummeling the exposed wooden staves with violent force during the tidal flux (Figures 11.1 through 11.3). The eastern section of the wall along the river is also suffering from inundation during high tide (Figure 11.4). At 38BU1150, a modern barrier of stone rip-rap was present to prevent erosion. Along



Figure 11.1. Waves erode the barrel well at Ft. Frederick. (SCIAA)



Figure 11.2. Barrel well stabilized with Geo Fabric™ and sandbags. (SCIAA)



Figure 11.3. Scattered sandbags around barrel well. (SCIAA)

Daws Island, pottery was eroding out of the bank at 38BU9. In addition to noticeable erosion, another 30 percent, or 17 sites were not located during the revisit, presumably having eroded away. A prehistoric canoe, 38BU103, earlier identified on the shores of a marsh island at the confluence of the Chowan and Beaufort Rivers was not relocated during this recent survey. Photographs show the canoe exposed above the mudline, thus making it vulnerable to the destructive forces of waves and currents, and a likely reason the site was not relocated.



Figure 11.4. Section of wall of Fort Frederick in the Beaufort River. (SCIAA)

Biological Degradation

Marine organisms often affect the integrity of a site, especially those with wooden components. Marine borers, such as shipworms (*Teredo navalis*), degrade a wooden structure by leaving the wood riddled with tunnels. The ubiquitous oyster colonies in Port Royal Sound also impact sites by covering them completely. More investigation needs to be carried out to understand the relation of oysters to the integrity of archaeological sites. Oyster coverings may prove beneficial to archaeological sites by sealing them from outside destructive forces such as waves and currents, and perhaps from the insatiable shipworm. The oyster mantle may also obscure a site from casual observation that may serve to minimize impacts by curious beachcombers. Two other local marine species that affect submerged wooden structure based on personal observation include sheepsheads and stone crabs. Both of these animals tear into exposed wood; the fish in search of food, and the crustacean to make a burrow.

The site environment also determines the amount of structure exposed to marine organisms. Sediments in which a hull is buried may deprive organisms potentially destructive to a wooden hull of oxygen. The degree of compactness of the sediments and factors such as sediment composition and sediment grain size determine the amount of oxygen deprivation. For example, loose, large grained quartz sands will allow more oxygen to penetrate below the sediment thereby causing the upper portions of the hull to become more vulnerable to oxygen breathing organisms than a hull encased in fine, compact oxygen depriving muds. This is called the Reoxygenation Discontinuity Potential, or Redox, which determines the amount of buried hull available to organisms requiring oxygen, that is, shipworms. There are, however, sulfide organisms also working on the shipwreck as well that require no oxygen (Franklin et al.. 1991:57). For example, the Port Royal Island Wreck (38BU1813) remains are buried in the mud where at some point the hull below is perfectly sealed from the destruction of shipworms.

Chemical Decomposition

Chemical decomposition at a site is affected by a wide range of factors. Many of the historical archaeological sites, especially watercraft remains, consist of composite materials, that is, iron, wood, copper or brass. The interaction between disparate metals produces a galvanic process that causes the less noble metal, for example, iron, to corrode

and sacrifice itself for the more noble one, for example, copper. In this example, if iron and copper were in contact, the iron would corrode more quickly in preference to the copper. Corrosion is also highly affected by the salinity of the water. Corrosion due to salinity would effect sites from Port Royal Sound to Whale Branch River. The iron remains of SS *Clifton* (38BU484) above Pigeon Point in the Beaufort River exhibit advanced corrosion that has caused the boiler to break apart. Also the deterioration of the iron fasteners has made them needle sharp, and a potential hazard to divers.

Cultural Impacts

Landscape Modifications

Man-made impacts to the Port Royal Sound region derive from the alterations of the intertidal landscape and the bottom lands for residential, commercial, recreational, and navigational improvements. Major categories comprising the economic base of Beaufort County that drives development include military facilities, tourism and recreation, agriculture, forestry, and fisheries (U.S. Army Corps of Engineers 1976:14). Changes to the land and bottom lands have affected numerous archaeological sites, causing their destruction, hastening of negative environmental processes, or viewed from the perspective of planning remote sensing surveys, by reducing a site's detectability by electronic equipment.

Beaufort County covers an area approximately 575 square miles of which 100 square miles are tidelands. The tidelands in the county are diminishing due to encroachment of a variety of development projects (U.S. Army Corps of Engineers, 1976:14-15). Residential impacts to the tidelands include the building of recreational facilities, for example, docks or piers, and improvements to stabilize the shore with bulkheads or rip rap. From May 1997 to June 1998 over 3,000 permit applications for intertidal development projects were reviewed by the U.S. Army Corps of Engineers, Charleston District and the Office of Coastal Resource Management, Department of Health and Environmental Control, and SCIAA.

Each of these construction projects have the potential to affect a site lying close along the shoreline. Our office reviews all waterway development project permits to determine their potential to adversely impact a site. However, with only limited sites inventoried in the state files for the Port Royal Sound region, most of our comments encourage a landowner to contact our office in case an archaeological site falls within the construction zone. Residential construction along Factory Creek has obscured and obliterated the remains of the Maggioni's Oyster Cannery which closed in the 1980s (Figure 11.5).

Attendant structures include docks and piers for recreational purposes which could potentially impact archaeological remnants buried in the mud. Fortunately, the two oyster boats (38BU1814 and 38BU1815) along the northern periphery of the past cannery confines are protected by a steep bluff which lessens the attractiveness of building a pier to access the creek below.



Figure 11.5. Dock construction and residences on Factory Creek. (SCIAA)

Several major modifications have been made to the intertidal area and shoreline for economic and recreational purposes in Port Royal Sound. In Beaufort, the historic waterfront complex of wharves and warehouses (Figure 11.6) was removed in favor of a park. The park was formed on an artificial ledge over the water that consequently covered the visible remnants of the historical maritime structures beneath. Divers, however, continue to practice hazardous diving operations underneath the Waterfront seawall in pursuit of bottles and other artifacts. According to Roger Pinckney, the present waterfront seawall is but one of three successive seawalls built along the Beaufort River. These encroachments have provided more room for the town to expand out into the river, as well as the potential to cover remnants of previous structures close to shore, such as pier pilings and building foundations, or abandoned watercraft remains. One archaeological site was recently uncovered under an historic building on Bay Street that may be the remains of a small colonial shipbuilding facility.



Figure 11.6. Beaufort Waterfront in the 1900s. (Courtesy of Laura Von Harten)

Another development project is the Port Royal waterfront on Battery Creek that has obscured a historic maritime activity site. Maritime activity included a careenage area used to clean the hulls of Royal Navy warships and merchantmen, as well as the site of a colonial battery (Des Barres 1777). Today the Port Royal Waterfront and immediate environs consists of a multicomponent complex of the state port, shrimp docks, a wooden walkway with viewing tower, a boat landing, and a beach. Dredge spoil tailings from the dredging of Battery Creek forms the beach and landing in the area called The Sands Recreational Area. For remote sensing purposes this area would be difficult to survey due to the large amount of alterations to the landscape that would affect the detectability of small wooden constructs such as abandoned ship remains left at the careenage site or associated with the battery.

Two highway crossings to Port Royal Island have also affected the archaeological record. The location of the Port Royal Ferry crossing over Whale Branch River from the mainland to Port Royal Island resides underneath State Highway 21. The first highway bridge was constructed in 1921 which was replaced by a swing bridge in 1931. The swing bridge was replaced again in the late 1980s with a fixed span bridge (Tippett and Roberts 1988:1). An underwater survey was recommended for the right-of-way and surrounding environs by SCIAA due to the potential for abandoned watercraft associated with the Port Royal Ferry, but was never implemented (Tippett and Roberts 1988:11). At the Highway 21 crossing over Beaufort River from Port Royal Island to Lady's Island a brick kiln site (38BU109) lies underneath the bridge causeway on the Port Royal Island side of the connector. Apparently, the choice of which side of the Naval Hospital to put the connector was based on a decision not to affect Fort Frederick, which was the alternate site for the bridge crossing. Instead, planners chose the more historically obscure brick work area for the bridge (Bianchi, 1974).

