Dog Island Shipwreck Survey 1999:

Report of Historical and Archaeological Investigations

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Acknowledgements

The success of the Dog Island Shipwreck Survey 1999 season would not have been possible without the support Division of Historical Resources, Florida Department of State, Florida State University, College of Arts and Sciences, and the help of several individuals. Staff for the first phase of the field project included Field Project Director Chuck Meide, Field Assistant Director James McClean, Crew Chief Michael Lavender, and Sonar Technician Robert Francis. A large and diverse crew of volunteer and student archaeologists also participated in the project including Tanya Peres, Brinnen Carter (both University of Florida doctoral candidates), Dr. Mary Glowacki (of the Florida Bureau of Archaeological Research), Eric Wilson, Michael Sawatzki, Charles Lawson, Ryan Pendleton, and Patrick Gensler (these last three are graduate students at the FSU Department of Anthropology).

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Abstract

The 1999 Dog Island Shipwreck Survey was designed to search for, investigate, and document historic shipwreck sites and other submerged cultural resources in the vicinity of Dog Island, a barrier island on the Northwest Florida coast in Franklin County. The field season operated from 2 May 1999 to 8 August 1999.

During the field season a broad scope of survey was conducted, including geophysical searches to the west of Dog Island for the *Fox*, to the east of Dog Island for *Le Tigre*, and among the coves on the inshore side of Dog Island and St. George Sound. Magnetometer and side scan sonar survey of 11 areas produced 117 anomalies, 10 of which were further investigated. Five of the ten anomalies were significant enough to be recorded in the Florida's Master Site Files. In addition to locating and investigating new sites, two previously known sites were revisited to assess their nature and current condition. These sites and the wrecks of the 1914 fishing smack *Priscilla* and the 1899 Norwegian lumber bark *Vale*, were subjected to a systematic series of test excavations and hull recording.

In addition to the extensive historical background research carried out prior to and after the field season, archival research was conducted not only in Florida but abroad, in both Norwegian and British depositories. This research uncovered data concerning the 1899 shipwrecks at Dog Island, historical accounts on the wrecking of the vessels *Fox* and *Le Tigre*, and a considerable number of valuable historical maps.

The combination of all these investigations has produced a comprehensive report documenting the submerged cultural resources in the vicinity of Dog Island. Future seasons of the project should continue this three-fold approach of historical research, survey for new sites, and monitoring of known sites.

The project has been financed in part with historic preservation grant assistance provided by the National Park Service, U.S. Department of the Interior, administered through the Bureau of Historic Preservation, Division of Historical Resources, Florida Department of State, assisted by the Historic Preservation Advisory Council. However, the contents and opinions do not necessarily reflect the views and opinions of the Department of the Interior of the Florida Department of State, not does the mention of trade names or commercial products constitute endorsement or recommendation by the Department of Interior or the Florida Department of State. This program receives Federal financial assistance for identification and protection of historic properties. Under Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and the Age Discrimination Act of 1975, as amended, the U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, disability, or age in its federally assisted programs. If you believe you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: Office of Equal Opportunity, National Park Service, 1849 C Street, NW, Washington, DC 20240.

Dog Island Shipwreck Survey 1999:
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Introduction

Chuck Meide

The 1999 Dog Island Shipwreck Survey was designed to search for, investigate, and document historic shipwreck sites and other submerged cultural resources in the vicinity of Dog Island, a barrier island on the Northwest Florida coast in Franklin County. Dog Island's diverse collection of underwater historic and cultural resources has not received extensive attention by archaeologists and historians. A terrestrial archaeological survey was conducted on the island by Nancy White of the University of South Florida in 1995 (White et al. 1995), but no similar systematic survey has occurred in the waters around Dog Island. Realizing the potential for combining archaeological research, submerged cultural resource management projects, and educational opportunities, the Program in Underwater Archaeology implemented a shipwreck survey and conducted the first field season from 2 May to 8 August 1999.

The project was supported in part by a Survey and Planning Grant (#9909) from the State of Florida's Historic Preservation Grants-in-Aid program and in part by Florida State University's College of Arts and Sciences. More than thirty individuals volunteered their time and effort during the three-month field investigation. The last six weeks of the field project were incorporated into the 1999 FSU Underwater Field School.

Fieldwork included side scan sonar and magnetometer remote sensing coverage of 671 hectares. This led to an inspection of ten anomalies including several ballast piles and ballast/artifact scatters, the ruins of an antebellum lighthouse, and the wreck of a probable World War II-era landing craft. Five of the ten sites investigated were considered significant, and were recorded at the Florida Master Site Files. In addition, the current condition and nature of two previously known sites, believed to be the wrecks of the 1914 fishing smack *Priscilla* and the 1899 Norwegian lumber bark *Vale*, were investigated. Investigations of the wreck believed to be the *Priscilla* were limited mainly to gathering information on its current condition along with some hull recording. The potential site of vessel *Vale* received the bulk of attention. It was subjected to a systematic series of test excavations in order to better understand the nature of the site and to confirm the vessel's identity.

In addition to the archaeological field research, historical and archival research was conducted in Florida, England, and Norway, resulting in an inventory of 118 shipwrecks and shipping losses in the region (Appendix H). Supplemental information regarding the loss of *Le Tigre* (1766), HMS *Fox* (1799), and the 1899 lumber ships wrecking event was gathered from archival depositories in Florida. Historic photographs from the 19th and 20th centuries pertaining to Dog Island and the towns of Carrabelle and Apalachicola were studied, inventoried, and some reproduced from the Florida State Archives Photographic Collection in Tallahassee, Florida. A number of historic maps of the region dating to the 17th, 18th, and 19th centuries were collected in an attempt to understand how geographers' understanding of the barrier islands, the development of cartographic place names, and Dog Island's physiography has changed over time.

In addition to historical and archaeological research, the Dog Island Shipwreck Survey conducted some public education and outreach. Program in Underwater Archaeology staff presented lectures at academic meetings, local and regional organizations (such as the local Power Squadron, business clubs), and at FSU-Marine Lab Open House events. During the 1999 field

season, the researchers were visited by a film crew from the Canadian children's television show *Popular Mechanics for Kids*. An article was published in the children's magazine *Owl* (Siegel 1999). Throughout the entire duration of the project (through the present time) the PUA maintained a Dog Island Shipwreck Survey webpage at **http://www.anthro.fsu.edu/uw/Research/ships/dog_island/dogisland.html**. The web page presents historical and archaeological information about the project and the various shipwrecks, the 1999 research design, and a section titled "Reports from the Field", which was updated with text and pictures on a regular basis for the duration of the field season.

This report details the results of historical background research and archaeological fieldwork conducted by the 1999 Dog Island Shipwreck Survey. It is divided into several sections. The first provides detailed background information about the environment, history, and previous archaeological research of Dog Island and the surrounding region, as well as the research design for the 1999 campaign. The next section discusses the methodology, analysis, and results of the remote sensing surveys conducted between May and August 1999. The penultimate section presents the results of the archaeological investigations on the newly discovered and previously known sites, followed by conclusions, recommendations for future research, and references. Appendices follow the references including a wealth of information describing and documenting the historical research conducted and providing a number of historic photographs, maps, letters, newspaper articles, a shipwreck inventory, and other such data.

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Background Information

Chuck Meide

Environmental Overview

Dog Island is the third (from west to east) in a string of barrier islands separated from the coast of Franklin County by Apalachicola Bay and St. George Sound (Figure 1). It lies about 6 km (3.5 miles) south of the coastal town of Carrabelle, in Franklin County. A true barrier island, Dog Island is composed mainly of sand and buried peat. Eleven kilometers (seven miles) long and covering an area of 745 hectares (1,842 acres), Dog Island separates St. George Sound on its north from the open Gulf of Mexico.The climate is moderate around Dog Island. The average temperature range is 80° to 99° F in the summer, and 48° to 58°F in the winter (Sasser et al. 1994). The temperature and weather are both greatly affected by wind currents from the Gulf of Mexico. Technically, winter is the rainy season, though summer thunderstorms and brief afternoon summer showers are common. Hurricanes, which have dramatically affected the history and physiography of the island, are a significant factor of the island's character. Hurricane season is from late summer to early fall, and recent hurricanes have visibly altered the island: some portions have been blown away, while others have accreted (White et al. 1995:3).

The Apalachicola Bay includes the area from Indian Pass and St. Vincent Island on the west to beyond Dog Island on the east. This comprises a section of coastline, bay, and offshore waters measuring 36 miles in length, 14 miles in width, and including approximately 322,560 acres (Livingston 1983: 8-11, 21-31). From colonial times to this day, explorers, settlers, and visitors have noted two general characteristics of the region: its shallow waters (and potential for shipwrecking) and its abundant, diverse marine life (especially bivalve shellfish) (Rogers 1986: xviii). The geographer Thomas Hutchins wrote in 1784: "[the] bay is full of shoals and oyster banks, and not above two or three feet [of] water at most in any of the branches of [the Apalachicola]" (Hutchins 1968 [1784]: 87). Likewise, surveyor Andrew Ellicot wrote in 1799 that the Sound "was so full of oyster bars, and shoals, that it is difficult to navigate it, without a pilot" (Ellicot 1962 [1803]: 236).

The westernmost of the three barrier islands is St. Vincent Island. Vaguely resembling an outstretched bird's wing, St. Vincent contains about 12,358 acres of land, has several freshwater lakes, and hosts a variety of plant and animal life. St. Vincent is separated from the mainland by St. Vincent Sound, a body of water that opens to the Gulf on the west side through the narrow Indian Pass, and widens on the east side to become Apalachicola Bay. Directly to the east of St. Vincent is a naturally formed channel known as West Pass, the primary shipping channel utilized by the mainland town of Apalachicola during the antebellum period. Deeper-drafted, ocean-going vessels also used East Pass on the other side of St. George Island.

St. George Island, the largest and best known of Franklin County's barrier islands, is exceedingly long and slender in shape. About two to three miles off the mainland coast, the island stretches for about 30 miles or more. Its beaches feature large, white sand dunes covered with sea oats and other vegetation. Beyond the dunes are thick forests of pine, palmetto, scrub oak, and hammocks of live oak and cedars. The shoreline on the bay side is spanned with tidal marshes. St. George's aggregate area is approximately 5,895 acres, much of which is encompassed by St. George Island State Park today.

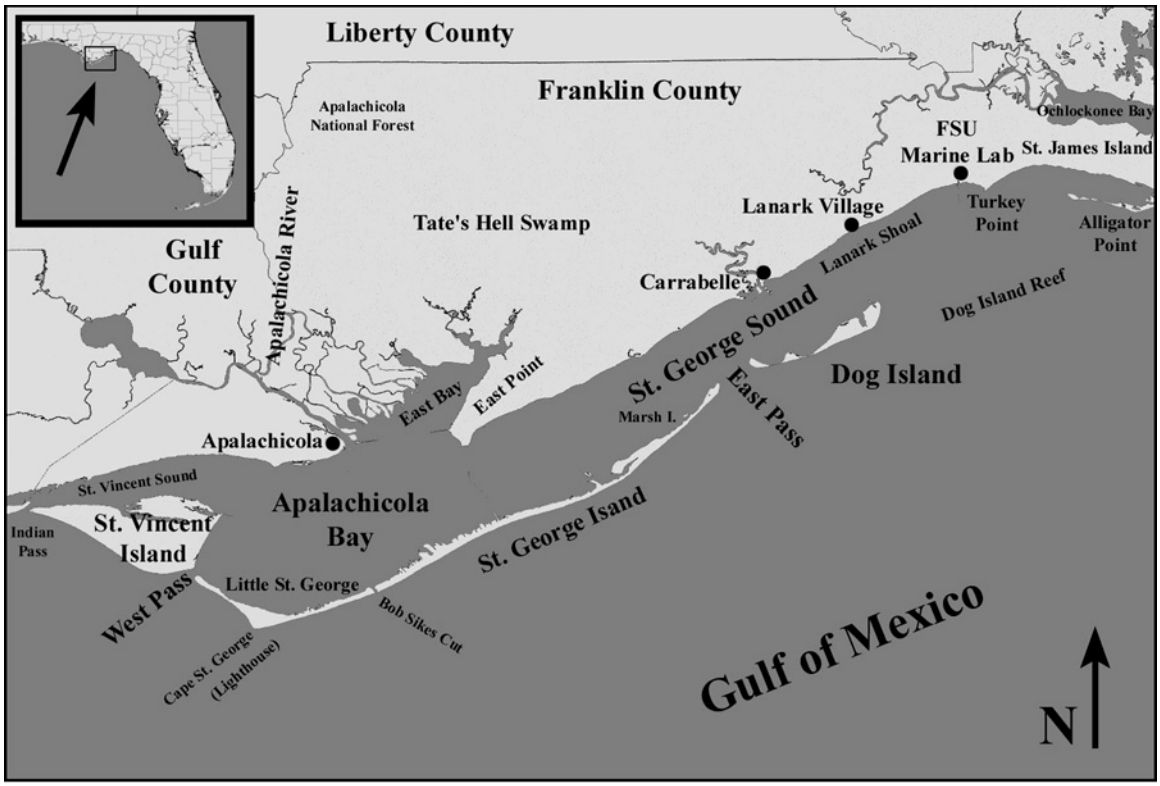

Figure 1. Map of Apalachicola Bay area in northwest Florida

The westernmost portion of St. George Island has traditionally been known as Little St. George Island. It comprises about a third of the total island, or 1,856 acres. Cape St. George is located at its "elbow", which is the site of the St. George Lighthouse erected in 1852. At some point in the 19th century it was breached from the rest of the island by hurricanes. The new passage is known as New Inlet or West Gap, and it has periodically filled up with silt, remerging the island. This separation was made permanent by the U.S. Army Corps of Engineers in 1957, when the "Bob Sikes Cut" was created about three miles east of the traditional location of New Inlet. At the west end of Little St. George lies Sand Island, which, like Little St. George itself, was once part of the main island, only to be separated by storm action, and later re-joined by siltation.

The remainder of the island is known as Big St. George or simply St. George Island and it comprises 4,039 acres. While the Gulf side of the island is fairly uniform with its high-energy beaches, the side facing the bay is dotted with islets, marshes, coves, and other features with names like Nick's Hole, Cedar Point, Shell Point Cove, Rattlesnake Cove, East Cove, Goose Island, East Slough, Sugar Hill, Pilot Harbor, and Marsh Island. Off the east end of St. George Island, between St. George and Dog Islands, is another natural channel, East Pass, which, though deeper than West Pass, was farther from Apalachicola and was used less until later in the 19th century. Foreign ships visiting Apalachicola during its florescence as a cotton port in the early to mid-19th century were deeper-drafted, and thus used the deeper channel at East Pass.

On the mainland north of St. George Island, directly across from Sike's Cut, the mouth of the Apalachicola River empties into an area known as East Bay. River water flushing into East Bay forms a complex delta of swamps, bayous, creeks and streams. The town of Apalachicola is located on the river's west bank at its mouth, and East Bay historically served as a harbor for

sailing and steam ships. Established in 1820, Apalachicola was the seat of government for Franklin County and became an important port in Florida in the 19th Century.

The Apalachicola River is about 106 miles long. It is formed at the confluence of the Flint and Chattahoochee Rivers, near Florida's northern boundary at the present-day town of Chattahoochee. The Flint was navigable seasonably for at least 194 miles above the confluence, to the town of Albany. The Chattahoochee was navigable as far north as the town of Columbus, Georgia, located some 262 miles north of the coast. In addition to these major rivers, a number of smaller rivers such as the Chipola fed into the Apalachicola. This extensive riverine network played a vital role in Apalachicola's development as a center for international shipping. The rivers allowed easy transport of cotton and other agricultural products from the hinterland in Florida, Georgia, and Alabama.

The Carrabelle River, directly across the St. George Sound from Dog Island, empties into the Sound at the present-day town of Carrabelle, about 22 miles east of Apalachicola. It is formed by the confluence of Crooked River and New River about four miles from its mouth.

Dog Island (Figure 2) is similar to St. George Island, and is characteristic of a typical barrier island ecosystem (cf. Leatherman 1988: 18-40). Its physiography is comprised of beaches, sand dunes, saltwater and freshwater marshes, and hardwood flats. The average elevation varies from two to fifteen meters (6 to 50 feet) (Dickinson et al. 1992). The east end of the island has broad, low sand dune ridges, sloughs and marshes, and wet, flatwood hammocks. Tyson Harbor divides the East End from Mid-Island, which is characterized by beach dune ridges on both sides of the island and wetlands in the interior. To the west of Mid-Island the island narrows in the area fronted by Ballast Cove. This slender section of the island, home now to a bird sanctuary, is occasionally submerged during extreme high tides (Dickinson et al. 1992: 3). Beyond that the island widens at an area known as Cannonball Acres (with Cannonball Point facing the St. George Sound). Cannonball Acres is connected to the West End by a very narrow strip of land that borders Shipping Cove. West End is made up of large coastal dunes.