Dredging

Dredging for economic purposes has altered the bottom lands in Port Royal Sound waterways and potentially impacted archaeological sites. Retrieval of phosphate rocks, improvements to navigation, and beach renourishment have occurred since the late 1800s to modern times. Each of these endeavors had, and continue to have, the potential to destroy or damage a submerged archaeological site. Phosphate mining occurred primarily in the Beaufort River and at the confluence of Brickyard Creek and the Whale Branch and Coosaw Rivers. Using a hopper-type dredge, phosphate companies removed the overburden of sediments, several feet thick, to reach the phosphatic deposits below. Presumably, shipwrecks or other cultural materials resting on the lens above the phosphate rocks could have been adversely impacted by their complete removal or possibly damaged.

Navigation improvements have altered the bottom lands in several areas in Port Royal Sound. In September of 1954 the River and Harbor Act authorized the U.S. Army Corps of Engineers to maintain a channel from the ocean through Port Royal Sound to the State Ports Authority wharf at Port Royal. The initial project was completed in 1959. Maintenance dredging continues as needed to maintain the various controlling depths and widths of the channel (Freeman 1982:1-8, 9). Most of the maintenance work from 1959 to 1975 took place at the entrance to the channel with less frequent intervals in the inner parts of the project. The controlling depths and widths vary throughout the channel. The channel is 27 feet deep and 500 feet wide across the ocean bar and in Port Royal Sound for 13.2 miles, 24 feet deep and 300 feet wide in the Beaufort River and Battery Creek for 7.5 miles; and at the turning basin opposite of the Port Royal wharf is 27 feet deep by 600 feet wide. The work during this period was performed by a hopper dredge and dredged material deposited at two offshore sites. The first deposit is located seven miles offshore of Bay Point and is 413 acres in size, while the other site is 12 miles out and 918 acres in size (US Corps of Engineers 1976:1). In 1976, during dredging operations in the channel, a shipwreck was encountered, but the dredge was rediverted to avoid further damage to the wreck. Subsequently, the site was named the No Name Wreck (38BU122), as no additional investigations have been carried out to determine age or origin of the ship. The most recent maintenance dredging operations occurred in 1998 using a cutterhead dredger, a potentially destructive instrument to small to medium size wooden shipwrecks. Other areas affected by dredging include Archer's Creek which was authorized by the River and Harbor Act of 1912 for a channel to be maintained for a depth of 6 ft. and a width of 75 ft. for a distance of 2 miles from the Beaufort River (Freeman, 1982:1-9).



Figure 11.7. Beach renourishment at Hilton Head. (SCIAA)

Beach renourishment or the dredging of sand from near shore borrow sites and pumped onto eroding beaches have a high potential to affect shipwreck sites. In the fall of 1998 beach renourishment operations occurred on sand deposits, or borrow areas, just offshore of Hilton Head Island beach. The operations involved a cutterhead dredge pumping sand onto the beach while heavy earthmoving machinery distributed the deposits (Figure 11.7). Archaeological sites on both the borrow site and the beach may have been adversely affected by this operation. Currently, submerged cultural resource surveys are requested to examine the presence or absence of underwater material culture prior to dredging. Usually in these cases avoidance of the target is the chosen course of action to prevent damage to both the underwater object

and to the cutterhead if the object is a large one. In spite of some unwanted impacts to these sites, there are possible benefits as well. For example, burial of a site may prevent people from collecting objects from the remains, at least until the sand erodes away back into the ocean. Reportedly, the remains of a tabby foundation were buried under the sand during this last renourishment. When the site emerges again, perhaps baseline information can be obtained in order to study the effects of constant sequences of burial and reburial on an archaeological site.

Artifact Collecting

There are two types of collecting that occur in Port Royal Sound: intertidal beachcombing and state-licensed hobby diving collecting. Intertidal beachcombing has occurred for probably as long as people have lived along the shoreline. Artifacts of interest include ecofacts, for example, fossils, and prehistoric artifacts, that is, points and pottery, and historic materials such as bottles, ceramics, ordnance, among other items of interest. The 1979 survey report lists more than twenty-two private collections of artifacts, mainly prehistoric, collected by local residents from along the shoreline (Michie 1980:81-3). Many of these collections are quite extensive and give an idea of the types and numbers of artifacts, as well as the collecting pressure put on archaeological sites found along the intertidal fringe of the sound. Evidence of pot-hunting was observed during our survey along the shoreline at Fort Fremont (38BU159/1113), revealing that surface and sub-surface collecting is still an ongoing pursuit in Port Royal Sound.

In 1976, legislation was implemented that created the hobby collecting license program. This program sanctioned licensed divers to collect fossils and cultural materials in state waters in exchange for a report detailing their finds and where they were found. Review of 340 hobby diving reports from 1976 to 1998 by 162 licensed sport divers and instructors revealed that more than 1,000 miscellaneous artifacts were retrieved under license from local waters. In addition, five watercraft remains were reported to SCIAA during this period. Currently, there are 34 licensed hobby divers in Beaufort County. Of these 34 licensed hobby divers only 25 percent actively collect as evidenced by submitted reports detailing finds. The remaining 75 percent either send in reports that mention that the diver did not collect artifacts during the quarter or they simply never send a report, and subsequently do not renew their licenses. As mentioned in the sport diving chapter, the greatest impact to archaeological sites are those that are offshore of known terrestrial sites, such as Fort Frederick (38BU102/1100). Of course, many artifacts have been retrieved prior to implementation of the law back to the introduction of SCUBA diving in the 1950s and 1960s. Primary interest by licensed divers in the rivers and state waters, however, has always been fossil collecting, although there is a strong interest in collecting from artifact deposits in the waters off known terrestrial sites, such as forts, plantations, and wharves. Shipwreck diving in South Carolina is mainly concentrated off Myrtle Beach in federal waters.

Trends in the hobby diving license program suggest that fewer licensed sport divers are impacting submerged cultural resources in the state than during previous years. Currently, there are only 262 licensed sport divers in the state, and as mentioned 34 of the divers are from Beaufort County. This number is substantially lower than the 1,000 sport diving collectors licensed during the early 1980s throughout the state, as well as out-of-state licensees. This trend towards less active licensed hobby collecting is a result of several factors. During the onset of the program in 1976, and during the explosive growth of licensed divers in the early to mid 1980s, program managers pushed the issuance of licenses, oftentimes at the expense of quality reporting. From 1989 to current times, an

emphasis has been placed on better recording to obtain data that could be used in archaeological reports rather than solely on the numbers. As part of this new focus, the sport diving program has developed field training courses and avocational projects undertaken by sport divers under guidance from SCIAA that highlight data collection rather than artifact collection. Stricter controls over hobby reporting have also improved the quality of the quarterly reports by making them more accurate. For example, if a report was submitted with inadequate information, such as location and descriptive information, they are now returned for clarification. And, if divers fail to report quarterly, during the next license renewal they are usually denied unless there were extenuating circumstance. Another factor in the downward trend in the number of licensed sport divers is the introduction of package dive trips to out-of-state locations such as tropical paradises and Florida, resulting in less river diving. In any event, to collect in state waters is a privilege and there are certain responsibilities to the resource that the diver and the manager must adhere to, to ensure that useful archaeological information is obtained.

Pollution

One area of archaeological resource management that has been under studied is the affect of pollution to archaeological sites. Fortunately, in the Port Royal Sound there are no large scale industrial complexes bordering the waterways. In the early 1970s, a large factory was scheduled to be built along the sound, but was vigorously opposed by residents in fear of large scale contamination of local waters (SCWRC 1976). Despite the lack of large industrial complexes, however, pollution has entered the waterways. During the 1970s, high coliform counts from domestic sewage in the Beaufort River and Battery Creek caused the closure of shell fishing grounds for commercial purposes in those waterways, Brickyard Creek, and all the adjacent tributaries. That same restriction also affected Port Royal Sound from Bay Point to the Highway 170 bridge (U.S. Army Corps of Engineers 1976:3). Water quality, however, has improved, once again permitting small scale commercial oystering in the sound. Another source of pollutants is the use of agricultural pesticides, herbicides, and fertilizers that run-off the fields and into the waters. Non-point pollution, for example, oil from roads, also enter the local waters. As mentioned above, no long-term studies have been undertaken to study any cause and effect to archaeological sites from pollutants. But, it is believed that pollution, whether chemical or biological, affects archaeological sites.