There is a wide range of plant life on the island, due to a diverse ecosystem. Livingston (1989: 4) has documented at least 400 species of plants, two thirds of which are wetland or aquatic in nature. Grasses, sedges, and sunflowers cover much of the dryer landscape. The scrub communities are made up of sand pines, live oaks and myrtle oaks. Sand pines grow among the dunes, and in the higher dune area of Mid-Island. Pine growth on the island was profuse, and exploited for lumber and turpentine resources during the latter half of the 19th century. Many of the remaining trees display scarring from angled, converging "cat-face" cuts made to collect pine resin. Overall, the plant community on the island is somewhat less diverse than on the mainland, though there are some black mangroves (living at their northernmost extent) which are periodically killed off during extremely cold weather spells (Dickinson et al. 1992: 9; Anderson and Alexander 1985).

Dog Island's varied environments offer habitats for numerous faunal species. There have been more than 200 species of birds documented on the island. These include several varieties of hawks, the eastern kingbird, the least bittern, the American oystercatcher, the snowy plover, and common flicker; many of these species are water-oriented and inhabit the marshes and beaches. Gulls, terns, and loons inhabit the coastal beaches and near shore waters, while migratory birds such as the scissor-tailed flycatcher, the common loon, and several species of ducks also make appearances on the island (White et al. 1995; Livingston 1989: 6). Within the last two decades, locals have spotted bald eagles on the island, an endangered species that had disappeared from Dog Island in the recent past (Dickinson et al. 1989: Table 1). Reptiles on and around the island

are mostly limited to alligators and sea turtles. The skeleton of a sea turtle was observed among the dunes at Shipping Cove by FSU archaeologists in 1999. Sailors from passing ships probably exploited turtle populations on the island for food.

Small mammals such as the cotton rat, house mouse, and beach mouse are common on Dog Island. Larger mammals present on the island include otters, and the 1763 narrative by Dog Island Shipwreck survivor Pierre Viaud mentions the presence of deer on the islands (Fabel 1990: 55). A few stray dogs were occasionally noted wandering the dunes during the 1999 survey. Dickinson (et al. 1992: 11-12) mentions that the West Indian manatee, somewhat rare in such northern latitudes, is occasionally seen in Dog Island waters. Other marine mammals include dolphins or porpoises, which are commonly seen in the waters around Dog Island.

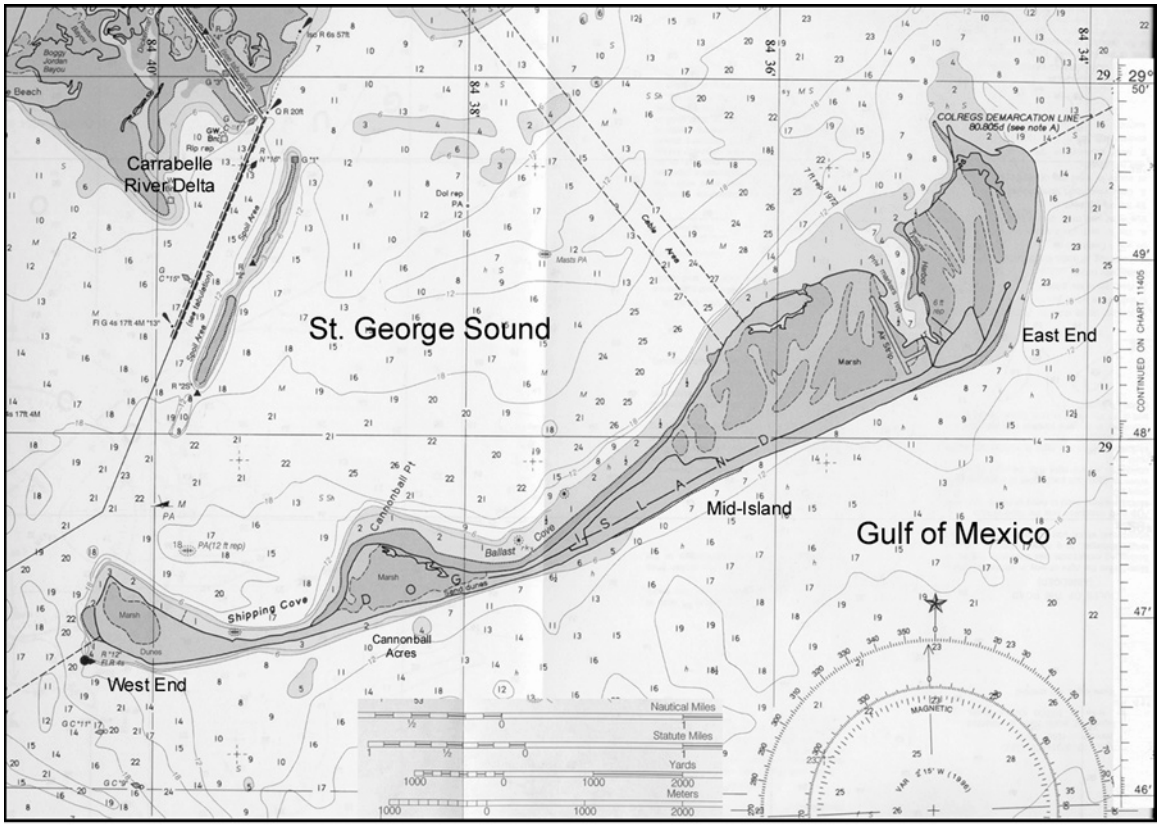

Figure 2. Map of Dog Island showing place names and water depths in feet (NOAA Nautical Chart)

Like the surrounding waters in the Apalachicola Bay area, those around Dog Island contain a diverse marine fauna. A multitude of brackish and saltwater fish, crabs, shrimp, urchins, clams, and oysters thrive in the nearshore and offshore waters. A number of locals commented on the high numbers of sharks in the waters around Dog Island. While none were directly observed by divers, at least one shark was seen breaching some distance away from the survey vessel.

Over the centuries, Dog Island has undergone a considerable change in appearance and position. Figure 3 depicts the shoreline of Dog Island, as derived from an 1859 nautical chart, compared to its more recent appearance in the late 20th century, as mapped in a 1979 chart (White et al. 1995).

This figure illustrates entire sections of the island that have eroded away, and others that have accreted. White (et al. 1995: 4) states that archaeological and ethnographic data implied that the bay shore was losing about 1 meter of sediment every year. She also states that the Gulf side is simultaneously eroding, and that the sands are being re-deposited on the eastern and western ends of the island. The end effect is that the island is slowly creeping towards the mainland, as its ends expand outward. White (et al. 1995: 4) cited evidence of this migration on the Gulf side, where peat deposits originally formed in vestigial lagoon-side marshes could be observed at low tides. A more explicit evidence for the landward migration was found when the 1999 survey team discovered the remains of the Dog Island Lighthouse. Originally built in 1839 at the bay side of the island, it now lies about 150 meters off shore on the Gulf side. In Figure 3 its approximate position is directly south of the DNR marker labeled R-160, south of the area between the overlap of the 19th and 20th century shorelines.

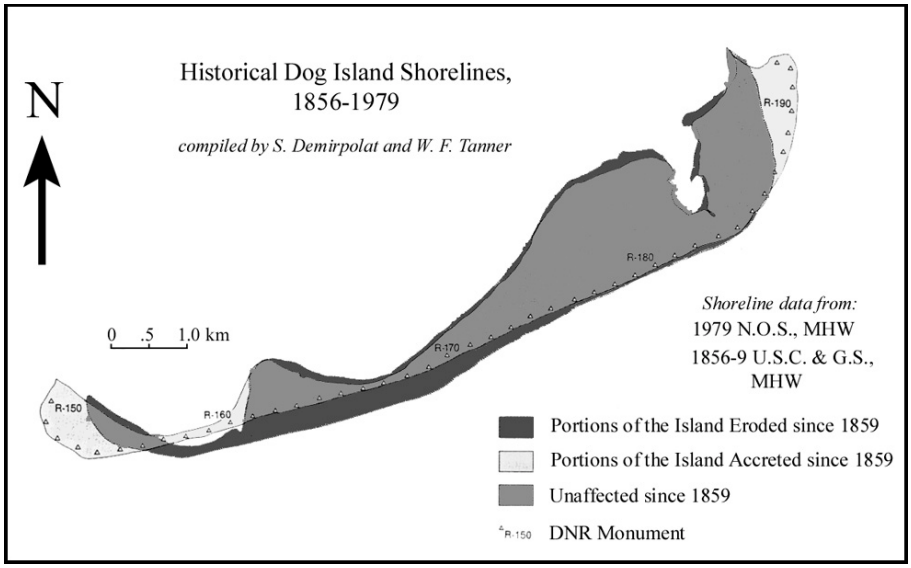

Figure 3. Dog Island shoreline changes since 1859 (White et al. 1995: Figure 3).

The following discussion of barrier island movement is from the 1971 *National Shoreline Study, Regional Inventory Report*:

> Dog Island, the first of the barrier islands south of the mainland [from the east], has undergone constant landward migration of the mean high water shoreline for all of its extent except at both ends of the island. The ends have extended in each direction and are indicated as advancing shoreline.
>
> St. George Island is the next of the barrier islands to the west. The eastern end of this island has been extended just less than 1 mile [1.61 km][1] to the east from 1855 to 1935 and is indicated as an advancing shoreline in the same manner as for the ends of Dog Island and the westward growing spit from Lighthouse Point. Elsewhere, erosion predominates over the easterly one-third of the island. This erosion was on the order of 300 to 400 feet in the 70 to 80 years of record. For the net 7 or 7.5 miles of the shoreline is either stable or has moved gulfward. This movement was on the order of 100 feet. Landward migration of the mean high water shoreline is prevalent for the next

[1] This suggests an average accretion rate of 20.12 meters per year between 1856 and 1935.

approximately 3 miles to the vicinity of a former inlet which existed at the time of the 1856-57 survey just east of 85°x00' W longitude. The former inlet existed about 1.5 miles west of the present navigation inlet. Between 1856-57 and 1934-35 this inlet closed. The 1934-35 shoreline is landward from the alignment of the 1855-1860 shoreline but has been classified as an advancing shoreline because the natural closure of the inlet created a new shoreline. Southwestward from the site of the former inlet, to the point where the island axis changes direction and extends to the northwest, erosion and landward migration of the mean highwater shoreline has been continuous. The southernmost point described above has migrated to the southwest over the period of record. The magnitude to this displacement is approximately 1600 feet. The mean high water shoreline of the portion of the island which extends in the northwesterly direction had moved seaward from 1856-57 to 1934-35. Midway of this reach a breach occurred during 1855 and an inlet was formed naturally. This inlet had been closed by littoral forces, however, by 1902. In the vicinity of this former inlet there was some erosion and landward migration of the high water shoreline from 1902 to 1934-35, but both these shorelines are gulfward from the 1856-1857 shoreline (U.S. Army Corps of Engineers 1971: d125).

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Historical Overview

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Prehistory through the Sixteenth Century

The earliest prehistoric archaeological sites documented on Dog Island confirm the presence of Fort Walton groups (White et al 1995: 38). The majority of these Late Woodland sites are shell middens associated with short-term seasonal camps occupied after the barrier island was fully separated from the main land (White 1995). A prehistoric canoe was recovered in 1967 by local residents from the Dog Island II Site (8Fr343) (Figure 4). This canoe is carbon dated to 1240 BP +/- 80, calibrated 776 AD (Sturver et al 1998;White et al 1995: 21). Other isolated artifacts collected by local residents, such as a Bolen Plain side-notched projectile point and a Florida Archaic Stemmed projectile point, may indicate an Early Archaic occupation of Dog Island around 8000 years ago (White et al 1995:39).

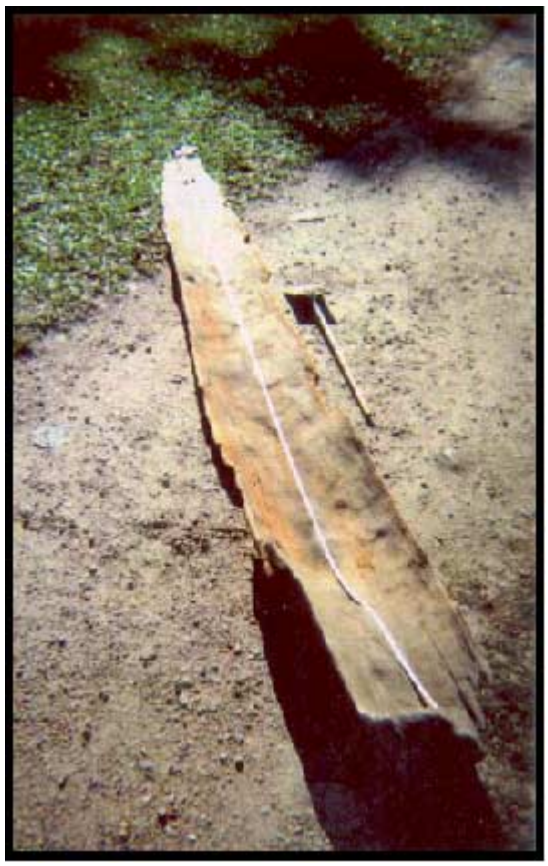

Figure 4. 1,200 BP radiocarbon dated canoe, the earliest known watercraft associated with Dog Island. (White et al 1995: 67). Note shovel for scale.

Historical documentation regarding Dog Island is scant for the first two centuries, as the island existed on the fringe of 16th century Spanish geographical knowledge. It is not known when European seafarers first visited the island. It is possible that the Spanish conquistador Narváez and his men encountered the island in 1528 in an attempt to escape Florida for the safety of Spanish settlements along the Mexican coast (Milanich 1999: 68). After a week of difficult passage through coastal marshes the explorer and his party named, what may be presently known as St. George Sound, the Strait of San Miguel on September 27, 1528 (Weddle 1985: 192-193).

Although Dog Island is north of the regular trade routes of the Spanish *flota* system it is possible that ships navigating between Mexico and Havana occasionally passed through its vicinity. It is probable that the island may have been used for its sheltered anchorages and fresh water sources for vessels blown off course or riding out dangerous weather. This pattern is seen with the 1766 wrecking of *Le Tigre* and the wrecks associated with the 1899 hurricane. Tristan de Luna y Arellano made an attempt to colonize Pensacola Bay in 1559, but a hurricane doomed that effort to failure—reference to Emanual point (Smith 1995). It became increasingly desirable to the Spanish crown to establish an outpost in this territory for the protection of shipping lanes, to provide refuge for shipwreck survivors and to provide a political buffer between Spanish territory and English occupied areas to the north. San Augustín, founded on the east coast of La Florida in 1565, grew in population and importance and was named the capital of La Florida in 1576 (Milanich 1999: 55). From this capital city the Spanish presence in La Florida stretched west to the Apalache region along the Gulf coast.

The Seventeenth and Eighteenth Centuries

The Spanish Mission System in Florida and 17th Century Maritime Commerce

The first long-term European habitation of the region near Dog Island came with the establishment of several Spanish missions in the early 17th century in the Apalache province. Apalache was an area in which the Spanish exploited livestock ranches and wheat and maize resources to support San Augustín and other colonies. Dog Island played a peripheral role in the development of the mission system. There is little mention of the island in the historical documentation of the time. It is probable that local Spanish mariners were aware of Dog Island situated along the Gulf shipping lanes established by the 17th century.

The lack of a reliable supply route between San Augustín and the western provinces was a great challenge for the Spanish. The *camino real*, a 200-mile overland route from Apalache to San Augustín, was long and difficult to travel (Milanich 1999: 13). The need for suitable transport became more pronounced as the Apalache province generated significant surplus while at the same time expanding native trade with tribes to the west and northwest. Evidence of this problem was brought to the attention of the king in 1637 when San Augustín's Governor Luis de Horruytiner stated in a letter that the Apalache mission system could not survive unless a suitable port was established on the coast (Hann 1988: 15). Toward this end, the Governor sent pilots from San Augustín to Apalache to navigate the coastlines, take soundings, and search for an appropriate harbor for seafaring vessels. A suitable harbor was found in the St. Marks River, at the strategic confluence of the St. Marks and Wakulla Rivers, about three leagues up the St. Marks from the Gulf of Mexico. By the 1670s, a fort had been built at this inland anchorage. The first recorded sea voyage from San Augustín to Apalache, dutifully reported to the king as having taken place on 8 April 1639, took less than 13 days. The implication of this experimental "test run" was that ships sailing between San Marcos and San Augustín could move larger quantities of supplies in a shorter time period than the overland route required, enabling the capital city of La Florida to finally overcome its chronic food shortages. (Hann 1988)

Shipping between the two colonial centers increased through the end of the 17th and beginning of the 18th centuries, though a paucity of surviving documentation prevents us from accurately estimating the numbers of mission-period vessels that made the voyage. Hann (1988: 152) states that at least four or five shiploads of food supplies were imported from Apalache to San Augustín in the early 1650s to compensate for shortages due to the late arrival of the *situado*, the annual shipment of support and supplies to La Florida. One of the few available documents that does elucidate the nature of this trade records a 1703 journey by two sloops and other unspecified vessels that transported 1,238 *fanegas*[1] of maize, 150 *fanegas* of beans, 32 chickens, 2 swine, eight deerskins, and eight *arrobas* of tallow (Boyd et al 1951: 46-47).