Chapter 12: Conclusions

Completion of the preliminary phase of the project provided a good overview of the submerged archeological potential in Port Royal Sound. Possible archaeological sites in the sound include prehistoric and historic canoes, sixteenth to twentieth century shipwrecks and abandoned water craft, piers, wharves and landings. Historical and archaeological research has identified areas in the sound for implementing remote sensing operations. The identification of survey areas prior to conducting operations should result in an efficient and effective operation. For example, if inclement weather or poor conditions in one area of the sound prevent survey operations, focus can easily shift to other previously identified areas in more sheltered climes in the sound, resulting in seamless operations and coverage of a large area without down time due to weather. Of course, down time due to equipment problems is another matter altogether.

At first, the original grant proposal sought to conduct research in conjunction with marine survey operations. A reduction in grant funds allocated to the project, however, limited the original scope of the survey to a two stage process. The first stage funded by the grant undertook research and an intertidal visual survey. A second phase, as yet unfunded, will continue research efforts and conduct more extensive remote sensing operations than the preliminary operations that occurred in the first phase. This manner of implementing the survey proved an effective way of preparing for the prospective marine remote sensing phase by building a firm foundation based on research, intertidal survey work, and public outreach. A consequence of the two-stage approach was that project staff increased their familiarity with the region to plan future work, and more importantly, built a network of informed sources that are willing to assist us in the project. This includes not only interested individuals who would like to volunteer, but also those who can bring us directly to a site, and therefore save us the time and expenses associated with extensive searching.

Results of the historical research suggest that the boundaries for both intertidal and remote sensing survey should be expanded to cover areas within the maritime network of Beaufort. An expanded boundary would include girdling Port Royal Island with the addition of Brickyard Creek and Whale Branch River, as well as investigating interior waterways dissecting the island such as Albergottie, Archers, and Battery Creeks. In addition, the boundary would include the headwaters of the Broad River, and the Chowan River between Lady's and St. Helena Islands. Most importantly, the boundary would encompass the sea approach into the sound where research has compiled a list of more than forty shipwrecks in the vicinity.

Sites identified during the survey range in date from the late 1700s to modern times. Additional research and fieldwork at these sites are necessary prior to assessing their cultural significance for determining eligibility to the National Register of Historic Places. At this time, two potential candidates that merit additional research to determine their NRHP eligibility are the Port Island Wreck (38BU1813) and the Factory Creek Oyster Boat (38BU1815). Further research at these two sites would include remote sensing to locate additional or associated structures.

One unique source of information explored was the sport diving hobby reports. Reports stating crucial data, with a specific location of the finds, helped to pinpoint areas where some type of activity was taking place, like in the waters off the Technical College. Additional inquiry by project staff during the intertidal survey also documented the correlation between the offshore deposit (38BU476) and the land site (38BU1822). Added benefits of this research included obtaining names of divers to contact for further

information. From an archaeological perspective, however, many of the reports provided no meaningful data as they did not clarify the areas where objects were found. Lack of specific positioning information for several of the wrecks mentioned in the hobby reports limited their usefulness to the survey, other than to note they are somewhere in the sound. Hopefully, current changes to the management policies in the sport diving archaeological management program, especially in regard to returning reports that are incomplete and requesting more complete information, will increase our knowledge of a specific area, rather than obtaining non-specific or general information.

The purpose of this project was to gather information about potential submerged cultural resources to devise plans for implementing marine remote sensing operations at selected and prioritized areas in Port Royal Sound. From the foundation constructed during this phase of the survey a variety of potential research opportunities have presented themselves. Possible research topics include conducting site specific archaeological investigations or using the hobby diver reports to explore the consumerism of goods traveling the local, regional, national, and international maritime networks by the inhabitants of Port Royal Sound. Other topics could center on post-consumerism deposits, that is, objects tossed into the water at plantation landings and industrial work areas, among other potential archaeological research avenues that could be undertaken by professionals, graduates students, or avocationalists.

By undertaking this survey, SCIAA in partnership with SCDAH has created a template for conducting future comprehensive regional submerged cultural resource surveys throughout the state's waters for inventory and research purposes. Sustained regional surveys will generate a large database of archaeological sites to provide the SCIAA and others, such as the Beaufort County Planning Board, DHEC's Office of Coastal Resource Management, and the US Army Corps of Engineers, that are mandated to take into account submerged cultural resources, with the knowledge to make informed decisions regarding the fate of these irreplaceable cultural materials.

Chapter 13: Submerged Cultural Resource Management Recommendations

The Port Royal Sound Survey generated useful preliminary information from which to guide future work in the region. While the project is incomplete, our brief and initial foray to gain an understanding of the archaeological potential of the sound has allowed us to obtain some insight in the maritime use of Port Royal Sound. One immediate realization was that several geographical boundary extensions are needed to cover adequately the maritime network of the ocean, sound, rivers, and tributaries directed towards Beaufort, the surrounding sea islands, and into the interior. Recommendations for submerged cultural resource management guidelines and research are directed towards guiding future fieldwork, review and compliance issues, federal cultural resource management, and public outreach.

Field Activities

This document is intended as a guide to direct future archaeological prospecting operations in the sound. The continuing implementation of the project relies on procuring available funds from several potential funding sources, such as the SCIAA, grants from or partnerships with outside organizations, and private donations. These funds are necessary to permit sustained remote sensing operations and other field work, and any other research activities. The original grant submitted for this survey proposed a large-scale electronic remote sensing survey of various areas of the sound based on research. The reduction in funds made available to the project by the granting organization necessitated revising the survey into two phases. Grant funds permitted the Division to complete the research phase and to implement limited field work. The revised survey strategy caused us to consider alternate ways to implement and fund future work in the sound. Several strategies based on the availability of large or small amounts of funds are recommended for continuing the project. These survey options include implementing a large-scale survey over an extended period of time; surveying small, specific areas; or conducting searches for specific shipwrecks and other submerged historic sites. Decisions regarding appropriate survey strategies will mainly be contingent on the availability of funds and management priorities.

The current grant funds allowed for a pedestrian visual survey of the immediate shoreline along the Broad and Beaufort Rivers and Port Royal Sound. Additional pedestrian visual shoreline survey should continue along several areas in the sound including Battery Creek, Albergottie Creek, Brickyard Creek, Ribbon Creek, and Whale Branch River. With much of the Sound's shoreline now surveyed, forays into the reticulated tidal creeks such as Euhaw and Stations Creeks, and other lesser creeks should also be conducted. The selection and prioritization of various creeks for survey will be guided by historical research that may indicate areas of plantation landings or associated intertidal constructs.

Planned future work would include not only more pedestrian visual shoreline survey, but also more extensive remote sensing operations than our limited investigation of four small areas in the sound. We recommend that the original survey boundaries be broadened to include Martin's Industry, or the bar off Port Royal Sound, and to extend inquiry up the Broad River to the confluence of the Tullifiny and Coosawhatchie Rivers, and to circumnavigate Port Royal Island by including survey of Whale Branch River. This extended scope should afford a more comprehensive view of the submerged cultural resources of the region. Future remote sensing operations in the sound are recommended to be grouped around research themes. For example, several wrecks and activity areas are associated with the Civil War. A limited survey would concentrate solely on sites from this area, and any additional materials found would be added to the database. Other themes include navigation hazards, especially offshore at the Port Royal Sound shoals lining the entrance where approximately forty shipwrecks have been

historically recorded from the sixteenth to twentieth century, and to include interior shoals such as the Parris Island Spit. An in-depth survey could focus on the main historic and economic thoroughfare in the sound: the Beaufort River. Additionally, effort should be expended on investigating the vicinity of the sites recorded during the pedestrian phase, as well as at previously recorded archaeological sites or historically known areas such as careenages or landings, to ascertain if any associated submerged materials exist. Also, another guiding theme would be to implement survey operations designed to locate and identify snags and obstructions reported during oral interviews with local informants.

During the survey, the presence of a barrel well was documented at Fort Frederick on the Beaufort River. Exposed through erosion, the barrel was suffering from this exposure by pounding surf generated from passing boat wakes during tidal fluctuations. A protective berm was fabricated from sandbags and fabric to help deflect the waves from damaging the staves. We recommended, as described in a *Legacy* article, to perform a rescue operation to remove the barrel and place the construct in conservation (Spirek 1998b:24-5). Besides preserving the well, associated artifacts may be present inside the well that will suggest an operational date for the feature. Before implementing any work on the barrel well, funds are needed to ensure excavation and conservation of the materials. Hopefully, these funds will be raised in the near future to forestall the eventual deterioration of the barrel.

Each of the wrecks also require additional investigation and recording. Primarily, these activities will include extracting wood samples for species identification to assist in determining origin and resource selection practices. For some sites, such as canoes, wood samples will be retrieved and undergo Carbon-14 dating to determine age of the watercraft. Added recording will provide more structural data to help in assessing the historical and archaeological importance of the wreck. Future work at the Port Royal Island wreck (38BU1813) requires small scale test excavations to determine the orientation of the hull by determining the bow and stern of the vessel. A test unit in the amidships of the hull will serve to locate a mast step to assist in determining the sailing rig. Artifacts recovered during the excavations will better identify the origin and date of the wreck. Limited excavation of the wreck may aid in determining the site's eligibility to the National Register of Historic Places.

One of the most important aspects of this project was to provide a template for conducting other regional submerged cultural resources in the state. Thorough historical, archaeological, and geographical research, talking with locals informants, and preliminary research prior to implementing remote sensing operations will increase the efficiency of these type of projects in terms of costs and time. If the current outlook of limited funds and manpower prevails into the future, the successful implementation of regional surveys will depend upon partnerships forged with funding agencies, local governments, and private individuals and organizations.

Review and Compliance

The inventory of several intertidal sites during the survey, along with previously recorded sites, facilitates the process of review and compliance by increasing the number of known sites recorded to the state files. The files are used for the review of permits for construction or dredging projects with the potential to adversely impact intertidal or submerged sites. One of the greatest development threats to intertidal sites is the placement of piers, docks, and bulkheads for residential purposes. Dredging is the primary development threat to submerged sites. The successful application of review and compliance of development projects rests on two factors. One factor is knowing where sites are located within a potential impact

zone, and secondly, if no known sites are in the state files, the SCIAA and SHPO office must rely on the permittee to inform our respective agencies about any cultural materials encountered during construction. Active survey will continue to add to the inventory of sites in the state archaeological site files which in turn will increase our knowledge of cultural resources in an area during review of permit applications. Other means of eliciting information to continue adding archaeological information to the state files includes responding in a timely manner to information brought to our attention by local informants about newly exposed sites or other pertinent information. As part of this process, hobby diving reports from the Port Royal Sound region over the upcoming years should be included in the project's database to keep it current and to provide any new insights about the ongoing collecting of artifacts and potential sites in the sound.

Federal Cultural Resource Management

The survey was implemented to inventory and assess submerged and intertidal archaeological sites in Port Royal Sound for management purposes and to determine potentially eligible candidates to the National Registry of Historic Places (NRHP). Criteria used to assess these sites for federal nomination to the NRHP include the historical or archaeological significance of these sites towards understanding South Carolina's and the region's maritime past. Judgments as to the significance of these sites rest on several criteria including site integrity, structural remains, and comparison to other sites in the region or the state. At the present time the sample of sites located during the survey does not allow for a comprehensive assessment of these sites' eligibility to the NRHP. Certainly, however, the Port Royal Island Wreck merits further scrutiny, as does the Factory Creek Oyster Boat Wreck (38BU1815). The purpose of the inventory is to assess the historical and archaeological significance of each site but in context with a much larger sample than the twelve sites recorded during the survey. Additional survey will increase the database and offer more opportunities to gauge a site's historical or archaeological importance through comparative means.

Public Education

SCIAA will continue public outreach in the area including talks, site visitations, training, and involving local residents in the intertidal exploration of archaeological sites. Also, when the opportunity arises to begin ground-truthing submerged archaeological sites we recommend including local sport divers who have undergone the Sport Diving Field Training Course taught by the SCIAA. One site for such work is the Port Royal Island Wreck (38BU1813), embedded in the intertidal zone of the Beaufort River on Port Royal Island, which offers an excellent opportunity to involve the local public in a exploratory excavation to ascertain the preservation of the hull and artifacts to help in determining an age and origin for the vessel.

As part of the public outreach effort, the SCIAA should begin a feasibility study of developing public access to selected submerged cultural resources in the sound. Options include selecting one particular site for sport diver access or linking several sites into an interpretive trail that is accessible by scuba divers. An attractive candidate is to create an underwater archaeological preserve at the shipwreck SS *William Lawrence*, located several miles off the entrance to Port Royal Sound. This vessel has been suggested as a preserve previously by the SCIAA (Beard 1990:5-6) and is heavily visited by divers. Perhaps the time has come for an attempt to interpret and improve public access to the site as a preserve. As for an underwater heritage trail, several sites could be linked together by a map and mooring buoys

for divers to visit. However, there must be more sites available to choose from when selecting individual sites for the trail. This can only be accomplished with remote sensing operations to find other appropriate sites in the sound. Improved public access to interpreted intertidal and submerged cultural resources is working in other parts of the state with a canoe trail along the Ashley River and the Cooper River Heritage Trail that links six sites for divers to visit. Information can also be disseminated on the Internet with a webpage for those wanting more information about the sites prior to a visit or for the non-diving public to see the trail without getting wet.

References

- Abbott, Lawrence E., Bobby Southestein, Christopher Espenshade, and Carol J. Poplin
1989 An Archaeological Survey of the Proposed Battery Creek Bridge Replacement, Beaufort County, South Carolina. Brockington and Associates, Atlanta.
- Adams, Samuel Hopkins
1950 There's more to crabbing than you think. *Saturday Evening Post*, January 7, 1950.
- Albright, Alan B. and J. Richard Steffy
1979 The Brown's Ferry Vessel, South Carolina: Preliminary Report. In *The International Journal of Nautical Archaeology and Underwater Exploration*. 8(2):121-142.
- Amer, Christopher F.
1989 The Biggin Creek Vessel (38BK887). In *The Santee Canal Sanctuary, Part 1*, edited by Joe J. Simmons and Mark M. Newell. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
1992 The Hunting Island Vessel: Preliminary Excavation of a Nineteenth-Century Fishing Boat. In *Underwater Archaeology Proceedings from the Society for Historical Archaeology Conference*, pp. 14-19, edited by Donald H. Keith and Toni L. Carrell. Society for Historical Archaeology.
1993 The Destruction of A Resource: South Carolina's Submerged Cultural Heritage. In *Site Destruction in Georgia and the Carolinas*. edited by David G. Anderson and Virginia Horak, pp. 4-9. National Park Service, Atlanta.
1994 Legislation and Management of South Carolina's Historic Shipwrecks and Submerged Cultural Resources: from Something to Something Else. In *Underwater Archaeology Proceedings from the Society for Historical Archaeology Conference in Vancouver, British Columbia*, edited by Robyn Woodward and Charles Moore, pp. 119-125. Society for Historical Archaeology, Tucson, Arizona.
- Amer, Christopher F., and Frederick M. Hocker
1995 A Comparative Analysis of Three Sailing Merchant Vessels from the Carolina Coast. In William C. Fleetwood, Jr. *Tidecraft: The Boats of South Carolina, Georgia and Northeastern Florida, 1550-1950*. WBG Marine Press, Tybee Island, Georgia.
- Amer, Christopher F., and Carleton A. Naylor
1996 Pritchard's Shipyard: Investigation at South Carolina's Largest Colonial Shipyard. Mount Pleasant's Archaeological Heritage, Proceedings of a Symposium Held at Lynch Hall, Dunes West, Mount Pleasant, S.C., pp. 36-49.
- Amer, Christopher F. and Bruce F. Thompson
1989 The Little Landing Survey. Ms. on file, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Amer, Christopher F., William B. Barr, David V. Beard, Elizabeth L. Collins, Lynn B. Harris, William R. Judd, Carl A. Naylor, and Mark M. Newell
1993 The Malcolm Boat (38CH803): Discovery, Stabilization, Excavation, and