As shipping traffic increased along La Florida's Gulf coast so did attacks by English and French corsairs, pirates, and privateers. An early documented instance of an illicit landing by the English took place in the mid-1650s when a ship landed and bartered with natives for provisions. The Spanish governor at the time, Diego de Rebolledo, urged the crown to construct a fort at San Marcos, arguing that it would be possible for English buccaneers to occupy the port, fortify it themselves, and threaten the treasure *flotas* and other shipping between Nueva España and Havana (Hann 1988: 198-199). In June 1677, another English privateer sailed to the port of San Marcos and captured a *fragata* laden with deerskins and trade goods belonging to Diego de Florencia (Bushnell 1990: 21).

A large band of French corsairs established a base near Tarpon Spring, and led a sneak attack on the fort at San Marcos 19 March 1682. They successfully captured a shallow-drafted, two-masted merchant *balandra* (bilander) at anchor, and were able to take the fort (Boyd 1936: 5; Bushnell 1990: 22-26; Olds 1962: 16-21; Wenhold 1956).

While historical records do not mention Dog Island specifically, it is possible that the island was used throughout the 17th and 18th centuries for the illicit maritime traffic of smugglers and pirates. It was a long-held suspicion of the Spanish crown that local colonists would frequently and illegally trade with foreigners who might use these isolated islands as headquarters (McCarthy 1994: 27-29). It is possible that pirates such as those who preyed on Spanish shipping and settlements would have used the nearby barrier islands, with their desolate, sheltered coves, as hideouts and staging points for raids or trading ventures.

French and English Presence in the Gulf during the 18th Century

The 18th century in Florida brought about significant changes in aboriginal populations as the Apalache community gave way to a diverse group of differing displaced communities. After Moore's attacks destroyed the Spanish missions and native settlements the region was virtually abandoned for more than ten years. By 1716 the Spanish discussed allowing immigration by not only Apalache refuges but also factions of Muskhogean-speaking Creeks and other northern groups whose relations with the English were waning (Olds 1962). It was decided in 1718 to reconstruct the fort at San Marcos, in order to assure these Indian groups as well as prospective Spanish settlers that Spain would again provide protection and stability in the region. Once the new fort was completed, two Apalache villages returned to the San Marcos area, and plans for a new Franciscan mission were discussed (Boyd 1936: 8-9; Olds 1962: 30-35).

By this time, however, Spain's French rivals had established a presence in the Gulf of Mexico. French intrusions became bolder; Spanish officials were disturbed to find out that, for example, a

[1] A *fanega* is a unit of volume roughly equivalent to 1½ conventional bushel, while an *arroba* is a unit of weight equaling 14.69 kg or about 32 pounds (Hudson 1997: xvii).

French ship in 1700 was sent to sound Apalache Bay and explore the coast that Spain had claimed as its own for almost two centuries (Weddle 1991:340). The French encroachment into traditional Spanish waters was aided by the mercurial politics in Europe. After the childless Carlos II of Spain died in 1700 the grandson of the French king Louis XIV replaced him and Spain found herself in an uneasy alliance with her traditional enemy in the War of Spanish Succession (Weber 1992: 158-59).

French explorers and colonists lost little time. Within the first two decades of the 18th century France had founded the thriving colony of Louisiana, with major settlements at New Orleans and Mobile Bay. Situated precariously close to the latter settlement was the Spanish city of Pensacola founded in 1699 (Weber 1992: 144). In 1718 France would even go so far as to briefly garrison a fort at St. Joseph Bay, only about 50 miles away from Dog Island (Weddle 1991: 208). As wind and current patterns in the Gulf show no political allegiance, the waters around Dog Island saw both French and Spanish maritime traffic.

In the first half of the 18th century, the French senior hydrographic engineer Jacques-Nicolas Bellin was charged with improving the known charts of the Gulf of Mexico. In this 1749 treatise he included an island labeled "I. des Chiens" or Dogs Island, "of which no mention is made on any chart, although it is nine or ten leagues long and has, between it and the mainland, a considerable channel where ships can navigate" (Weddle 1991: 340). This is one of the first known references to Dog Island using a variant of its modern name. Bellin states that the island in question is 9 to 10 leagues in length. The French marine league, or *lieue marine*, measured 5,565 meters or 3.458 conventional miles. Modern St. George Island is about 30 miles in length, which is more or less the equivalent of nine marine leagues. The actual Dog Island, on the other hand, would have measured only about 2 marine leagues. It is unclear if the French originally referred to St. George as Isles aux Chiens (or Isles des Chiens), if they meant the present Dog Island, or if they used both interchangeably throughout the 18th century.

Events in Europe in the 1760s would profoundly affect activities in the New World. Spain entered the Seven Years War on the side of France against England, and hostilities ceased with the Treaty of Paris in 1762. The Treaty returned the captured city of Havana back to Spain, along with the former French colony of Louisiana, but ceded all of Florida to England. England would control Florida until the end of the Revolutionary War in 1783.

England divided her new acquisition into two separate colonies, East and West Florida, with capitals in St. Augustine and Pensacola, respectively. The Apalachicola River became the boundary between East and West Florida, so that under these new rules Dog Island was part of East Florida. England had only limited geographical knowledge of her new acquisition, but during her relatively short occupation was able to map much of the interior and coastline (Ste.Claire 1997: 16). One such map, made in 1769, depicted Dog Island (see Appendix C). The map clearly labels present day Tyson Harbor as a "harbour for boats," suggesting that the island was well known and at least occasionally visited by British seamen.

The Loss of *Le Tigre*: 16 February 1766

One possible historically significant 18th century shipwreck that may be located near Dog Island was recorded in 1766 with the wrecking of *Le Tigre* (Fabel 1990; Fabel 1990 [1768]). *Le Tigre*, a brigantine loaded with merchandise, was *en route* to New Orleans from St. Dominque (present day Haiti) when she was caught in a storm in the Gulf of Mexico (Fabel 1990 [1768]: 39-40). This ship reportedly ran aground on an offshore reef, which may be the Dog Island barrier reef. Pierre Viaud, a native of St. Nazaire on the west coast of France, was an experienced French sea

captain who was sailing on *Le Tigre* as a merchant. He eventually made it back to France and wrote a best-selling narrative, *Naufrage et Aventures de M. Pierre Viaud, Natif de Bordeaux, Capitaine de Navire, Histoire véritable, vérifiée sur l'Attestaion de Mr. Sevettenham, Commandant du Fort St. Marc des Appalaches* (1768). Appendix G contains excerpts from Pierre Viaud's narrative describing the outfitting and loss of *Le Tigre* in some detail.

Little more is known about the ship, its cargo or the location of the wreck. The venture was primarily funded by Msr. Desclau who had invited Viaud to join him as a partner and who perished shortly after the wrecking event. The brigantine was apparently chartered in Caye St. Louis and commanded by Captain La Couture. It was manned by a mate and nine other sailors and carried as passengers the captain's wife and son, Desclau, Viaud himself, and Viaud's African slave (Fabel 1990 [1768]: 39). We are given few details as to the nature of the apparently lucrative cargo that the ship carried, though we are told that much of it was cast overboard during the storm to lighten the ship. After the wreck, the survivors noted flotsam consisting of several barrels of rum and "a number of bales of merchandise" which were not deemed to be of practical use (Fabel 1990 [1768]: 51). Viaud himself was able to salvage some items from inside the wrecked vessel, including a cask of gunpowder (though this was noted to be ship's stores as opposed to merchant cargo), "six muskets, a number of silk hankerchiefs, some wool blankets, and . . . two axes" (Fabel 1990 [1768]: 52). This list of cargo suggests the ship was taking at least some manufactured goods, along with casks of rum, to New Orleans, where Fabel (1990 [1768]: 127) believes she would have loaded a cargo of indigo or possibly tobacco.

The North Florida Trading Firms and the Loss of HMS Fox in 1799

English Florida colonies experienced an influx of loyal citizens fleeing the rebel colonies to the north after 1776. Related to this migration was the expansion of Anglo-Indian interaction and trade. Two years later the Revolutionary war ended and the Treaty of Versailles ceded both Florida colonies back to Spain. Despite the resultant exodus of British loyalists fleeing Florida, a number of English merchant groups would stay in the region during the second Spanish occupation after 1783.

The most significant of these was the trading firm of Panton, Leslie, and Company (Olds 1962: 78-79). Prior to the American Revolution, Panton, Leslie, and Company had established successful trading ventures from their stores in Charleston, NC, Federica, VA, and Savannah, GA. With the onset of war these loyalists relocated their business to St. Augustine and Pensacola while maintaining their strong ties with the Creek peoples. After Spain regained control of the colony, the Spanish crown required that all English Protestants leave Florida. However, the new government was weak and wary of angering the Creeks who maintained pro-British alignments during the war. Despite their usual intolerance of outside commerce, the Spanish allowed the firm of Panton, Leslie, and Company to remain in Florida (Olds 1962: 78-79). The firm soon held a monopoly on the Indian trade throughout Florida. By 1783 they had established a trading post three miles north of the abandoned Fort St. Marks on the west side of the Wakulla River (Olds 1962).

Despite the illegal status of all other merchants, Panton, Leslie, and Company was not the only business with an interest in the profitable Indian trade of the St. Marks area. In addition to individual smugglers one organized group, Miller, Bonnamy and Company of Nassau (Bahamas) was determined to gain a foothold in the area. Supported by Lord Dunmore, the Governor of the Bahamas, the group selected William Augustus Bowles, an adopted Creek and British loyalist, to act as their agent in illegal incursions into Florida (Figure 5). Bowles, a dynamic and colorful character in Florida history, would continue to provoke Spanish authorities for the next fifteen

years (the following discussion comes from Corbitt and Lanning 1945; Douglass 1949; McCarthy 1994: 59-61; McAlister 1953, 1962; Millard 1966; Wright 1967). Bowles' objectives were not just financial in nature; he would eventually organize his alliances among the Creeks into an anti-Spanish political state, the Nation of Muskogee, over which he declared himself Director-General.

In 1790, accompanied by a number of Creeks and Cherokees, Bowles traveled to England in order to gain British support for his endeavors. He partially succeeded in his effort gaining some financial backers, the respect of British society and the government, and the right for ships flying the flag of the "Creek and Cherokee Nation" to have access to free ports in the British West Indies. Back in Florida by autumn 1791, Bowles tried to play the Spanish against the Americans in an attempt to gain recognition of his Indian state.

Bowles' continued activities created a lack of trust with the Spanish authorities. With a large band of Creek warriors Bowles would successfully take the Panton store in San Marcos in 1792. The losses in this attack would lead to Panton, Leslie and Company's grievance and the land cession known as the Forbes Purchase (Boyd 1936: 19) This land grant from the Spanish crown to the firm included St. George and St. Vincent Islands, but not Dog Island. In that same year, while under a flag of truce to discuss relations with Spanish authorities, Bowles was betrayed and captured. He would spend the next five years a prisoner of the Spanish crown, being transferred from Apalache to New Orleans, to Havana, then to Madrid, and finally to Manila in the Philippines. There he staged an escape from his captors during transport back to Madrid and made his way successfully back to England.

Again he was well received and he continued to pursue his grandiose plans for the natives in Florida. He was given some support, and his backers facilitated his return to the Bahamas. Returning to Nassau, Bowles quickly received the support of the new governor, Thomas Hackett. Hackett arranged to have a small British warship placed at his disposal. This was the schooner *Fox,* and with it Bowles would successfully, albeit barely, make it back to the Apalache area.

Figure 5. William Augustus Bowles, the self-proclaimed Director General of the Creek nation of Muskogee (Wright 1967: frontispiece).

His Majesty's Schooner *Fox* was a 14-gun, 150-ton, ex-French prize which had been purchased originally in 1799 (Colledge 1969: 220). Her commander was Lieutenant James Wooldridge, whose orders were to take Bowles to Florida and then complete his cruise. HMS *Fox* departed New Providence for Florida, apparently with a cargo of munitions and supplies for Bowles' native allies. Passage was slow around the peninsula, due to contrary winds. As the schooner approached Apalachee Bay Bowles aided Captain Wooldridge in navigating towards the Apalachicola River mouth. But as they neared their final destination, the *Fox,* like *Le Tigre* 33 years before her, ran into a savage gale. Bowles and Wooldridge argued over the best route to take to seek shelter, and the captain had his way. Bowles would later charge Wooldridge with incompetence, and the *Fox* ran aground in East Pass between St. George and Dog Islands on 17 September 1799 (Wright 1967: 114-115).

The *Fox* came to rest near the eastern tip of St. George Island, which was soon christened Fox Point (Brewer and Paul:1980). In a futile effort to dislodge the ship, Wooldridge ordered stores and cargo to be thrown overboard and Bowles watched in dismay as his munitions were among the first to go. It was apparent that saving the ship was a lost cause, and the crew and passengers were able make it to shore along with some of the ship's stores and some arms and ammunition (Ellicott 1962: 227). By this time most or the entire island was covered in water up to two feet in depth. The storm raged on around the miserable survivors for two days, and the hull of the *Fox* finally broke up.

Andrew Ellicott, an American surveyor who was mapping the coastline, soon encountered Bowles and the others (Ellicot 1962: 230). Ellicot could not in good conscience betray his nation's neutrality by rescuing the English survivors, but he did provide them flour and rice (Ellicott 1962: 230). Ellicott recorded the location of the *Fox*'s demise: "[t]he latitude of the east end of St. George's Island where the schooner *Fox*, (already mentioned,) was cast away, is 29° xx' xx" N. and the longitude, (by taking the result of a lunar observation made at the mouth of the Chattahocha as a correct point,) 5° xx' xx" west from Greenwich" (Ellicott 1962: 236). Captain Wooldridge and his crew eventually made it off the island, either by capturing the merchantman *Shark* or by being rescued by the privateer *Providence*, while Bowles was able to escape to his followers in the hinterlands.

Bowles was able to reestablish himself among the Creeks where he was elected the position "Director-General." His actions against the Spanish intensified as he announced the Muskogee Nation's declaration of war against Spain, on 5 April 1800. Bowles, with an army of 300 to 400 Creeks, successfully captured Fort San Marcos in May 1800, although it would be re-taken several weeks later. Bowles would also organize a navy (based on St. George Island and commanded by Richard Powers), and issue letters of marque against Spain to privateers (cf. Corbitt and Lanning 1945). During the years 1800-1802 these raiders, often with prominent numbers of native crewmembers, roamed almost at will throughout the Gulf and posed a significant threat to Spanish shipping. Bowles lost much of his military and financial support when England and Spain made peace, and he was again captured through Spanish duplicity and bribery in 1803. This time he would die in a Havana prison, and the Muskogee Nation would cease to exist.

Spain's victory in Florida would be short-lived. Once Bowles and his native allies were eliminated there was little to prevent American encroachment into Florida. American forces had by 1814 effectively broken the power of the Creeks in the southernmost extents of the U.S. It was not long before armed American troops, under the command of General Andrew Jackson, crossed the border illegally to seize control of northern Florida in retaliation to Seminole (displaced Creeks who had migrated to Florida) raids on U.S. lands from Spanish territory. At first war seemed likely, though Spain was eventually mollified through diplomatic action. The United States refused to evacuate the region until a Spanish force adequate to control the Seminoles was in place. This would not occur until 19 September 1819, though by this time Spain's control of Florida was almost over. The once great colonial power, unable to control or defend her territory in North America, negotiated the Adams-Onís Treaty which ceded Florida to the U.S. in 1821.

The Nineteenth Century

The Rise of Apalachicola and the Growth of Antebellum Maritime Commerce

A number of commerce-oriented ports would spring into existence along the Gulf coast of Florida after it became an American territory. These ports (primarily Apalachicola which got its start in the 1820s adjacent to St. George Island, but also smaller towns such as St. Marks, Newport, Port St. Joseph, and Cedar Key) would quickly become important links in a lucrative coastal and international trade system. This commerce, founded on the overland, coastwise, and overseas transportation of agricultural products from plantations in Alabama, Georgia, and northern Florida, would grow rapidly and peak in the decade before the Civil War. The main export was cotton, though other products shipped out included lumber and naval stores as well as rice, tobacco, furs, and hides. Apalachicola in particular would prosper from this trade, and would

quickly rise from a small coastal town to one of the most important seaports on the United States' Gulf coast. The increased traffic through the passes and along the shipping lanes around St. George and Dog Islands resulted in an increased number of shipwrecks in the region (Rogers 1986).

Increased shipping also necessitated the construction of permanent aids to navigation. The Cape St. George lighthouse was erected at a cost of $11,400 to guard the western approaches to Apalachicola Bay in 1833 (Cipra 1976: 9). The lighthouse on St. George Island was 65 feet tall, housed 13 lamps and 13-inch reflectors. It was abandoned in 1847 and replaced by a new, 70 foot tall tower about two miles away. The new light had a Third Order Lens and was visible 15 miles out to sea. Six years after the St. George Lighthouse was lit, the Dog Island Lighthouse was built to mark the entrance of East Pass (between Dog and St. George Islands). First lighted in March 1839, this was the earliest known permanent habitation of Dog Island. As the townspeople of Apalachicola pointed out in a Memorial sent to Congress on 9 December 1833, "the bar, at the present entrance to the bay [West Pass, or the western approach to Apalachicola], precludes vessels of that class employed in the European trade, from entering. That at the east end of the island of St. George, there is a ship channel [East Pass], with safe anchorage inside, practicable for vessels of the desired tonnage" (Taylor 1995: 219). Thus Dog Island Lighthouse was established to aid these larger, ocean-going ships entering and leaving Apalachicola harbor via the channel at East Pass. The Dog Island Light revolved to help distinguish it from that at Cape St. George. The light, perched 48 feet above sea level, was visible for 13 miles. Its lantern housed 14 lamps with 16-inch reflectors, and was mounted on a whitewashed brick tower. A temporary wooden tower was used to house the light after storm damage in 1842, and a decade later a new brick tower replaced the original structure (Cipra 1976: 9).

With the establishment of these aids to navigation, a lucrative international trade flourished in Apalachicola and elsewhere along the Gulf Coast. Typically, inland planters would ship their bales of cotton to Florida's Gulf coast ports by rail or riverboat, where they were received, processed (by steam, screw, lever, or hydraulic presses), stored, lightered, and shipped out by merchants based at the ports. These merchants usually charged a variety of charges or commissions for these services, though sometimes they were bypassed and the cotton was taken directly to a waiting ship in the harbor (Rogers 1986: 32-33; Thurston 1972: 101-103).

Four main types of sailing vessels were used in pre-Civil War Florida to export goods: ships (three masted, square-rigged vessels), barks, brigs, and schooners. The smallest of these sailing vessels, one- and two-masted schooners, participated mainly in the coastal trade. Schooners also served in harbors and rivers as lighters and in the Caribbean trade. In addition to sailing vessels, steamboats played an increasingly important role, as participants in the coastal trade and as packets, riverboats, and lighters. These steamships were almost exclusively side-wheelers, as opposed to stern-wheelers. The latter would not become widespread until later in the 1850s, when trusses and chains were used to counteract "hogging" stress from the massive weight of the engine and boilers in the stern (Rogers 1986: 34, 41; Owens 1966: 231).

A typical ship would offload its merchandise in Apalachicola, take on a load of cotton, and depart on its next leg to Liverpool or another European port. The bales would be unloaded, and then passengers and foreign merchandise would be taken back to New York. An alternate pattern might have ships going from Floridian ports directly to New York or Boston, where the cotton might be transported from there to European ports. Then the vessel could return to Florida with a new cargo (Rogers 1986: 34; Owens 1969: 5, 8-11; Albion 1939: 105, 95-121). Principal commodities brought to Apalachicola from foreign ports included salt, fruit, iron, sugar, molasses, wine, and other foodstuffs such as cheese, olive oil, and butter. The most common

import was salt shipped as ballast, which was usually brought from Liverpool. Fruits such as bananas, coconuts, and oranges, were imported from Havana (Owens 1966: 208-210).

Coastal domestic trade played a role in the development of Florida's seaports. Much of the cotton exported was destined for the North instead of foreign destinations. In addition, Florida's Gulf merchants offered a diverse inventory of fine goods and food items that they acquired through the coasting trade. These imports included clothing and fabrics (boots, shoes, hats, cloth, gloves, hosiery, "negro cloth," and blankets), household goods (cutlery, clocks, pottery, porcelain, chairs, musical instruments, mattresses, carpets and rugs, candles, soaps, books, and medicines), hardware (firearms and ammunition, tools, sheet metal, millstones, stock iron, steam engines, and ship's equipment), and foods such as hams, bacon, coffee, tea, lard, prunes and other fruits, nuts, fresh and salted mackerel, onions, flour, meal, wines, liquors, whiskey, breads, and corn (Owens 1966: 211). New Orleans in particular supplied most of the food and whiskey, along with a small amount of the manufactured goods, that flowed into such Floridian ports as Apalachicola (Owens 1966: 212). Northern ports along the Atlantic coast such as New York, Boston, Baltimore, Providence, and Mystic, Connecticut, supplied the bulk of manufactured goods, dried fruits, clothing, books, ice, machinery, and construction materials (Owens 1966: 212). Manufactured goods imported into Florida were almost exclusively from domestic as opposed to foreign ports.

In addition to shipping, the related industry of shipbuilding was present, though never extensively developed along the antebellum Gulf coast of Florida. Small shipyards evolved at such ports as Pensacola and Apalachicola. For the most part, these yards constructed vessels for local use, most often vernacular craft. Occasionally larger, seagoing vessels were built, such as two schooners and one steamship built in Apalachicola between 1844 and 1845 (Owens 1966: 213).

The rise of Apalachicola as a dominant center of maritime trading activity was rapid and impressive (Rogers 1986: 44). Incorporated in 1831, by 1837 Apalachicola was the third largest port in shipping activity on the entire Gulf coast behind New Orleans and Mobile. Between October 1842 and June 1843, no less than 287 vessels had visited Apalachicola Bay, exporting cotton worth a total of over $ 1.2 million (Rogers 1986: 44). That year 32,391 bales of cotton were exported. This annual amount would increase by 1842 to 48,070 bales of cotton to domestic markets, along with 38,794 bales shipped abroad (Rogers 1986: 33). At its height, Apalachicola could export 170,000 bales of cotton a year (Itkin 1962: 6). In comparison, the aggregate exports of cotton from the towns of St. Marks and Newport on the St. Marks River to the east were 30,000 to 40,000 bales a year by 1850. In that year, Apalachicola had four cotton presses, as opposed to one operating at St. Marks (Rogers 1986: 29).

After this economic climax came an equally rapid decline. By the 1850s, Galveston, Texas, had displaced Apalachicola as the third largest American Gulf cotton port. In 1850, Apalachicola received 80% of the cotton produced in the hinterland drainage area, but by 1859 that figure had shrunk to 43% (Rogers 1986: 42). There was an ominous truth behind the statement made in the Bainbridge Southern Georgian newspaper on 25 February 1859: "Of late years it has been common, yea even fashionable to say, 'Apalachicola is going down.'"

Rogers (1986: 42-43) discusses the causes behind this economic decline. These factors were environmental and sociopolitical in nature. Conditions along the Apalachicola River often hampered trade due to periodic low water instances and a lack of action to remove obstacles. In addition, Apalachicola's harbor was silting in at a noticeable rate and federal funding for dredging projects was limited. Low rainfall and the ensuing slowed current magnified these navigational problems. In addition, competition from railroads laid down in the 1850s in

Georgia, Florida, and Alabama significantly diverted shipping from Apalachicola and the other coastal ports. The lack of a railroad terminus at Apalachicola, along with the dearth of a suitable road system, effectively isolated the city by land. Recently opened textile mills in Columbus also reduced shipments of cotton to the coast for export. At the same time, the inhabitants of Apalachicola, along with the other towns in Franklin and neighboring counties, lacked an industrial infrastructure or diversified economy to fall back on. There existed a small number of farmers in the regional hinterlands, and the fishing industry—which would one day form the backbone of the area's economy—was nonexistent at this time.

While the reality of this economic depression cannot be denied, it must be understood that Apalachicola was still an important port and if progressive actions had taken place the region could have continued to prosper. For example, in the period between September 1859 and August 1860, 148 vessels and 133,079 bales of cotton worth over $7.1 million cleared the customs house (Rogers 1986: 44). "Sea-island" or long staple cotton was in demand in Europe, and Apalachicola was an established supplier for the global market. The entire population of Franklin County in 1860 was 1,904 (with 520 slaves), and the total value of goods passed through Apalachicola that year was $14 million (Rogers 1986: 44). Just before the outbreak of the Civil War, economic tidings looked good. By 1860 there was talk of connecting Apalachicola via railroad to lines from Georgia and Alabama, the federal government appeared likely to subsidize harbor improvements, and the state had authorized funds to improve the Apalachicola River and to reclaim swamp lands. However, the outbreak of the Civil War and the subsequent Union blockade brought maritime trade to a virtual standstill.

Civil War Naval Activities in the Vicinity of Apalachicola and Dog Island

The surrender of Fort Sumter on 13 April 1861 would launch the Civil War between the Union and Confederate States. The prime objective of the Union's war at sea was to stop all imports from coming into the South. Urban regions in the south depended heavily on the influx of weapons, munitions, and manufactured goods to compensate for the lack of established industry. On 19 April 1861, President Lincoln declared a naval blockade of the entire Confederacy, covering the Atlantic coast from South Carolina (and later Virginia) to Florida and the Gulf coast from Florida to the Mexican border (Kilgo 1999). By 1862, a single Gulf Squadron was disbanded, and two new ones created: the East and West Gulf Squadrons (Cushman 1962: 38). The East Gulf Squadron was responsible for enforcing the blockade from St. Andrew's Bay, Florida eastward along Florida's Gulf coast and up the east coast to Cape Canaveral. Itken presents a detailed study of the activities of the East Gulf Squadron in the state of Florida (Itken 1962).

Pensacola, St. Marks, and Apalachicola were ports of commercial significance upon which the Union blockade focused its efforts. Apalachicola was considered a significant port in Florida and the first addressed by Union blockaders. On 11 June 1861, the steamer USS *Montgomery* arrived off Apalachicola and officially issued a declaration of blockade. Even after the addition of a second ship (the 10-gun steamship USS *R.R. Cuyler*) to blockade both passes, it became obvious that a small squadron would be needed to truly stifle Confederate shipping in the region.

Early in the war it was believed that a single gunboat stationed offshore each of these places would be sufficient to maintain a blockade (Itkin 1962: 25). This judgement was soon proven incorrect. Apalachicola had two main passes; when a Union blockader was stationed in West Pass, ships could simply sail through East Pass by Dog Island, or vice-versa. In addition, blockade runners soon learned to abandon the traditional commercial centers and instead

disembark from the innumerable coves, inlets, and islands along the more remote stretches of Florida's west coast. Apalachicola, with its passes through St. George and Dog Islands, was a strategic target for the blockade, and efforts to stop traffic would continue and improve throughout the end of the war.

Another problem that the Union faced in the early stages of the war was their reliance on deep-water patrol vessels, allowing many of the shallow-drafted blockade runners to remain beyond their reach.

Union ships were added to the Northern blockade to tighten the stranglehold around Apalachicola. In late 1861 the *Marion*, a side-wheel steamer, replaced the *Cuyler* with 101 men and 5 guns. A sloop, the *Hatteras*, with 80 men and 14 guns, replaced *Montgomery*. These ships increased both the fleet's strength and maneuverability. The effects of this change soon became evident: only one out of five schooners that cleared the blockade at Apalachicola in 1861 was able to return, and this vessel was eventually captured by the Union on a later voyage (Rogers 1986: 61-62). The area around the city, the river, Apalachicola Bay, St. George Sound, St. Vincent, St. George, and Dog Islands demanded the constant attention of Union blockade ships. With the redefinition of the East Gulf Blockade squadron came new ships in 1862: a steamer with 135 men and 9 guns, the *Mercedita*, and another steamer, USS *Sagamore*, both assigned to patrol Apalachicola Bay. By 1865, 18 vessels had been taken in this area, though there is no way to estimate how many others successfully ran the blockade (Itkin 1962: 29).

Sometimes Union land raids resulted in the destruction of Confederate shipping as well. On 6 February 1862, USS *Sagamore* sighted a schooner trying to head out to sea from East Pass (Itkin 1962: 46). She chased the blockade runner back into the Bay but drew too much water to follow. Her commander sent a boat sortie into the harbor the next day. While they did not encounter the schooner in question, the soldiers did find a small shipyard in which two large and two small schooners were hauled up for repairs; these were destroyed.

The barrier islands surrounding Apalachicola Bay played a strategic role in both Union and Confederate naval war strategy (Cushman 1962: 40-42; Rogers 1986: 57-59; 62). St. Vincent Island was fortified with a battery of Confederate naval guns to defend the entrance to West Pass. Confederate troops were stationed on the island at a compound called Camp Davis, and a second battery was placed there after the taking of the *Finland*. But the Apalachicolans resented the fact that defenders and ordnance were taken from the city to the island, and by the end of 1861 all of the military forces on the island were moved back to the mainland. With the withdrawal of Confederate troops from St. Vincent Island the three barrier islands were left largely in Northern hands.

St. George Island, with its long, narrow body stretching about 30 miles, could not be effectively held or defended by either group. Union troops occasionally came ashore, mainly to gather firewood. In response to these intruding Yankees General Richard F. Floyd sent 60 Floridian troops to the island to wait in ambush for Northern landing parties in late 1861 (Rogers 1986: 63-64). The Confederate forces withdrew in February of the next year without success. The lighthouse on St. George remained standing, though it was of little use to the Union as a watchtower because it commanded a better view of the Gulf than the Bay. As the blockade became more effective and the Union hold on St. George became more secure, Northern sailors and soldiers could enjoy its beaches as a place of exercise and relaxation (Rogers 1986: 64).

Dog Island was used in a similar manner by Union troops as a place of recreation with its strategic elevation and beaches (Rogers1986:63). It also served well for target practice. The

local lighthouse keeper William Baker was forced to evacuate by November 1861. Northern soldiers "confiscated" his swine and poultry. They also took his furniture, including a sofa, and turned the lighthouse and the adjacent keeper's home into something of a recreational center (Rogers 1986: 63). At some point it seems that Confederate forces raided Dog Island to burn the ladder and wooden components of the lighthouse, along with the keeper's house, in order to mitigate its usefulness as a Yankee lookout tower (Taylor 1995: 229; Cipra 1976: 9). It is recorded in an 1861 letter, however, that the structure proved a useful observatory (Rogers 1986: 63). If there was a raid it may have happened after that date. A governmental post-war survey indicated that the lighthouse's stairway was burnt and that the lens showed signs of target practice (Cipra 1976: 9). Apparently no Union forces were stationed here permanently, though Dog Island provided, for at least part of the war, an area for shore leave, a watchtower, sheltered anchorages, food, and firewood.

In February of 1862, the Confederate troops stationed in Apalachicola were withdrawn to participate in the defense of Tennessee. By the end of March the soldiers in Apalachicola were gone, the batteries dismantled, the entrenchments and defenses abandoned, many of the warehouses and shops closed, and three out of four citizens of the town had fled. The city was left virtually defenseless, and upon hearing this the Union blockaders soon took advantage of the situation. On the night of 2 April 1862[2], a force of six to eight armed boats departed the *Mercedita* and *Sagamore*, entered the Bay through West Pass, and landed at Apalachicola's main wharf the next day (Cushman 1962: 43-45; Itkin 1962: 46; Rogers 1986: 65-69). Without meeting an armed resistance or even anyone authorized to surrender, U.S. Naval Commander H. S. Stellwagon simply declared the town captured. He granted the remaining inhabitants the right to use their fishing boats in the Bay as long as they did not aid blockade runners, fire upon Union vessels, or commit any other hostile act. With this said, Stellwagon's forces returned to the waiting ships, leaving the city conquered and abandoned almost simultaneously.