- Preservation of an Historic Sea Going Small Craft in the Ashley River, Charleston County, South Carolina. *Research Manuscript Series 217*. South Carolina Institute of Archaeology and Anthropology, University of South, Columbia.
- Amer, Christopher F., Suzanne Linder, Mark Newell, and William B. Barr
 1995 The Ingram Vessel (38CT204): Intensive Survey & Excavation of an Upland Rivercraft at Cheraw, South Carolina. *Research Manuscript Series No. 220*. South Carolina Institute Of Archaeology and Anthropology, University of South, Columbia.
- Ammen, Daniel
 1887- *Battles and leaders of the Civil War : being for the most part contributions by*
 1888 *Union and Confederate officers: based upon "The Century war series."* Century, New York.
- Anderson, David G.
 1989 The Mississippian in South Carolina. In *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson*, pp. 101-132. *Anthropological Studies 9*, Occasional Papers of the South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Archivo General de Indias
 1588 Santo Domingo, 231, doc. 64, 29 July 1587; 12 November 1587; Testimony of Gutierre de Miranda, 27 February 1588.
- Baldwin, Anges L.
 1966 History of Spring Island Plantation, Beaufort County, South Carolina. Ms on file at South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Baldwin Fertilizer Company
 1890 Baldwin Fertilizer Company brochure. Baldwin Fertilizer Company, Savannah. South Caroliniana Library, University of South Carolina, Columbia.
- Bauer, K. Jack
 1988 *A Maritime History of the United States: The Role of America's Seas and Waterways*. University of South Carolina Press, Columbia.
- Beard, David V.
 1989 Reconnaissance Survey Report: Underwater Archaeological Investigations of the Cross Island Expressway Corridor at Broad Creek, Hilton Head Island, South Carolina. *Cultural Resource Management Series 8*, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- 1990 The S.S. *William Lawrence*: South Carolina's First Archaeological Preserve? In *The Goody Bag*, Vol. 1, No. 2, pp. 5-6, South Carolina Institute of Archaeology and Anthropology, University of South, Columbia.
- 1991 Reconnaissance Survey Report: Preliminary Archaeological Investigations of the Hobcaw Creek Vessel Located in Hobcaw Creek, Charleston, South Carolina. *Cultural Resource Management Publication No. 11*. South Carolina Institute of Archaeology and Anthropology, Columbia.

Bearden, C. et al.

1985 *A Review and Analysis of Commercial Shrimp Trawling in the Sounds and Bays of South Carolina*. South Carolina Marine Resources Center Technical Report No. 61, Department of Natural Resources, Charleston.

Beaufort Gazette

1928a \$100,000 Shrimp Plant for Beaufort: Davenport-Brooks Corporation Purchase Ship Yard and 92 Acres Land. Thursday, July 19, 1928.

1928b The Davenport Brooks Corporation largest shrimp canners in the world, August 23 1928.

1933a Gulf Refining Co. in new headquarters, January 5, 1933.

1933b Maggioni & Company advertisement, June 29, 1933.

1936 Fish Factory for Beaufort. Thursday, January 9, 1936.

Bennett, Buddy

1995 Interview by Laura Von Harten. Transcript, Beaufort Museum, Beaufort.

Bianchi, Travis L.

1974 Archeological Investigations of South Carolina Highway Department's Proposed Connector from Port Royal to Ladies Island. *Research Manuscript Series 59*, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Blanton, Dennis B. and Kenneth E. Sassaman

1989 Pattern and Process in the Middle Archaic Period of South Carolina. In *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson*, pp. 53-72. *Anthropological Studies 9*, Occasional Papers of the South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Blick, Jeffrey B., Rose Lockwood Moore, and Terry Lolley

1996 Cultural Resources Survey of 720 Acres of the Marine Combat Training Area, Marine Recruit Depot, Parris Island, Beaufort County, South Carolina. Prepared by Panamerican Consultants, Inc. Submitted to the Department of the Army, Savannah District, Corps of Engineers.

Brooks, Mark J., Peter A. Stone, Donald J. Colquhoun, and Janice G. Brown

1989 Sea Level Change, Estuarine Development and Temporal Variability in Woodland Period Subsistence-Settlement Patterning on the Lower Coastal Plain of South Carolina. In *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson*, pp. 91-100. *Anthropological Studies 9*, Occasional Papers of the South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Brown, Phillip M.

1975 Early Indian Trade in the Development of South Carolina: Politics, Economics, and Social Mobility during the Proprietary Period, 1670-1719. *South Carolina Historical Magazine 76*: 118-128.

Brownlee, Albert

1998 Interview by Bubba Von Harten and Laura Von Harten. Transcript, Beaufort County Historical Society Oral History Project, Beaufort.

Burn, Billie

1991 *An Island Named Daufuskie*. The Reprint Company, Spartanburg, SC

Calmes, Alan

1973 The Southern Coastal Frontier of South Carolina at Port Royal, Based on the Gascoigne Map and Survey Journals of 1728-1731. *The Institute of Archeology and Anthropology Notebook* 3(3): 73-8.

Charleston News & Courier,

1959 Shrimp trawlers to get maps of legal waters with dates, June 28, 1959.

Chazel, Philip

1904 The Century in Phosphates and Fertilizers: A Sketch of the South Carolina Phosphate Industry, 20 April, Article in *Charleston News and Courier*, Charleston.

Christensen, Neils

1998 Interview by Laura Von Harten. Transcript, Beaufort County Historical Society Oral History Project, Beaufort.

Clowse, Converse D.

1984 Shipowning and Shipbuilding in Colonial South Carolina: An Overview. *The American Neptune* 44(4): 221-244.

Coker, P. C., III.

1987 *Charleston's Maritime Heritage, 1670-1865*. CokerCraft Press, Charleston.

Connor, Jeannette T. (ed.)

1925 Colonial Records of Spanish Florida: Letters and Reports of Governors and Secular Persons. Translated and edited by J.T.C. Vol. 1 *Florida State Historical Society, Publication 5*. Deland.

1930 Colonial Records of Spanish Florida: Letters and Reports of Governors and Secular Persons. Translated and edited by J.T.C. Vol. 2 *Florida Historical Society, Publication 5*. Deland.

Crafford, John

1683 A New and Most Exact Account of the Fertiles and Famous Colony of Carolina (on the Continent of America) . . . Together with a Maritime Account of Its Rivers, Bars, Soundings and Harbours: also of the Natives, their Religion, Traffick and Commodities. . . . N. Tarrant, Dublin.

Crane, H. R., and J. B. Griffin

1959 University of Michigan Radiocarbon Dates IV. In *American Journal of Science Radiocarbon Supplement* Vol. 1, pp.173-198, edited by Richard Foster Flint and Edward S. Deevey, Jr.