In addition to possessing the town, the Union naval forces discovered six ships in the area (Itken 1962: 46-47; Cushman 1962: 45-46; Singer 1992: 236). One of these was the sloop *Octavia*, whose activities were known to the blockaders but who had thus far eluded capture. The schooner *Rose* was laden with cotton, but all of the others were empty. These first two vessels could be safely navigated across the bar and were sent to Key West as prizes; the other four—including the pilot boats *Cygnet* and *Mary Oliver* (or *Mary Olive*) and the vessels *New Island* and *Floyd*—were burned in the harbor (See Table 22 in Appendix D).

The capture of Apalachicola marked the end of organized Confederate resistance in the immediate vicinity of Apalachicola Bay or St. George Sound. However, Confederate smuggling continued, and the Union maintained the blockade through the end of the war. At least two Union warships were lost in the vicinity of Dog Island during the blockade: the USS *G. L. Brockenboro* (alternatively spelled *Brockenborough*) and the USS *Amanda* (Singer 1992: 237). The USS *G. L. Brockenboro* was a 4th-rate sloop-of-war, armed with one howitzer. Originally a blockade runner, it had been scuttled in the Apalachicola River in 1862. It was subsequently raised by crewmembers of the *Sagamore* and repaired and re-fit as a Union sloop. The *Brockenboro* ran aground during a powerful storm on 27 May 1863. The Union bark *Amanda* was also blown aground, probably in the same gale, somewhere in East Pass between St. George and Dog Islands. Her crew burned her to the waterline on 29 May 1863, presumably after salvaging any surviving equipment. *Amanda* was a 368-ton bark armed with six 32-pounder

[2] Several sources disagree on the exact day of the attack. Rogers (1986) and Cushman (1962) agree on 3 April, while Singer (1992) cites 2 April and Itkin (1962) states the raid occurs after 5 April. In addition, Singer lists the *Rose* as scuttled, while Itkin states *Rose* was sent to Key West for adjudication.

smooth bore cannons, one 20-pounder parrot rifled gun, and one 12-pounder howitzer. She had been built in 1858 in New York, and measured 117' 6" in length, 27' 9" in beam, and 12' 6" depth of hold (Singer 1992: 237).

The Establishment of Carrabelle and Later 19th Century Maritime Trade: the Lumber and Fishing Industries

The Civil War left Florida's Gulf Coast, and the entire Southern United States, in a state of economic devastation. Apalachicola would fare better than most of the smaller port towns, but never again would its commerce rise to the levels achieved before the Civil War. In general, Franklin County's decline reflected the economic slump of the Reconstruction-era north Florida, though the search for new sources of income encouraged a few new industries to develop. The two most lucrative newly expanding industries were the lumber and naval stores trade and commercial fishing (including also oystering, sponging, and shrimping). This shift from a focus on cotton exportation to the exploitation of forests and the sea coincided with the foundation of the town of Carrabelle, and reflected a noticeable difference in the numbers, nationality, and nature of ships travelling in the vicinity of St. George and Dog Islands.

The point at which the Carrabelle River enters St. George Sound, with its natural harbor, was ideally suited as a focal point for the new lumber industry, and it was almost inevitable that a settlement would be established there. A northern businessman and political leader named Oliver Hudson Kelley came to Florida in the late 1870s with an interest in land speculation and development. Kelley bought 1,920 acres of land around the promising harbor from local businessman Benjamin L. Curtis (the owner of Dog Island at that time, and proprietor of a large sawmill in the area) (Rogers 1986: 108). Despite a fierce hurricane that had recently destroyed homes and businesses in Apalachicola and toppled the Dog Island Lighthouse in 1873, the new town would prosper. One of the first structures built in the new town was a hotel built by Kelley called Island House. It was managed by Carolyn "Carrie" Arrabelle Hall, Kelley's niece. Kelley named the new community Rio Carrabelle in her honor.

As lumber mills were established in the area the population grew. The first post office was established in 1878, a general merchandising store was opened in the early 1880s, and in 1887 a mail packet and ferry service between Carrabelle and Apalachicola was implemented. The ferry, originally the *Gazelle* and later the *Crescent City*, would service the two towns until 1929 (Rogers 1986: 109). A new lighthouse, to replace the one destroyed on Dog Island in 1873, was built on the mainland about a quarter mile inland. Its construction was authorized in 1889, but it was not completed until 1895. In 1893 a railroad was constructed from Carrabelle to Tallahassee, though economic regression in the mid-1890s prevented its expansion to Thomasville, Georgia.

In 1890 Carabelle's population was 482 (Rogers 1986: 110). Situated as it was with riverine, sea, and rail access, Carrabelle was an ideal location for the timber and expanding seafood industries. The channel at the river's mouth was deepened and the harbor dredged. Hampton Covington established a naval stores export company, and turpentine production became another viable exercise coupled with the existing timber industry. Carrabelle was incorporated in 1893, and the town's population at the dawn of the twentieth century was 923.

The first of the two industries that expanded towards the end of the 19th century was the lumber and naval stores business (Smith et al 1997: 18). Major growth of the lumber industry began around 1870 and peaked at the turn of the century. Yellow and pitch pine were exploited heavily in Wakulla and Franklin Counties and elsewhere along the Gulf coast. By the turn of the century

cypress and turpentine were exported in great quantities (Bense 1978: 28). Carrabelle's waterfront and railroad terminus were soon characterized by rows of barrels containing naval stores (Figure 6).

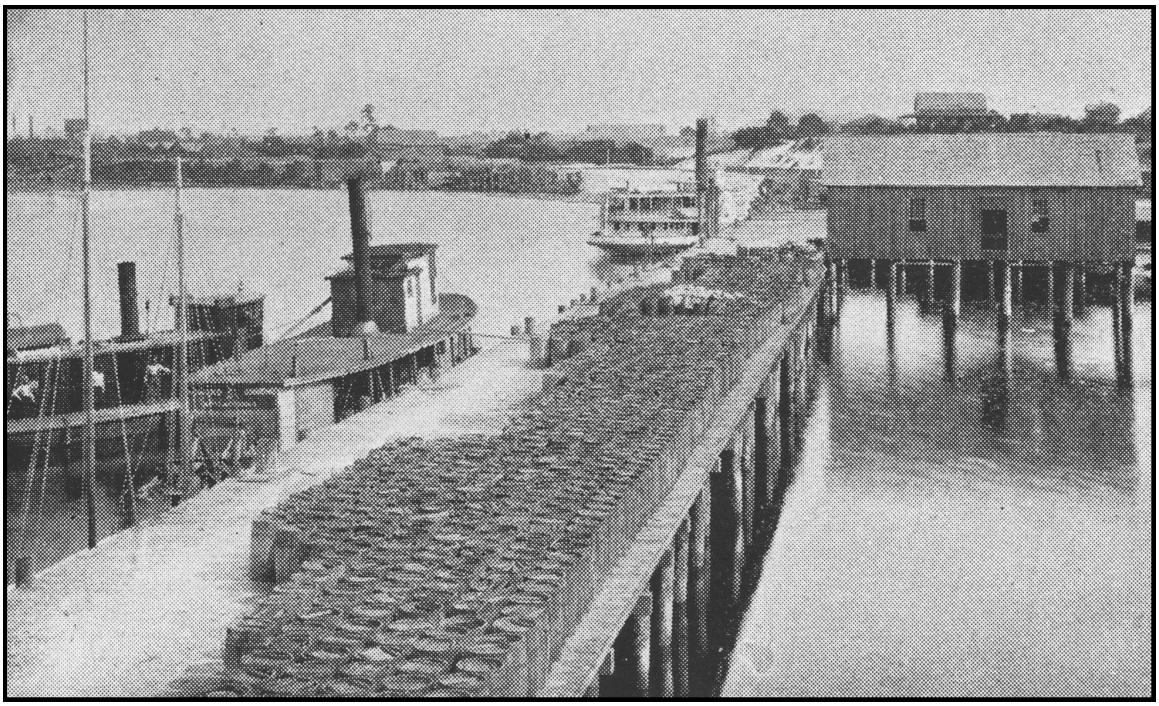

Figure 6. Naval stores in barrels line the docks at Carrabelle waterfront, ca. 1898. (Courtesy of Florida Photographic Collection, Florida State Archives Neg. 27)

During the 1870s a building boom, fueled by the expansion of industrialization and the state of relative peace, spread throughout Europe. This created a demand for huge quantities of lumber to be processed and transported rapidly throughout the world and many foreign ships anchored at Carrabelle, Pensacola, and other Floridian ports in order to take advantage of the local timber exploitation (Burns 1999: 26). Norwegian vessels in particular came to dominate the Floridian pitch pine trade (Burns 1999: 26, 30; Gjerset 1933: 247). In addition to the mainland forests, Dog Island was exploited heavily for timber resources. Deep-drafted sailing vessels would typically offload stone ballast on the inshore side of Dog Island and take on cargoes of timber while anchored close to shore (hence the name "Ballast Cove").

Vessels plying the timber trade ranged in size from coastal schooners to massive, full-rigged ships. The typical lumber schooner could carry about 100,000 square feet of lumber and primarily traded domestically along the coasts of the Gulf of Mexico (Burns 1999: 28). Larger vessels, usually ships, brigs, or barks, were used for the international, ocean-going trade. These typically could handle cargoes of over 500,000 square feet of timber. Lumber ships were characterized by certain structural modifications, most notably specialized bow ports for timber loading (see Figure 7).

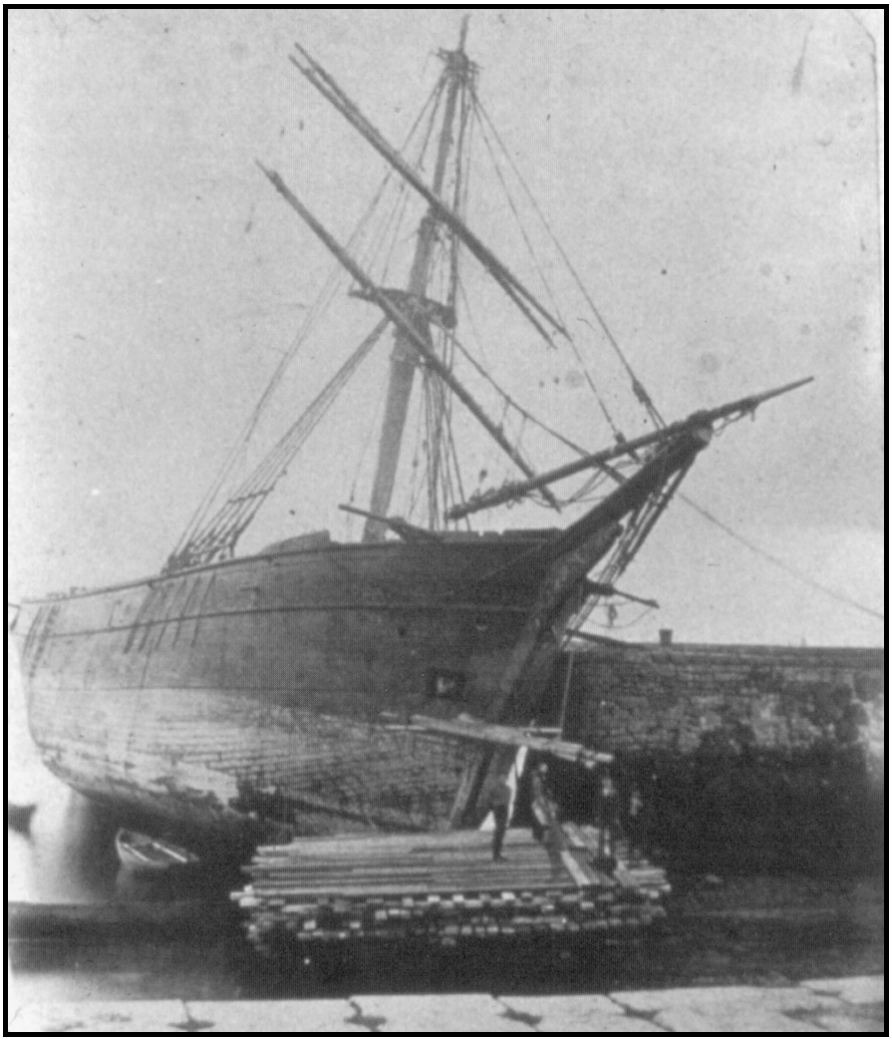

Figure 7. 1880 Photograph of the Finnish lumber brig *Ekenäs*, which would later be bought by Norwegians and renamed the *Dato* (eventually wrecked in Australia and was archaeologically excavated). A cargo of American lumber is being offloaded through a specially designed cargo hatch. Also note the copper sheathing, which was standard on ships plying international routes (Anderson 1997: 98).

A significant shipwrecking event related to the international lumber trade at Dog Island occurred on 01 August 1899. At that time, there were thirteen large merchant ships at the island, taking on cargoes of "Florida pine, sawn timber, and planks" (Iversen 1964:1). The wooden-hulled ships were all between 400 and 500 tons, and included six American 3-masted coastal schooners, five Norwegian 3-masted barks, one Finnish schooner and one Spanish bark (Huntsman 1991). A hurricane or severe squall inundated most of Dog Island. Two ships were also wrecked on the neighboring St. George Island. Nine of the remaining vessels were wrecked on Dog Island. One of the surviving Norwegian sailors acquired photographs of the stranded vessels, copies of which are on file at the Florida Bureau of Archaeological Research and Florida State Archives Photographic Collection. Of the nine vessels lost on Dog Island four ships (the *Jafnhar*, *Vale*, *Latava*, and *Cortesia*) could not be re-floated and their remains are possibly in the vicinity of Shipping Cove (White et al 1995: 29). Dog Island Wreck # 2 (8FR814), investigated briefly by

FSU students in 1990, is proposed to be one of these four 1899 wrecks; most likely the *Vale* (Wright 1990).

The second industry that developed at the end of the 19th century was that of commercial fishing. As the waters around Dog Island supported a rich variety of marine life the ports of Apalachicola and Carrabelle were well suited for this industry. Oysters were the first marine resource exploited heavily, starting around the 1870s. The primary means of collecting oysters in the 19th century were tonging, hogging, and, to a lesser degree, dredging (Rogers 1986: 120). The first two methods were labor-intensive, and the latter, while more efficient, caused damage to natural oyster beds and was restricted by state law as early as 1885. By the turn of the century, the oyster industry represented a significant part of the region's economy.

The sponge industry offshore of Franklin County was short-lived but lucrative (Rogers 1986: 123-126). This local industry was active from the 1870s to the first decade of the 20th century. Florida's sponge harvesting was centered in the Florida Keys until the 1870s when extensive beds were discovered further north in the Gulf of Mexico. By the 1890s, Greek spongers working from Tarpon Springs dominated the trade. Natural limestone reefs offshore of Franklin County, such as those beyond Dog Island, produced beds of yellow, sheepswool, and grass varieties. The major ports for this area were Apalachicola and Carrabelle, though some local boats took their catch to other places such as St. Marks, Tarpon Springs, or Key West (Rogers 1986: 125). In 1879 Apalachicola's sponge fleet consisted of sixteen vessels, and more were utilized after sponges were discovered on the reefs beyond Dog Island. Larger vessels, usually sloops and schooners, would put out to sea for four weeks or more to harvest sponges. The most productive reefs tended to lie in about 24 feet of water. By the turn of the century, the industry had peaked (Apalachicola brought in $20,000 worth of sponges in 1901) and started to decline after 1903. A brief revival came in 1905, but this resurgence of activity was eclipsed by the Greek divers and ships operating out of Tarpon Springs (Rogers 1986: 125).

The commercial fishing of such species as red snapper, mullet, skipjack, pompano, sea trout, bluefish, catfish, and flounder thrived, further fueled by an increasing availability of ice (Rogers 1986: 116; Smith et al 1997: 20). Smaller vessels between 5 and 20 tons, known as *chings*, plied the coastal fishing trade, while larger 50 to 60 ton schooners, called *smacks*, ventured further offshore (see Figure 8). Tradition holds that smacks got their name from the smacking of the tails of live fish against the sides of the fish wells which were built into these boats before the widespread use of ice (Cozzi 1999).

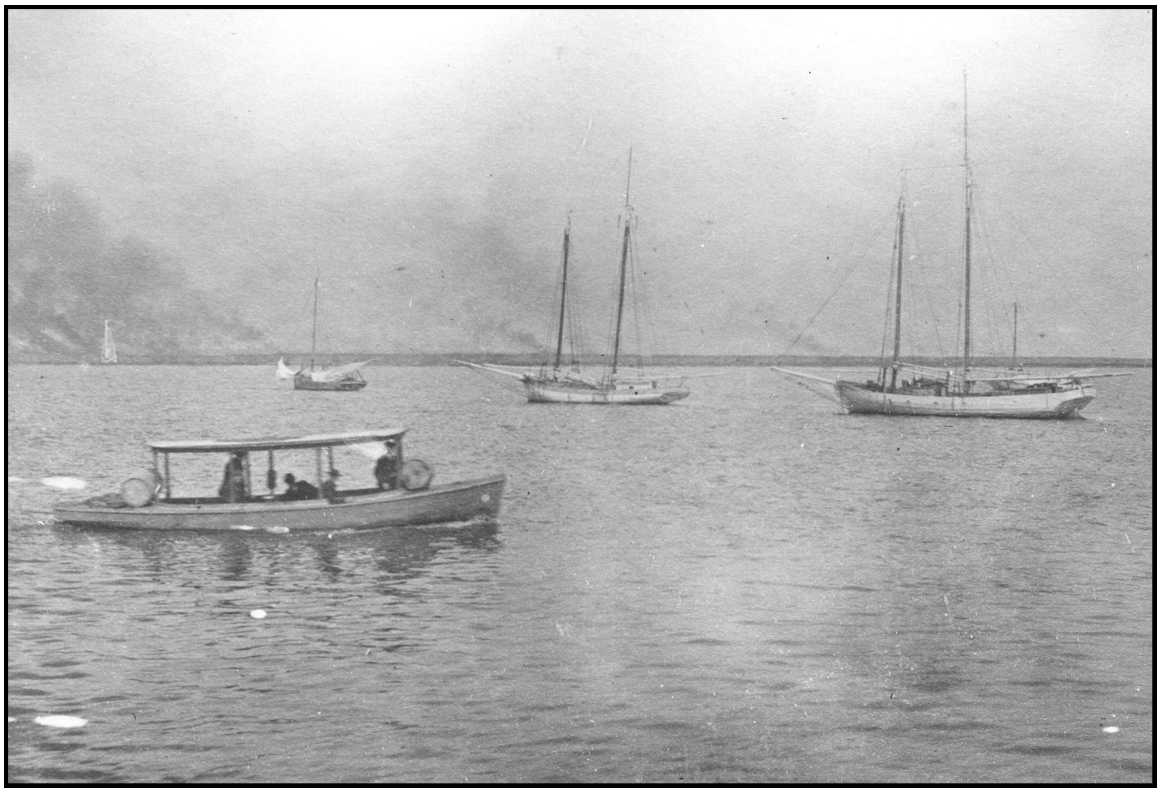

Figure 8. Apalachicola Bay circa 1906. The schooners in the background may be fishing vessels. (Courtesy of Florida Photographic Collection, Florida State Archives Neg. 8570)

At least two vessels of this type are known archaeologically on the Gulf coast: the Hamilton Wreck in Pensacola Bay and Dog Island Shipwreck # 1 (8FR813) (Cozzi 1999; White et al 1995: 26-27). This latter shipwreck lies in the surf zone directly opposite Shipping Cove on the Gulf side of the island. Known as Dog Island Wreck # 1, 8FR813 was initially investigated in 1987 and is believed to be a late 19th century/early 20th century fishing smack, the *Priscilla*. Built in Maine in 1893 and owned by a Pensacola seafood company, the *Priscilla* has similar dimensions to those of Dog Island Wreck # 1, and records suggest she was wrecked sometime before 1917 (White et al 1995: 27).

Shrimp was the last marine resource to be heavily exploited by Apalachicola's mariners (Figure 9). The rise of the shrimping industry in Florida began around the turn of the century and grew rapidly after 1912 with the introduction of an efficient collection device known as the otter trawl (Smith et al 1997: 20). White, brown, and pink (the largest and most lucrative) shrimp were commercially exploited in Florida, and all three were available locally. Shrimp remains to this day one of Florida's most valuable commercial species, and this industry remains important in modern Apalachicola.

Figure 9. Shrimp boats at Apalachicola, ca. 1910. Courtesy of Florida Photographic Collection, (Florida State Archives Neg. 9142).

The Twentieth Century

Economic Prosperity and Decline

At the dawn of the 20th century the economy of Apalachicola, Carrabelle, and Franklin County was stable. The mainstay of the region, the timber and turpentine industry, continued to grow, and the fishing and oystering industries were expanding as well. By 1914 Franklin County produced more oysters than any other county in the state (Rogers 1986: 123). Commerce on the Apalachicola River surged 700% in five years; from $ 2,000,000 in 1898 to $ 13,324,000 in 1903 (Rogers 1986: 138). Economic prosperity continued despite the "Great Fire" of 1900 in Apalachicola that destroyed 71 buildings across six city blocks (including virtually all of the business district) at an estimated cost of over $ 225,000 (Rogers 1986: 142-143). The city was re-built when the first railroad was established in Apalachicola in 1907.

After the turn of the century, population on Dog Island increased. In addition to logging exploitation, the naval stores industry continued to grow. The collection of oleoresin, used in the production of turpentine, continued on the island through the mid-20th century (Huntsman 1995). It is known that turpentine leases were in effect during 1938 to 1945 and 1945 to 1947. White et al (1995: 32-35) conducted investigations at an early- to mid-20th century turpentine camp (site 8FR843). A related maritime site is located on the northwest shore of Tyson Harbor and consists of the remains of a dock used by turpentine workers (White et al 1995: 33).
Recreational and tourist-related business activities occurred in the area as early as the turn of the century. The present-day town of Lanark Village, located on the mainland north of Dog Island and six miles east of Carrabelle, was founded in 1905 as part of a promotional plan carried out by

the Georgia, Florida, and Alabama Railroad (Rogers1986: 145). By 1905, a number of Georgians had been persuaded to buy lots and build summer cottages at Lanark (Rogers 1986: 145). In addition, the nearby communities of St. Teresa and Panacea Springs developed as resort towns. Speculators planned to build wharfs, hotels, clubhouses, and seasonal residences on St. George Island. Although some were built and profits realized, no permanent community lasted on the island. Non-leisure activities on St. George Island through the mid-20th century included cattle ranching and turpentine collecting (Rogers 1986: 146).

The Great Depression hit Franklin County hard with economic decline. The great drought of 1935 that created the Dust Bowl in the mid-Western states also negatively affected the oyster bars of Apalachicola Bay and St. George Sound (Rogers 1986: 253). A reduction in fresh water caused a dramatic and devastating rise in salinity levels that damaged oyster bars. As oyster production halved, all but six seafood plants in Apalachicola were out of business by 1937 (Rogers 1986: 253).

World War II and Camp Gordon Johnston

Concentrated military activities took place on and around Dog Island for the second time shortly after the United States entry into World War II (Coles 1994; Gask 1943; Huntsman 1992; Rogers 1986: 265). U.S. Army Camp Gordon Johnston was established in 1942 across Franklin County. This camp encompassed almost half of the county on the mainland and all of the barrier islands. The islands became important for target practice by the Army Air Corps, as well as for training in amphibious assaults. Additionally, a training camp was located adjacent to the contemporary turpentine camp.

Recent Activities On and Around Dog Island

After World War II portions of the island were bought and sold by private individuals. Land speculators and would-be developers Jeff Lewis and Ivan Monroe purchased Dog Island in 1947. Their activities included raising cattle. Individual lots were sectioned off and sold to private individuals, and a number of beach houses were subsequently built on the island. In 1965 a bridge was built from the mainland at Eastpoint to St. George Island, however Dog Island remains accessible only by air or water. In the latter half of the 20th century, the two islands have been the focus of a struggle between private developers and environmentalists. In 1980 the Nature Conservancy bought property comprising most (nearly three quarters) of Dog Island, now known as the Jeff Lewis Wilderness Preserve, for preservation purposes (Dickinson et al 1992). Outside this area, the privately owned portions are used mainly for beachfront residences. At the dawn of the 21st century, there are approximately 110 private residences on Dog Island; many of which are only periodically occupied (Dickinson et al 1992: 2). Private residences are predominantly along the shoreline on the East End and Mid-Island sections, though a few are scattered along the isolated West End and are accessible only by boat (White et al. 1995: 6).

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

Previous Archaeological Research On and Around Dog Island

Chuck Meide

Limited archaeological work has been conducted on Dog Island. Before the 1999 FSU-PUA shipwreck survey there were nine archaeological sites on or around Dog Island listed in the Florida Master Site Files. Six of these sites are terrestrial, while three are historic shipwrecks (Figure 10).

The earliest known archaeological investigation on Dog Island involved Florida State University researcher Glen T. Allen. In July 1952 Allen worked at the Dog Island Site (8FR25), and his name appears on the site form in the Florida Master Site Files. Apparently, Allen was a graduate student who dug at least one 5ft by 10ft test unit at this ceramic-era prehistoric site. One nearly complete ceramic vessel was recovered from the test unit, though the date for this site is uncertain. White (et al. 1995: 19) believes the Dog Island Site to be a seasonal habitation site, probably late prehistoric, and a shell midden.

In the early 1960s, an 86-year-old shipwreck survivor came to Dog Island to see the spot where he had wrecked in 1899, and he identified this site as the *Vale* (T. Iversen to V. Sherlock, letter, 4 January 1964, Florida Bureau of Archaeological Research, Tallahassee; see Appendix B). Based on that eyewitness account, Dog Island Shipwreck # 2 has been traditionally associated with the Norwegian bark *Vale*, though there is no direct evidence to confirm this.

Sometime around 1967, island resident Clifton B. Lewis discovered a prehistoric dugout canoe eroding from the beach sand, at mid-island adjacent to Ballast Cove. The watercraft was formed out of a single log, and measured 5.67 m by 0.54 m (Figure 4). It was radiocarbon dated at 1,240 ± 80 BP. The canoe is now in the possession of the Florida Bureau of Archaeological Research (White et al. 1995: 21-22). In 1979 a state archaeologist, Randy Daniel, visited the site where the canoe had been found. He conducted a surface collection, and gathered some 20 prehistoric ceramic sherds, identified as Fort Walton Incised and check-stamped ceramics. He documented the site as 8FR343, the Dog Island II Site. It occupies about 1 km of the coastline on the bay side, and includes a significant portion of the underwater landscape adjacent to the beach. It is likely that this site is eroding further into the bay.

In the early 1980s, the first systematic shipwreck survey in the area took place. Implemented by FSU graduate student David Brewer, the work was carried out as part of the activities of the FSU class *ANT 4131: Techniques of Underwater Site Research*. The primary objective of that survey, which included both terrestrial and marine magnetometer work, was to locate the 1799 shipwreck of HMS *Fox* (Brewer and Paul 1980; Brewer 1982; Palmer 1997). The first survey took place on 25-26 February 1981. This was a terrestrial magnetometer survey on the eastern tip of St. George Island, using a Geometrics 856 proton precision magnetometer. No significant anomalies were detected. Brewer led a second attempt a month later on 25 March 1981. This was a marine magnetometer survey, using a Geometrics 866 proton precision magnetometer deployed from the FSU Marine Laboratory RV *Nectes* (now the RV *Seminole*). A second boat carried divers, who would visually inspect any anomalies indicated by the survey team. Eight such anomalies were detected, though no cultural material was observed (and no test excavation was conducted).

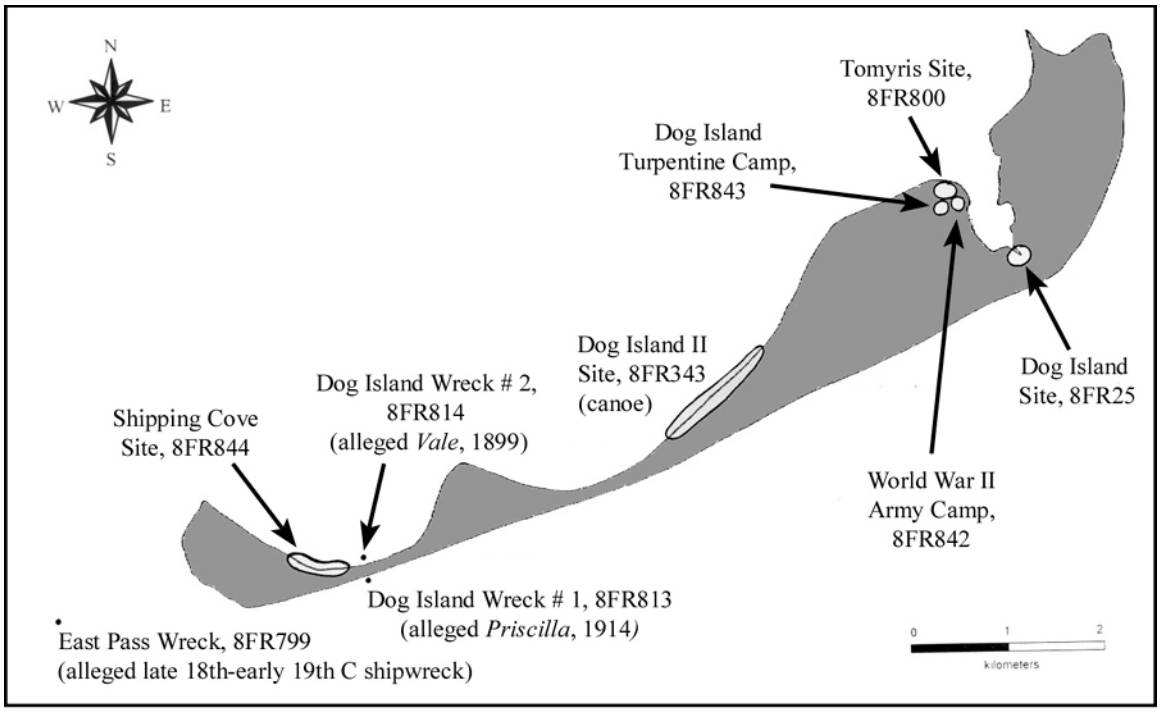

Figure 10. Previously recorded archaeological sites on and around Dog Island.

Since that time, FSU has occasionally returned to the area around St. George Island for other magnetometer surveys; the most recent one-day survey took place in Spring 1993 under the direction of Stephen J. Dasovich. These subsequent surveys have been limited in scope, and for the most part implemented for avocational purposes. No historic material has been observed, and no sediments excavated, during any of these surveys. No positional data exists for these projects.

Sometime in 1986 or earlier, a possible shipwreck site was discovered in East Pass, directly off the West End of Dog Island. A Mrs. Miller of Miller Seafoods in Eastpoint, Florida reported this site to the state. Her two sons had been shrimping in East Pass, between Dog and St. George Island, when their nets hung up on a snag below. Freeing them, the brothers noticed they had dragged up two tiles. The tiles, photographs of which are on file at the Florida BAR (negatives 84 N06-13-ARS) were subsequently identified as possibly of French origin, and probably dating to the late 18th or early 19th century (James Dunbar, personal communication, April 1999). The East Pass Wreck was designated site 8FR799, and state archaeologist Danny Clayton completed a site file form. Though the shrimpers had told state archaeologists they would show them the location of the site, they apparently changed their mind, or for some other reason they declined to do so. Archaeologists have never physically observed this site, though it is possible that the remains of a historic shipwreck lie somewhere in the general vicinity identified by the Miller brothers.

The Tomyris Site (8FR800), a possible Weeden Island or Fort Walton period shell midden, was reported to the state in 1986, by a possible island resident visitor named Alicia Kemper. Shortly after that, in 1987, the first of the two Dog Island Shipwrecks were documented. A team of Tallahassee archaeologists including Richard Haiduven, KC Smith, David Muncher, and Joseph and Alexandria Nolin, initially investigated Dog Island Shipwreck # 1, designated 8FR813. On 30 June, the team spent six hours on this wreck, on the seaward shore of Dog Island opposite

Shipping Cove. The wreckage, which was visible in the tidal zone, was brought to their attention by an informant named Ernest (an employee of the FSU Marine Laboratory) who used to play among the hull timbers as a child. The archaeologists believed that the ship was the late 19th century fishing smack *Priscilla*, which wrecked in 1914. After an initial assessment, Haiduven returned to the island on a later date, camping out overnight and recording the hull in detail. Despite his effort, no formal report on this work was ever produced (Roger C. Smith, personal communication, June 1999).

Dog Island Shipwreck # 2, or 8FR814, was first investigated in 1989 by a team consisting of Richard Haiduven, KC Smith, and David Muncher. A more thorough investigation of this wreck took place on 16-17 April 1990, by a team of FSU students. As an exercise for the *ANT 4131: Techniques in Underwater Site Research* class, student Chip Wright directed the day and a half project, and produced a report (Wright 1990). Portions of this wreck, notably iron framing components, are visible at low tides, and it is marked on NOAA nautical charts.