Creed, Christopher

- 1995 Offshore Sand Search Study Hilton Head Island, South Carolina, Phase 1, Bathymetric Survey and Seismic Sub-bottom Survey. Prepared by Olsen Associates, Inc. Submitted to The Town of Hilton Head Island, SC.
- DePratter, Chester B.
1993 The Woodland, Mississippian, and Protohistoric Periods in South Carolina. *South Carolina Antiquities* 25(1 & 2): 43-48.
- DePratter, Chester B., Charles Hudson, and Marvin T. Smith
1990 The Juan Pardo Expedition: North from Santa Elena. *Southeastern Archaeology* 9(2) Winter: 140-146.
- DePratter, Chester B., and Stanley South
1990 Charlesfort: The 1989 Search Project. *Research Manuscript Series 210*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
1995 Discovery at Santa Elena: Boundary Survey. *Research Manuscript Series 221*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- DePratter, Chester B., Stanley South, and James Legg
1996 Charlesfort Discovered! *Legacy* 1(1). Newsletter of South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Des Barres, Joseph F. W.
1777 *Port Royal In South Carolina*. London. Kendall Map Collection, South Caroliniana Library, University of South Carolina, Columbia.
- Drayton, John
1802 *A View of South Carolina, As Respects Her Natural and Civil Concerns*. Spartanburg Reprint Company, 1972.
- Drucker, Lesley M. and Ronald W. Anthony
1980 A Cultural Resources Survey of the Pinckney Island National Wildlife Refuge, Beaufort County, South Carolina. Carolina Archaeological Services, Columbia.
- Emilio, Luis F.
1969 *A Brave Black Regiment: A History of the Fifty-Fourth Regiment of Massachusetts Volunteer Infantry, 1863-1865*. Arno Press and the New York Times, New York.
- Espenshade, Christopher
1995 Antebellum Sites Research, Parris Island Marine Recruit Depot, Beaufort County, South Carolina. Brockington and Associates, Atlanta.
- Farmer, C. H. et al., 1977. *The South Carolina Shrimp Fishery*. SCWMRD, Division of Marine Resources, Office of Conservation and Management. Educational Report Number 8.
- Fike, Robert E.
1987 *The Bottle Book: A Comprehensive Guide to Historic, Embossed Medicine*

- Bottles*. Peregrine Smith Books, Salt Lake City.
- 1968 *The Fish Boat* June 1968:71.
- Fleetwood, Jr., William C.
 1982 *Tidecraft: The Boats of Lower South Carolina & Georgia*. Coastal Heritage Society, Savannah.
- 1995 *Tidecraft: The Boats of South Carolina, Georgia and Northeastern Florida, 1550-1950*. WBG Marine Press, Tybee Island, Georgia.
- Franklin, Marianne, John William Morris, III, and Roger C. Smith
 1991 Submerged Historical Resources of Pensacola Bay, Florida: The Pensacola Shipwreck Survey Phase One, 1991. Florida Archaeological Reports. Florida Bureau of Archaeological Research, Tallahassee.
- Freeman, Thomas H.
 1982 Bedforms distribution, bedform dynamics, and preserved bedding types on a mesotidal sand ridge, Port Royal Sound, South Carolina. Unpublished Master's Thesis, University of South Carolina, Columbia, SC.
- Georgia Historical Society
 1905 *Sloop with oysters stored below deck*, Photograph, Georgia Historical Society, Savannah.
- Gillespie, William C. et al.
 1969 *An econometric analysis of the US Shrimp Industry*. Economics of Marine Resources No. 2. Clemson: Clemson University Department of Agricultural Economics and Rural Sociology, South Carolina Agricultural Experiment Station, in cooperation with Coastal Plains Regional Commission.
- Goodyear, Albert, James Michie, and Tommy Charles
 1989 The Earliest South Carolinians. In *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson*, pp. 19-52. *Anthropological Studies 9*, Occasional Papers of the South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Goldenberg, Joseph A.
 1976 *Shipbuilding in Colonial America*. The University Press of Virginia, Charlottesville.
- Grunden, Ramona
 1989 Archaeological Survey and Testing of the Palmetto Headlands Tract, Hilton Head Island, South Carolina. Brockington and Associates, Atlanta.
- Harris, Joel Chandler
 1894 The Sea Island Hurricane. *Scribner's Magazine* XV (February and March).
- Harris, Lynn H.
 1995 *SS William Lawrence*: Statement of Significance. Report on file at South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

- 1996a South Carolina's Underwater Archaeology Public Education Program and International Outreach Initiatives, 1996 Management Report: Part I. *Research Manuscript Series Number 223*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- 1996b Database Management Report on the South Carolina Hobby Diver Licensing System and Submerged Site Inventory, 1996 Management Report: Part II. *Research Manuscript Series Number 223*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Harris, Lynn, Jimmy Moss, and Carl Naylor
 1993 The Cooper River Survey: An Underwater Reconnaissance of the West Branch. *Research Manuscript Series 218*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Hemmings, E. Thomas
 1969 38BU9-An Early Ceramic Site Near Beaufort, S.C. *South Carolina Institute of Archaeology and Anthropology's Notebook* 1(5): 6-7.
- 1971 38BU9-South Carolina's Oldest Lady. *South Carolina Institute of Archaeology and Anthropology's Notebook* 3(6): 128-131.
- Hocker Frederick M.
 1992 The Brown's Ferry Vessel: An Interim Hull Report. In *Underwater Archaeology Proceedings from the Society for Historical Archaeology Conference* edited by Donald H. Keith and Toni L. Carrell. Society for Historical Archaeology.
- Hoffman, Paul
 1980 *The Spanish Crown and the Defense of the Caribbean, 1535-1585: Precedent, Patrimonialism and Royal Parsimony*. Louisiana University Press, Baton Rouge.
- 1990 *A New Andalusia and A Way to the Orient; The American Southeast During the Sixteenth Century*. Louisiana University Press, Baton Rouge.
- Hudson, Charles (ed.)
 1976 *The Juan Pardo Expeditions*. Smithsonian Institution Press, Washington.
- Huggins, Phillip Kenneth
 1971 *The South Carolina Dispensary: a bottle collector's atlas and history of the system*. Sandlapper Press, Inc., Columbia, South Carolina.
- Hulton, Paul (ed.)
 1984 *The Complete Drawings of John White*. University of North Carolina Press, Chapel Hill.
- Hunter, Alvah Folsom
 1987 *A Year on a Monitor and the Destruction of Fort Sumter*. University of South Carolina Press, Columbia.
- Johnson, Fred F. and Milton J. Lindner
 1934 *Shrimp industry of the South Atlantic and Gulf states*. US Bureau of Fisheries

- Investigational Report No. 21. US GPO, Washington, DC.
- Jones, Jr., Charles C.
1878 *The Life and Services of Commodore Josiah Tattnall*. Morning News Steam Printing House, Savannah.
- Jones, Katharine M. (ed.)
1960 *Port Royal Under Six Flags*. The Bobbs-Merril Company, Inc., New York.
- Keith, Willis J. and Robert C. Gracy
1972 *History of the South Carolina Oyster*. Educational Report No. 1. Office of Marine Conservation, South Carolina Wildlife and Marine Resources Department, Charleston.
- Kelly, Jimmy Jr.
1998 Interview by Laura Von Harten. Transcripts, Von Harten Family Collection, Beaufort, S.C..
- Kelly, Richard and Barbara Kelly
1993 *The Carolina Watermen: Bug Hunters and Boatbuilders*. John F. Blair, Winston-Salem, NC.
- Kendall Map Collection
Kendall Map Collection. University of South Carolina, Columbia.
- Kennedy, Linda, Marian Roberts, and Christopher Espenshade
1992 Archaeological Survey and Testing of Cane Island, Beaufort County, South Carolina. Prepared by Brockington and Associates, Inc., Atlanta.
- Kovacik, Charles F. and John J. Winberry
1987 *South Carolina: The Making of a Landscape*. University of South Carolina Press, Columbia.
- Kowalewski, Stephen A. and Suzanne K. Fish
1990 Conclusions. In *The Archaeology of Regions: A Case Study for Full Coverage Survey*. Edited by Suzanne K. Fish and Stephen Kowalewski. Smithsonian Institute Press, Washington, D.C.
- Lady's Island Middle School
1996 *Downtown Beaufort As a Classroom*. Beaufort, SC: LIMS.
- Lawson, John
1967 *A New Voyage to South Carolina*. University of North Carolina Press, Chapel Hill.
- Lepionka, Lawrence
1979 Ft. Lyttleton: Excavations 1978. Report on file at South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Lettich, Tony
1998 Interview by Laura Von Harten. Transcript, Beaufort County Historical Society Oral History Project, Beaufort, S.C.