The FSU students produced a preliminary map of the exposed wreckage, excavated and re-filled a number of test pits, and recovered a number of artifacts, including copper sheathing, a copper-alloy fastener, and a broken piece of a deadeye. This site was believed to be one of the foreign lumber vessels that blew ashore here during the 1 August 1899 hurricane. Wright described a massive, wooden hulled sailing vessel with copper sheathing and interior iron framing components. Another FSU student in the class, Jorge Zamanillo, conducted ethnographic and historical research on this and other sites in Shipping Cove, in conjunction with the fieldwork (Zamanillo 1990).

In addition to the FSU work at Dog Island Wreck # 2, FSU students conducted some magnetometer work in Shipping Cove in 1990 and again on 7 April 1991, and a few anomalies believed to be ballast piles were located (Palmer 1997: 4-5; Lehr 1991). These possible ballast dumps were believed to be associated with the late 19th century lumber collection activities. FSU student Mike Underwood (1991) wrote a research design in order to relocate these ballast piles, and planned to map the piles, take cores from their perimeter, and excavate test units. Unfortunately, the divers could not re-locate the sites, even with the help of magnetometry. It should be pointed out that these early 1990s FSU student reports consistently misidentified Shipping Cove, calling it instead Ballast Cove (which is the next cove to the east).

Sometime in 1994 the famed treasure hunter Mel Fisher, responding to a local with information on a possible shipwreck site, conducted magnetometer surveys in the area. The vessel in question, which was never found, was supposedly a Spanish treasure galleon, possibly the *Santa Ana María Juncal* which reportedly wrecked in the region in 1611. Though at least one deep-water target was dived, the source of the anomaly—which may have been of modern origin—was never uncovered.

The most extensive archaeological survey of Dog Island took place in 1995, at the request of the non-profit Barrier Island Trust. From 1 to 4 September, Dr. Nancy White of the University of South Florida led a team of seven archaeologists to survey the island. Fieldwork included shovel testing, coring, and surface inspection, and all of the sites mentioned (except for the ballast piles and East Pass wreck, which are offshore) were re-assessed. In addition to the old sites, three new sites were identified and investigated. These include a multi-component prehistoric occupation site (Shipping Cove Site, 8FR844) near Dog Island Wreck # 2, a 20th century turpentine camp (8FR843) where workers and overseers lived seasonally from 1938 to 1947, and the remains of an Army camp (8FR842) dating from the World War II activities on the island. The first of these sites, 8FR844, is eroding into the cove and likely contains an underwater component.

Another shipwreck site was discovered on neighboring St. George Island shortly after Hurricane Opal raked the coast in October 1995. It is included in this discussion, because it is the only historic shipwreck site recorded on St. George Island, which, like Dog Island, has certainly witnessed countless shipwrecks over the centuries. The hurricane cleared away much of the sediment covering this site, and staff of the Apalachicola National Estuarine Research Reserve discovered the site at Cape St. George on Little St. George Island. On 2 July, Park Ranger Jimmy Moses brought State Marine Archaeologist Roger C. Smith and several other BAR archaeologists to the site, where they inspected the exposed hull remains. About five meters of the hull was exposed. Smith described it as a large, solidly built British or American cargo carrier, which could date to any time between the early and late 1800s. The ship was probably about 100 feet in length, and was copper sheathed. The archaeologists observed copper-alloy and iron fasteners as well as wooden trunnels. The bow of the vessel was pointing to shore. The site was named the Cape St. George Shipwreck, 8FR857, and since the original inspection no more extensive survey has been carried out.

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

1999 Field Survey Research Design

Chuck Meide

The following section is an abridged version of the 1999 Research Design (Meide 1998). Omitting the introduction and background information (which would be redundant in this report), this section outlines the objectives, planned methodology, scheduling, personnel information, and research potential of the project.

Survey Objectives and Methodology

The primary objective of the Dog Island Shipwreck Survey is to locate, identify, and catalogue the submerged cultural resources in the waters around Dog Island. The archaeological sites of primary interest are historic shipwreck sites, which likely span the 16th through 20th century. Other resources that may be discovered—such as inundated prehistoric sites, historic dock features, and the Dog Island Lighthouse—are also of interest and will be recorded as well.

Table 22 in Appendix D is a list of vessels that have wrecked in the vicinity of Dog Island, as well as other historic maritime structures of interest. Of these vessels, the two most historically significant are the wrecks of *Le Tigre* and HMS *Fox*. As these two sunken vessels promise to provide the highest research potential, efforts towards surveying and discovering their remains are of highest priority.

Figure 11 is a map of Dog Island, with the overall survey area are delineated because this area is too large to completely survey in the time allowed, selected areas of high probability will be defined, and remote sensing survey efforts will be concentrated in these areas. Areas most likely to contain the remains of HMS *Fox* and *Le Tigre* are outlined.

Secondary goals include the re-location of the East Pass Wreck (8FR799), if it exists, the survey of Shipping Cove in order to locate the three or four remaining 1899 merchant vessels, and the survey of the area off Cannonball Acres in order to re-locate the Dog Island Lighthouse. In addition, given the time and weather constraints, it may be possible to select other areas—such as Ballast Cove, and selected areas off the Gulf side of Dog Island and in East Pass—that are likely to encompass the remains of unknown historic shipwreck remains.

Divers must assess any shipwreck sites that are located through remote sensing survey in order to determine their physical parameters (nature, extent, and condition) and cultural parameters (age, function, and cultural affiliation). This will be done primarily through the mapping of any exposed surface remains, and by conducting test excavations with limited artifact recovery. The two known shipwreck sites (Dog Island Wrecks #1 and #2), and possibly the 20th century turpentine dock remains, will also be re-assessed in a similar manner. This will provide information on the current state of preservation for these sites, and may confirm their tentative identifications.

The specific methodologies of the magnetic/sonar remote sensing survey and diving/excavation activities are outlined below.

Remote Sensing Survey

Two types of remote sensing devices will be used during survey activities; a Geometrics 866 proton precession magnetometer and a Marine Sonic Sea Scan PC side-scan sonar (both owned by the Department of Anthropology, Florida State University). A NT200D Global Positioning System (GPS) with differential capabilities will also be utilized to provide real-time positional control. The GPS unit will constantly download longitude/latitude information into the side-scan sonar computer unit, where it will be accessible for post-project analysis. The digital imagery generated by the side-scan sonar will also be stored in its built-in computer unit. The magnetometer records its data (gamma readings of the earth's magnetic field) on a paper printout chart; it will also be downloading these readings to a portable laptop computer. Both the magnetometer and GPS will provide readings at the rate of one per second.

The primary survey vessel will be a 20ft Privateer, equipped with a fathometer, owned by the FSU Marine Laboratory. The remote sensing equipment can be rigged so that both side-scan sonar and magnetometer can be used simultaneously. In some cases, in the very shallow waters immediately adjacent to Dog Island, an inflatable Zodiac may be used as the survey vessel, depending on sea conditions.

Individual survey areas will be defined around high probability areas determined by historical research and discussion with local informants. The search pattern(s) will be created in the GPS, which has a function allowing easy input and deployment in the field. Survey lanes will be spaced no more than 30 meters apart, which is sufficient for locating a small wooden-hulled shipwreck, even if no iron cannons or anchors are present (Arnold 1996). Lane length and number of lanes will be determined by the overall size of each survey area.

The side-scan sonar will generally be set at a range of 50 meters, to ensure sufficient overlap for comprehensive coverage. A variety of ranges and settings may be used for scanning sites once identified, in order to document them to the best degree possible.

Selected areas of interest may be re-surveyed, possibly using lane spacing as narrow as 10 meters, to provide an intensive, intra-site magnetic signature of the shipwreck site. This would probably take place after diver test excavations confirmed the anomaly as the remains of a shipwreck. The resulting data will delineate concentrations of ferrous and other metal material, providing researchers with target areas for further evaluation through ground truthing. Along with metal detection, additional side-scan sonar sweeps at a variety of range settings will provide a high-resolution image of the topography of the site and its features.

Diving Operations and Induction Dredge Excavation

Diving operations will also take place from small boats, primarily the Privateer. Other vessels, such as a pontoon boat loaned by the Aucilla River Prehistory Project, may be available for part of the field season. Diving activities will be in compliance with the Standard Operating Procedures of the FSU Academic Diving Program (ADP), who will also provide the majority of the diving-related equipment. Divers for the most part will be outfitted with standard scuba equipment, though gasoline-powered hookah units may also be employed.

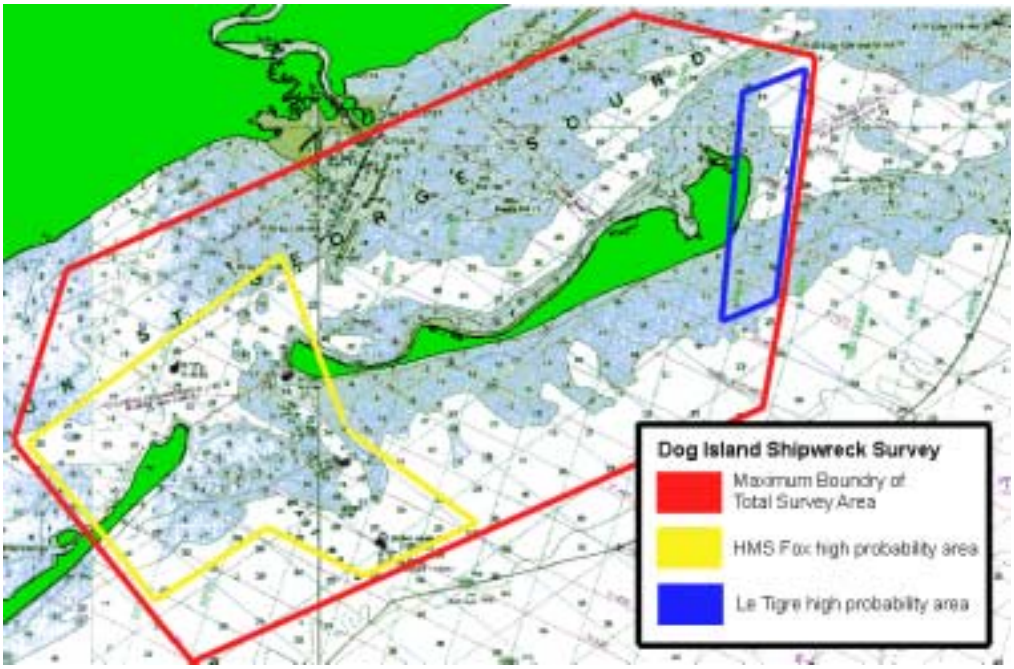

Figure 11. Extent of the Dog Island Shipwreck Survey, with high probability areas delineated for the two known 18th century shipwrecks.

The major pre-disturbance objective for magnetic anomalies and other potential sites is to record any exposed cultural remains through archaeological mapping and, depending on visibility conditions, through photography and videography. Standard underwater archaeological mapping procedures will be employed, and depending on the nature and extent of the individual site, these may involve baseline offsets, trilateration or triangulation from datum points, or the use of mapping frames. Divers may also probe or excavate by hand-fanning to estimate the extent of buried cultural features.

Test excavations of sediments surrounding magnetic anomalies, or within and around exposed cultural remains, will be conducted utilizing induction dredges. Excavation will generally take place after any exposed surface remains have been recorded. Both four- inch (8 hp) and six-inch (20 hp) induction dredges are available for excavation, and all sediments will be screened through at least ¼ inch mesh. Test excavation will be limited in scope, to define the nature, extent, and condition of the submerged cultural features. Additionally, it will be desirable in some cases to remove sediments from a section of hull remains in order to record and study the construction of the ship. Data of this nature can help assign cultural affinity and/or an approximate date of vessel construction.

Artifacts exposed by dredging activities may be left *in situ*, or may be temporarily removed for surface recording and photography. Artifacts that appear to be diagnostic, or those that appear to be in imminent danger of degradation will be recovered for conservation and analysis. Any artifact recovery will be limited in nature, and artifacts will be stabilized in the field for future conservation at the George R. Fischer Conservation Laboratory on the FSU Campus.

Project Timeline

The 1999 Dog Island Shipwreck Survey will take place from May 03 to August 06. This field season will be divided into two distinctive campaigns, and each will involve both survey and excavation efforts. Campaign I will run from May 03 to June 18. After a week away from the field, Campaign II will run concurrently with the Florida State University Program in Underwater Archaeology field school in underwater archaeology, from June 28 to August 06. The timeline presented below in Table 1 outlines each week of the project, and states the planned research activity for each weeklong session.

Table 1. Scheduled Research Activities, Dog Island Shipwreck Survey 1999

Week #	Dates	Research Activity
CAMPAIGN I		
Week 1 (Mon through Thu)	03 May to 06 May	Magnetic/Sonar Survey
Week 2 (Mon through Thu)	10 May to 13 May	Magnetic/Sonar Survey
Week 3 (Tue through Thu)	18 May to 20 May	Magnetic/Sonar Survey
Week 4 (Mon through Thu)	24 May to 27 May	Magnetic/Sonar Survey
Week 5 (Mon through Fri)	31 May to 4 June	Diving/Excavation
Week 6 (Mon through Fri)	07 June to 11 June	Diving/Excavation
Week 7 (Mon through Fri)	14 June to 18 June	Diving/Excavation
Week 8 (Mon through Fri)	21 June to 25 June	Planning Week
CAMPAIGN II		
Week 9 (Mon through Sat)	28 June to 03 July	Planning Week
Week 10 (Mon through Sat)	05 July to 10 July	Survey and/or Diving
Week 11 (Mon through Sat)	12 July to 17 July	Survey and/or Diving
Week 12 (Mon through Sat)	19 July to 24 July	Survey and/or Diving
Week 13 (Mon through Sat)	26 July to 31 July	Survey and/or Diving
Week 14 (Mon through Fri)	02 Aug to 06 Aug	Clean-up Week

Project Personnel

A few core staff members will direct the Dog Island Shipwreck Project fieldwork, and most participants will be volunteer students or divers. Table 2 lists the staff members and volunteer participants for the project.

Table 2. Dog Island Shipwreck Survey Personnel

Name	Title
Michael Faught	Principle Investigator
Chuck Meide	Project Director
James McClean	Assistant Director/Asst Dive Supervisor
John Kiwala	Dive Supervisor
Michael Lavender	Crew Chief (Campaign I only)
Robert Francis	Sonar Technician (volunteer, Campaign I only)
Jeff Bauer	Computer Specialist/Diver (volunteer)

Name	Title
David Brewer	Consulting Archaeologist
George R. Fischer	Consulting Archaeologist
Lara Proctor	Archaeologist/Diver (volunteer)
Patrick Gensler	Archaeologist/Diver (volunteer)
Ryan Pendleton	Archaeologist/Diver (volunteer)
Michael Pomeroy	Project Webmaster/Diver (volunteer)
FSU-PUA Field School Students	Student divers (volunteers, Campaign II only)
Other volunteer divers	Divers (volunteers)

Research Potential

Eighteenth Century Resources: *Le Tigre* and *HMS Fox*

Until the 20th century, the ship was the most complex technological device in any society's economic or sociopolitical systems. In the 18th century this technology was a response to, and a reflection of, the needs of transportation, sea power, and colonization in the strategy of international trade. At the same time, the ship represented a microcosmic culture, an isolated and autonomous society at sea, complete with a hierarchical status system discernable in the archaeological record. The shipwreck phenomenon is also a unique and provocative type of archaeological site; when *Le Tigre* or HMS *Fox* sank, their entire body of material culture was instantly engulfed and moved immediately from the systemic to the archaeological context.

All of these factors, along with the differential preservation typically present on underwater sites in a muddy bay environment, make an archaeological investigation of these shipwrecks a truly unique and insightful window into the past maritime lifeways of 18th century colonial Florida. The material assemblage of these two 18th century wrecks will not only reflect the full scope of transatlantic trade, naval power, and the Euro-American colonial system, but the cultural diversity of colonial Florida (in this case, English, French, and Native American cultures), and the heterogeneous and hierarchical qualities of the typical 18th century ship's crew.

The wreck of *Le Tigre*, if discovered, offers a unique opportunity for comparing archaeological data with a rich historical documentation. These two sources, the shipwreck narrative and the shipwreck remains, should compliment each other and provide an insight not only into the sphere of French colonial activity but the psychology of the shipwreck phenomenon itself. In addition, there are few if any other archaeological examples of French merchant ships in the western hemisphere. In fact, if it is found, *Le Tigre* will be only the second French shipwreck to have ever been discovered in America, and the only one dating to the 18th century. Archaeological investigations of this site would provide concrete evidence of the economic relations between French colonies in North America and the West Indies. The study of the vessel's hull construction will also yield valuable information, because most maritime historians have concentrated on the technology and architecture of military ships, and we know comparatively little about ship building in the 18th century private sector.