- Lord, David B.,
1971 Florida's Fishermen. *Jacksonville Seafarer* 20(2).
- Lubkin, Bernice
1998 Interview by Laura Von Harten. Transcript, Beaufort County Historical Society Oral History Project, Beaufort.
- Lubkin, Walter
1995 Interview by Laura Von Harten. Transcript, Beaufort Museum, Beaufort, S.C..
- Lyon, Eugene
1983 *The Enterprise of Florida: Pedro Menéndez de Avilés and the Spanish Conquest of 1565-1568*. University Presses of Florida, Gainesville.
- 1984 Santa Elena: A Brief History of the Colony, 1566-1587. *Research Manuscript Series 193*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- MacDonald, G. and B. Purdy
1982 Florida's Wet Sites: Where the Fragile Past Survives. *Early Man*. 4: 6-14.
- MacDowell, W.L. (ed.)
1955 *Journals of the Commissioners of Indian Trade, 1710-1718*. South Carolina Archives Department, Columbia.
- Maggioni, Gilbert
1977 Interview by Remer Lane. Transcript, Georgia Historical Society, Savannah.
- 1996 Interview by Laura Von Harten. Transcript, Beaufort Museum, Beaufort, S.C.
- Marx, Robert F. and Jenifer Marx
1994 *New World Shipwrecks, 1492-1825*. Ram Publishing Company, Dallas.
- Mather, R.C.
1894 *The Storm Swept Coast of South Carolina*. Woonsocket, Rhode Island.
- Mathews, Maurice.
1954 A Contemporary View of Carolina in 1680. *South Carolina Historical Magazine*. 55(3)(July): 153-159.
- McComb
1808 Map of Beaufort Riverways, NARA.
- McGiffin, John G., Jr.
1971 It ain't like it was in the good old days . . . No, and it never was." *Jacksonville Seafarer* 20(2):1
- McKearin, Helen
1978 *American Bottles and Flasks and their Ancestry*. Crown Publishers, Inc., New York.
- McManamon, Francis P.

- 1984 Discovering Sites Unseen. In *Advances in Archaeological Method and Theory*, Vol. 7, edited by Michael B. Schiffer, pp. 223-280. Academic Press, Inc., New York.
- McTeer, J. E.
1972 *Adventure in the woods and waters of the lowcountry*. Beaufort Book Company, Beaufort, S.C.
- Merrens, H. Roy (ed)
1977 *The Colonial South Carolina Scene: Contemporary Views, 1697-1774*. University of South Carolina Press, Columbia.
- Michie, James
1980 An Intensive Shoreline Survey of Archeological Sites in Port Royal Sound and the Broad River Estuary, Beaufort County, South Carolina. *Research Manuscript Series 167*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
1983 An Archaeological Reconnaissance Survey of the Haig Point, Webb, and Oak Ridge Tracts, Daufuskie Island, South Carolina. *Research Manuscript Series 187*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Milling, Chapman James (ed)
1951 *Colonial South Carolina: Two Contemporary Descriptions by Governor James Glen and Dr. George Milligan-Johnson*. University of South Carolina Press, Columbia.
- Mills, [?]
1760 "Abstracts from Mr. Mills reports etc (1760)..." Clinton Papers, Vol. 167, William L. Clements Library, University of Michigan, Ann Arbor.
- Mills, Robert
1825 *Mills Atlas of the State of South Carolina*. Reprint, 1980. Southern Historical Press, Easley, S.C.
- Mistovich, Tim and Catherine E. Elinton
1991 Archaeological Data Recovery at the Track Site, 38BU927, Marine Corps Air Station, Beaufort County, South Carolina. University of Alabama, Tuscaloosa.
- Moore, Clarence B.
1898 Certain Aboriginal Mounds of the Coast of South Carolina. *Journal of the Philadelphia Academy of Natural Sciences* 11:147-166.
- Morris, Kaea
1986 Lake Phelps Canoe Project. *Stem to Stern* Vol. 2 (1986):4. Newsletter of Program of Maritime History and Nautical Archaeology, East Carolina University, Greenville, NC.
- Mouzon, Jenny Mulligan
1998 Interview by Vennie Deas Moore and Laura Von Harten. Transcript, Beaufort County Historical Society Oral History Project, Beaufort, S.C.

- National Archives and Records Administration, Record Groups
 23-Records of the Coast and Geodetic Survey.
 26-Records of the Lighthouse Bureau and Predecessors.
 37-Records of the Hydrographic Office.
 71-Records of the Bureau of Yards and Docks.
 77-Records of the Office of the Chief of Engineers.
 92-Records of the Office of the Quartermaster General, 1834-1900.
 165-Records of the War Department General and Special Staffs
- Newsom, Lee A. and Barbara A. Purdy
 1990 Florida Canoes: A Maritime Heritage from the Past. *The Florida Anthropologist* 43(3):164-180.
- Nylund, Rowena
 1989 *The Historical Background of the Brown's Ferry Vessel*. Unpublished Masters Thesis, University of South Carolina, Columbia.
- Olsberg, Nicholas.
 1973 Ship Registers in the South Carolina Archives, 1734 - 1780. *South Carolina Historical and Genealogical Magazine* 74(4) (October):189-299.
- Parker, Anthony W.
 1997 *Scottish Highlanders in Colonial Georgia: The Recruitment, Emigration, and Settlement at Darien, 1735-1748*. The University of Georgia Press, Athens.
- Pinckney, Roger
 1998 Charleston's Bad Vibes. *Charleston* Fall 1998:28-32.
- Port Royal Bicentennial Committee
 1976 Port Royal Bicentennial Committee brochure. Port Royal, S.C.
- Priestley, Herbert Ingram (ed.)
 1928 *The Luna Papers*. 2 Vols. Florida State Historical Society, Deland, FL.
- Quinn, David B.
 1979 *New American World*. Vol. 2. Arno Press, New York.
- Radcliffe, Lewis
 1926 Canned Fishery Products and By Products - South Atlantic and Gulf States 1925. *Fish and Oyster Reporter*, May 1926. On file at Georgia Historical Society, Savannah, GA.
- Randall, George
 1998 Interview by Laura Von Harten. Transcript, Beaufort County Historical Society Oral History Project, Beaufort.
- Rogers, G. Sherburne
 1914 The Phosphate Deposits of South Carolina. Department of the Interior, United States Geological Survey. Government Printing Office, Washington, D.C.
- Rosengarten, Theodore
 1986 *Tombee: Portrait of a Cotton Planter*. Morrow, New York.

- Rowland, Lawrence S., Alexander Moore, and George C. Rogers, Jr.
 1996 *The History of Beaufort County, South Carolina: Volume 1, 1514-1861*.
 University of South Carolina Press, Columbia.
- Rush, Richard, et al. (eds.)
 1894- *Official Records of the Union and Confederate Navies in the War of the*
 1906 *Rebellion*. 31 Vols. Government Printing Office, Washington, D.C.
- Salley, A.S., Jr.
 1928- *Records in the British Public Records Office Relating to South*
 1947 *Carolina*. Five volumes. Historical Commission of South Carolina, Columbia.
- Salley, Jr., A. S. (ed.)
 1973 *Warrants for Lands in South Carolina, 1672-1711*. Revised by R. Nicholas
 Olsberg. University of South Carolina Press, Columbia.
- Sanborn Insurance Maps
 1900s Sanborn Insurance Company Maps of Beaufort. Microfilm at Beaufort County
 Library.
- Sassaman, Kenneth
 1996 Stallings: The Rise and Fall of a Hunting and Gathering Society. *Legacy* 1(1):6-7.
 Newsletter of South Carolina Institute of Archaeology and Anthropology,
 University of South Carolina, Columbia.
- Savannah Electric and Power Company
 1925 Number 39, The Fishing Industry. *Savannah Morning News*, Monday, April 20,
 1925.
- Savannah Morning News*
 1909 *Savannah Morning News*.
- Scott, R.N., et al. (eds.)
 1880 *The War of the Rebellion: A Compilation of the Official Records of the Union*
and Confederate Armies. 70 Vols. Government Printing Office, Washington,
 D.C.
- Singleton, Julia
 1998 Interview by Vennie Deas-Moore and Laura Von Harten. Transcript, Beaufort
 County Historical Society Oral History Project, Beaufort.
- Skinner, Kurt
 1995 Interview by Laura Von Harten. Transcript, Von Harten Family Collection,
 Beaufort.
- Slaughter, Thomas (ed.)
 1976 *Bartram's Travels and Other Writings: Travels through North and South*
Carolina, Georgia East and West Florida, 1773-1774. Princeton University
 Press, New York.
- Smith, H.A.M.
 1908 Beaufort: The Original Town and Earliest Settlers. *South Carolina Historical*

Magazine, 9.

South Atlantic Fishery Management Council

1981 *Profile of the Penaeid shrimp fishery in the South Atlantic.* South Atlantic Fishery Management Council, Charleston.

South, Stanley

1982 A Search for the French Charlesfort of 1562. *Research Manuscript Series 184.* South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

South, Stanley, and Chester B. DePratter

1996 Discovery at Santa Elena: Block Excavation 1993. *Research Manuscript Series 222.* South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

South Carolina Gazette, Files of the Charleston Library Society, Charleston, S.C

South Carolina Water Resources Commission

1972 *Port Royal Sound Environmental Study.* Columbia.

1983 *South Carolina State Water Assessment.* Columbia.

Southern Fisheries Association

1926 *Southern Fisheries Association Journal.*

Spence, E. Lee

1984 *Shipwrecks of South Carolina and Georgia, Includes Spence's Shipwreck List: 1520 to 1865.* Sea Research Society, Sullivan's Island, SC.

Spirek, James

1993 *USS Southfield: An Historical and Archaeological Investigation of a Converted Gunboat.* Unpublished Master's Thesis, East Carolina University, Greenville, NC.

1998 The Fort Frederick Barrel Well. *Legacy 3(2): 24-25.* Newsletter of South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Spirek, James and Christopher Amer

1997 SCIAA'S Underwater Archaeology Division Completes First Phase of the Port Royal Sound Survey. *Legacy 2(3): 24-25.* Newsletter of South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Stanley Consultants

1977 *Navigability Study: Report No. 1-Coosawhatchie River Area.* U.S. Army Corps of Engineers-Charleston District, Charleston, SC.

Steffy, J. Richard

1978a Preliminary Report: Hull Construction Features of the Brown's Ferry Vessel. *Notebook 5(1): 13-33.* South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

- 1978b Construction Details of the Brown's Ferry Ship. *The Proceedings of the Ninth Conference on Underwater Archaeology*, edited by J. Barto Arnold III, Society for Historic Archaeology.
- 1979 The Brown's Ferry Vessel, South Carolina: Preliminary Report. *The International Journal of Nautical Archaeology and Underwater Exploration*. The Nautical Archaeology Trust Ltd., London, U.K.
- Stuck, William
- 1980 Soil Survey of Beaufort and Jasper Counties, South Carolina. U.S. Department of Agriculture/Soil Conservation Service. Washington.
- Sullivan, John Denis
- 1988 Late Pleistocene-Holocene Transgressive Barrier Island Sequence: Evidence for a Fluctuating Sea Level, Hilton Head Island Area, South Carolina. Unpublished Master's Thesis, Georgia State University, Atlanta.
- Swanton, John,
- 1946 Indians of the Southeastern United States. *Bureau of American Ethnology Bulletin 27*. Smithsonian Institution Press, Washington D.C.
- Thompson, Bruce F.
- 1990 Underwater Survey at Parris Island. In Charlesfort: The 1989 Search Project. *Research Manuscript Series 210*. Chester B. DePratter and Stanley South. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Thompson, Robert Means and Richard Wainwright (eds.)
- 1918 *Confidential Correspondence of Gustavus Vasa Fox, Assistant Secretary of the Navy, 1861-1865*. 2 Vols. The Devine Press, New York.
- Tibbetts, John
- 1998 Early Europeans in America: Hurricanes Steer the Course of History. *Coastal Heritage* 13(1): 3-9.
- 1998b "What a Gale We Had": Storms Transform Coastal Plantations. *Coastal Heritage* 13(1): 3-9.
- Tippett, Joseph L. and Wayne D. Roberts
- 1988 Archaeological Survey of U.S. Route 21 Whale Branch Bridge Replacement, Beaufort County, South Carolina. South Carolina Department of Transportation. Letter report on file at South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Trinkley, Michael B.
- 1989 An Archaeological Overview of the South Carolina Woodland Period: It's the Same Old Riddle. In *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson*, pp. 73-90. *Anthropological Studies 9*, Occasional Papers of the South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- Trinkley, Michael and Martha Zierden

1983 The Archaeology of Fish Haul Creek, Hilton Head Island, Beaufort County, South Carolina: A Preliminary Statement and Recommendations. The Charleston Museum, Charleston.

Tulian, E. A.

1920 Louisiana - Greatest in Production of Shrimp - *Penaeus setiferous*. In *Transactions of the American Fisheries Society*, June 1920. American Fisheries Society, Columbus, OH: 115-124 .

United States Army Corps of Engineers, Charleston District

1976 *Maintenance Dredging of Port Royal Harbor, Beaufort County, South Carolina: Final Environmental Statement*. U.S. Army Engineer District, Charleston, South Carolina.

United States Government

1868 *Executive Documents: Reports to the Second Session of the Fortieth Congress, 1867-68*. 20 Vols. US GPO, Washington.

Von Harten, H. H., Jr.

1995 Interview by Laura Von Harten. Transcript, Beaufort Museum, Beaufort.

1998 Interview by Laura Von Harten. Transcript, Von Harten Family Collection, Beaufort.

Watts, Gordon and Wesley Hall

1986 An Investigation of Blossom's Ferry on the Northeast Cape Fear River. *Program in Maritime History and Underwater Research Reports No. 1*. Greenville, North Carolina.

Waskiewicz, Stanley

1995 Interview by Laura Von Harten. Transcript, Beaufort Museum, Beaufort.

Wechsler, Henrietta

1965 *The Oysterpickers*, painting. In the collection of the artist, Beaufort, SC.

Wenhold, Lucy L.

1959 Manrique de Roja's Report on French Settlement in Florida. *Florida Historical Quarterly* 38:45-62.

Westerdahl, Christer

1992 The Maritime Cultural Landscape. *International Journal of Nautical Archaeology and Underwater Exploration* 21(1): 5-14.

Whitney, Richard

1989 The History of Phosphate Mining in Beaufort County, 1870-1914. Collections of the Beaufort County Historical Society, Publication #2, Beaufort.

Widmer, Randolph J.

1976 An Archaeological Survey and Assessment of Cultural Resources of the Chicago Bridge and Iron Company's Victoria Bluff Facility, Beaufort County, South Carolina. Research Manuscript Series 91, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Wilson, Charlie.

1995 Interview by Laura Von Harten. Transcript, Beaufort Museum, Beaufort.

Wilson, Charlie.

1998 Interview by Laura Von Harten. Transcript, Beaufort Museum, Beaufort.

Wolcott, Marion Post.

1939 *Cannery workers going home*. Photograph reprinted in *A South Carolina Album*, Constance Shulz, University of South Carolina Press, Columbia.

Wood, Virginia Steele

1981 *Live Oaking: Southern Timber for Tall Ships*. Northeastern University Press, Boston.

Wright, Newell O.

1977 An Underwater Archeological Survey and Assessment of Cultural Resources of the Chicago Bridge and Iron Company's Victoria Bluff Facility, Beaufort County, South Carolina. *Research Manuscript Series 108*, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Yonge, Francis

1722 *A View of the Trade of South Carolina with Proposals Humbly Offer'd for Improving the Same*. London.

1726 *A Narration of the Proceedings of the People of South-Carolina, In the Year 1719: And of the True Causes and Motives that induced them to Renounce their Obedience to the Lords Proprietors, as their Governors, and to put themselves under the immediate Government of the Crown*. London.