The wreck of HMS *Fox* is of historic importance due to its direct association with William Augustus Bowles, an important figure in Floridian history, as well as its involvement in an all but forgotten chapter of Florida's Native American history. In addition to a schooner's armament of 14 or 16 guns, it is likely there remain other cannon (possibly including Dutch artillery), personal items, trade goods, and military supplies meant for Bowles' native followers. There may also be other archaeological evidence of Native American and English cultural interaction. While a

number of other 18th century Royal Naval shipwrecks have been identified, relatively few have been archaeologically investigated. Of these, HMS *Fowey*, which also wrecked in Florida (1748), was excavated by FSU and the National Park Service in 1983 (Skowronek 1984). Only limited excavations took place on *Fowey*, but an impressive amount of data was collected and analyzed quantitatively using an artifact classification system based on South's (1977: 95). That body of evidence will make a useful model and comparative tool for the *Fox*, which sank 51 years after *Fowey*.

If either or both of these Dog Island wrecks are discovered, and their identities are confirmed through test excavations, the Florida State University Program in Underwater Archaeology will plan to continue excavations through future field seasons. An anthropologically-oriented investigation of either or both of these wrecks should produce a rich body of contextual data from which various interpretations can be made concerning the conflicting cultures, shipboard hierarchy, and overall socioeconomic system in 18th century Florida and the circum-Caribbean.

Nineteenth and Twentieth Century Resources

Both Wright (1990) and White (1995) have recommended that the known shipwrecks on Dog Island—Dog Island Wrecks # 1 and # 2—be thoroughly re-investigated. Identification of each (as the *Priscilla* and one of the 1899 wrecks) is tentative, and further archaeological testing may confirm or deny these suppositions. In addition, Dog Island is unique in that it offers a tangible shipwreck database for archaeologists to examine. The large number of sunken vessels dating to the late 19th and early 20th centuries represents a variety of local industries—i.e., fishing, lumber exploitation, and naval stores—that played a principle role in the burgeoning regional economy at this time. In addition, the recording and analysis of hull construction features will probably provide insight into both local vernacular and cross-regional ship building technologies.

The presence of four vessels wrecked in a single event (the 1899 storm), along with the possibility of two additional wrecks that lie somewhere on St. George Island, provides a potentially powerful comparative tool for the archaeologist. In addition to the ability that these archaeological sites would have to chronicle a specific historical wrecking event, comparing the vessel and cargo remains should provide a wealth of information relating to international shipping and other global socioeconomic systems in place at the turn of the century. There has also been recent interest by anthropologists in the competition between merchant sailing vessels and steamships, and the ensuing adaptive changes in behavior (see Souza 1998). The late 19th century sailing ships wrecked on Dog Island, operating well into the age of the steamer, will add to a growing body of archaeological evidence defining this struggle against obsolescence.

There are also a number of 20th century historic resources in the waters of Dog Island. In addition to Dog Island Wreck # 1, principle areas of interest include the turpentine camp dock and possible cultural remains from the island's World War II training camp era. Survey and investigation of these remains will provide information on these important but poorly known economic and military activities.

Dog Island Shipwreck Survey 1999
Report of Historical and Archaeological Investigations

Geophysical Survey Methods and Results

James McClean

Introduction

One research goal of the 1999 Dog Island Shipwreck Survey was to conduct remote sensing surveys in order to locate, investigate and inventory submerged cultural resources in selected areas around the island. Ten survey areas were investigated based on their inferred potential for shipwreck discoveries. The principal method of geophysical survey was magnetometry, with side scan sonar planned for augmentation. However, the side scan sonar coverage was not as utilized as the magnetic data due in part to equipment failure, in part to difficulties with GPS positioning problems, and in part by post-field data corruption.

Analysis of this magnetometry data led to the definition of 117 anomalies, five of which were considered significant enough to be listed in the Florida State Master Site Files as archaeological sites. These are discussed in the Archaeological Site Investigations section of this report.

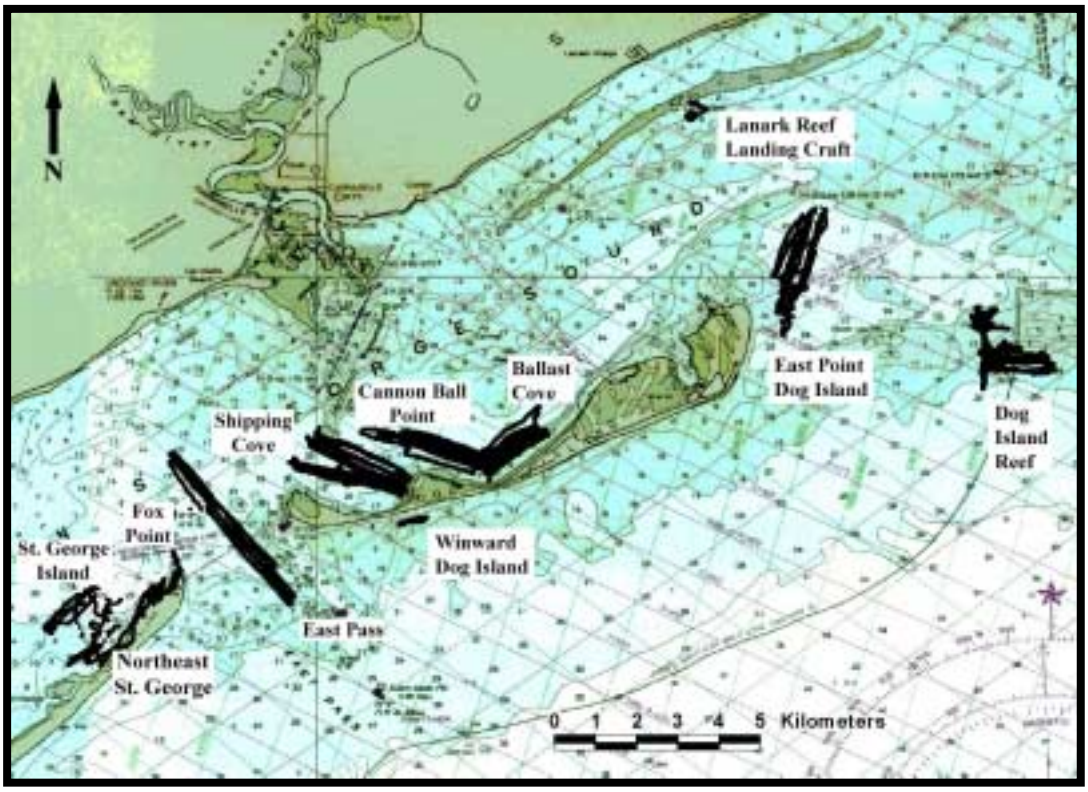

Figure 12. 1999 magnetometer survey track lines

The eleven survey areas were traversed for a total area of 671 hectares, resulting in a total of 117 magnetic anomalies. The eleven search areas include, from east to west (Figure 12), Dog Island Reef, Lanark Reef, East Point, Ballast Cove, Cannonball Point, Shipping Cove, Windward Dog Island, East Pass, Fox Point, and St. George Island. Divers investigated eleven anomalies within these eleven survey areas in order to determine their cultural significance. These investigations are described below in the Archeological Site Investigation section.

Equipment

This project made use of several technologies to conduct the survey and analyze the data obtained. The equipment included; a proton precession magnetometer for the discovery of submerged ferrous objects, a side scan sonar for imaging the sea floor, Differential Global Positioning System (DGPS) for navigational control, and Geographic Information Systems (GIS) software for data analysis and image production. Each is described briefly in the following paragraphs.

Magnetometer

This survey employed the use of an EG&G Geometrics 866 Proton Precession Magnetometer as the primary data collection device. The proton precession magnetometer induces magnetic fields in an electrical coil to determine and compare their relation to the Earth's background magnetic signature (Breiner 1973; Clark 1990). The Earth's magnetic field varies over time and space, thus the magnetometer must be tuned to the local ambient magnetic field of the survey area. The Earth's ambient magnetic field in the north Florida area for 1999 was recorded at 49,000 gammas (reference DMA Chart #WOXZC39, 1985). The magnetometer itself consists of a voltmeter that detects minute electrical signals induced within the sensing head. The magnetometer then displays the resulting reading as the strength of the earth's local ambient magnetic field. In principle, the larger the ferrous object the greater the distortion of the magnetic field, the greater the induced voltage as the electric field turns on and off in the sensing head. This voltage is graphically represented as gammas (1 gamma being equivalent to a nano Tesla or nT) on an LCD panel and in the ASCII data stream produced by the device. Any readings that differ significantly from this local field value are considered to be anomalies.

The 866 magnetometer is capable of one tenth of a gamma resolution. The sensitivity of the magnetometer is in the range of 30 to 60 meters in the vicinity of the head. Survey lanes were set at 30 meters to insure overlapping coverage of target areas. Sample intervals were maintained at one per second. Tow speeds were maintained in the range of 7-9 knots for consistent control over data collection. Magnetic signatures that register on more than one survey lane can be used to spatially map the extent of ferrous objects. Modern steel debris tends to create large monopole signatures while scattered debris from wooden ships tends to create smaller signatures of dipole characteristics (Breiner 1973). Bronze, copper, lead and gold are not detected by the magnetometer, which is one reason that historic shipwrecks are difficult to locate since many of their fastenings are of non-ferrous materials. If preserved, iron spike fasteners and fittings and anchors are major components of historic vessels that can be detected by the magnetometer (Arnold and Clausen 1975).

Differential GPS

To maintain navigational control over the survey lanes a Trimble NT200D differential global positioning system was employed. This differential signal system was designed to offset the intentional inaccuracies introduced into the NavSat system by the Department of Defense on a random basis. This signal scrambling process is known as Selective Availability, or S/A. The NavSat system is designed to be accurate to within 100 meters during 95% of any given day. However during 5% of the day the system does not meet this 100-meter circle of probable error due to activation of S/A (Hurn 1986). Differential signals are broadcast by the USCG in the US to improve accuracy to within a 15-meter circle of probable error.

GPS data recording for the creation of track lines was accomplished by routing the NMEA 183 navigation output into a laptop computer dedicated to data collection. Differential control of the GPS signal was based upon a ground signal broadcast from a fixed known location by the USCG.

Afternoon thunderstorms can cause disturbances in the ionosphere that degrade the differential signal. Loss of differential signal and S/A signal degradation can be seen on several of the ArcView postings. The vessel track line appears to jump at a great rate of speed for several minutes, and then wander slowly back on course. We have not post-processed this data or rectified it by other means.

Another role of the Trimble NT200D DGPS system was to create trackline search patterns. This system allows controlled lane spacing and length without the need to layout a grid pattern of buoys for vessel route control (Arnold and Clausen 1975 and Arnold 1996). The savings of time and increased accuracy obtained with this system were a tremendous asset in this survey.

Side Scan Sonar

This research project also made some limited use of a Marine Sonics 600 kHz side scan sonar. This unit employs acoustic signals that are transmitted through water, much like radar is used to locate objects above ground. Sound waves are emitted from a transducer that is housed along with a receiver unit in a single tow fish assembly. The side scan sonar records bottom relief. . At the end of each survey day all data files were backed up and later archived in CD-ROM format. Survey data is stored as a space delimited text file that records the locational control and strength of magnetic signatures in a comprehensive format. This file is the basis for analysis in ArcView because it contains all the necessary elements needed to classify and order the data in a spatial analysis.

Methodology and Data Analysis

Methods of Data Collection

The main survey vessel for this field survey was an 18-foot fiberglass *Privateer* belonging to Florida State University Marine Laboratory. The FSUML was also the main center of operations for most of the twelve-week survey season. A shelf was built into the cabin of the vessel to secure the electronic gear against rough seas and foul weather. Power was supplied by means of several deep cycle marine batteries and a 12-volt dc to 120-volt ac inverter to power the laptop computer.

Navigation information was captured in the form of standard NMEA 183 data and stored as *.svy and *.mag files in the archived data set. Data was stored in a text file generated by a laptop computer collecting the data stream through a serial connection, or tabulated by the side scan sonar programming.

Smooth seas make for the best data collection. Choppy waters and large swells increase the amount of water under the boat, which can have a variable effect upon the readings. For this reason it was found best to operate surveys in the smoothest water possible and at slow tow speeds to eliminate erratic signal noise. Morning typically has the smoothest seas in the northern Gulf of Mexico during summer, thus this time period was targeted as the most productive for survey work. In addition, because afternoon storms are an almost everyday operational factor in Florida during summer, survey was conducted during the early morning. These storms also adversely affect differential GPS signals as noted above.

Field log data sheets were completed recording each lane's start and stop time as well as noting any anomalies detected. At the end of each day, survey data would be stored on floppy disk and brought to the field lab for archiving and analysis. During ten weeks of survey nearly 4 gigabytes of raw data were collected. This raw data is archived at the George R. Fischer Laboratory of Underwater Archaeology, Department of Anthropology, Florida State University.

GIS Analysis

Microsoft Excel software was utilized to perform exploratory data analysis and also to filter and edit the data before plotting in ArcView. Once the data was gathered, archived, and filtered it was necessary to perform editing before entry into ArcView. A typical day's survey would average sixteen to twenty thousand lines of code. To streamline the amount of data collected, all usable files were saved in Excel format from the magnetometer and GPS files after merging and coordinate conversion from degrees decimal minutes to decimal degrees.

Next, gamma values were graphed to pick out outlier or invalid data points, which could then be identified as to location of the bad data cell, most of which were values of 49 or 0. These values were replaced by interpolating the value of the two nearest neighbors above and below the bad cell. Anomalies that trend over several seconds are still discerned by this method. Some exceptionally high gamma values were considered valid, determined to be within a range of 5,000 from the norm. These values were separately analyzed so as not to bias the majority of gamma values.

These files were then imported into ArcView to be analyzed as point data. Spatial analysis was performed by classification of the variation between adjacent gamma values in units of standard deviation. Standard deviation was found to be most useful for this study in that ArcView readily calculates the statistical mean of the gamma value for each survey area. The full field gamma values were filtered to account for diurnal variation. This involved calculating a sequential difference algorithm that subtracted each gamma value from the immediately preceding value, producing an index indicating relative changes in the record. This also normalized the data values for diurnal variation (Goodwin et al 1998).

This normalized gamma value was then classified in terms of statistical variance from the norm. In this way values that are highest and lowest from the norm can be plotted to show the location of anomalous gamma readings on digital maps. Only values greater than three (3) standard deviations were used to create the daily postings. High values (greater than 3 standard deviations) are indicated in Figures 13 through 22 by triangles and low values (less than 3 standard deviations) are indicated by squares.

Dipolar signatures, which trend both positive and negative, are characteristic of historic wooden shipwrecks that contain large scatters of small ferrous debris such as iron fittings, ordnance, etc. Most dipole signatures are complex in wave character, indicating possible scatters of ferrous objects of diverse size or material. Monopolar signatures trend in only one direction (either negative or positive) and are characteristic of large metallic objects, usually modern ferrous debris (Breiner 1973).

As stated previously our field equipment generated no hard copy paper charts. Therefore, line charts of the gamma values were produced in Excel to simulate graphics analogous to the strip chart printouts from the magnetometer. These line graphs were necessary to evaluate the signal characteristics of anomalies in terms of their wave character (mono- or dipolar nature).

Direct Diver Survey of Selected Anomalies

Selected loci of anomalous readings were targeted for further investigation during the 1999 summer field school field season. Ground-truthing took the form of diver reconnaissance and some limited test excavations.

Testing a site for cultural material involved hand fanning, and/or induction dredge excavation. Non-destructive investigative techniques included the occasional use of a hand held underwater

metal detector and probing. For applications of these techniques see the Archaeological Site Investigations section.

Magnetometer Survey Results

The relevant fields displayed in the tables below for each area include an anomaly designation, wave character description, gamma strength, duration over time, and archaeological potential. Archaeological potentials were designated on the basis of signature strength over time; longer duration signals are considered more archaeologically potential, due to the probability that they represent debris scatters over larger areas. Monopole signatures less than two seconds in duration are known as spikes, and are considered to be associated with large singular ferrous objects. These are listed as moderate or low potentials archaeologically. These are considered as point sources as opposed to scatters (Breiner 1973).

The following sections contain discussions of each of the eleven survey areas. These discussions include an identification of the survey area and a justification of why it was surveyed, a map showing details of the magnetometer survey track lines (including locations of diver reconnaissance sites); a table listing the anomalies identified by type, size, character, and archaeological potential; and finally a discussion of the results of the magnetometer survey.

Dog Island Reef

Dog Island Reef was surveyed because its position and shoal conditions make it a likely grounding point for ships seeking safe harbor from storms. In addition local seafood restaurant personnel indicated the presence of a shipwreck in this vicinity.

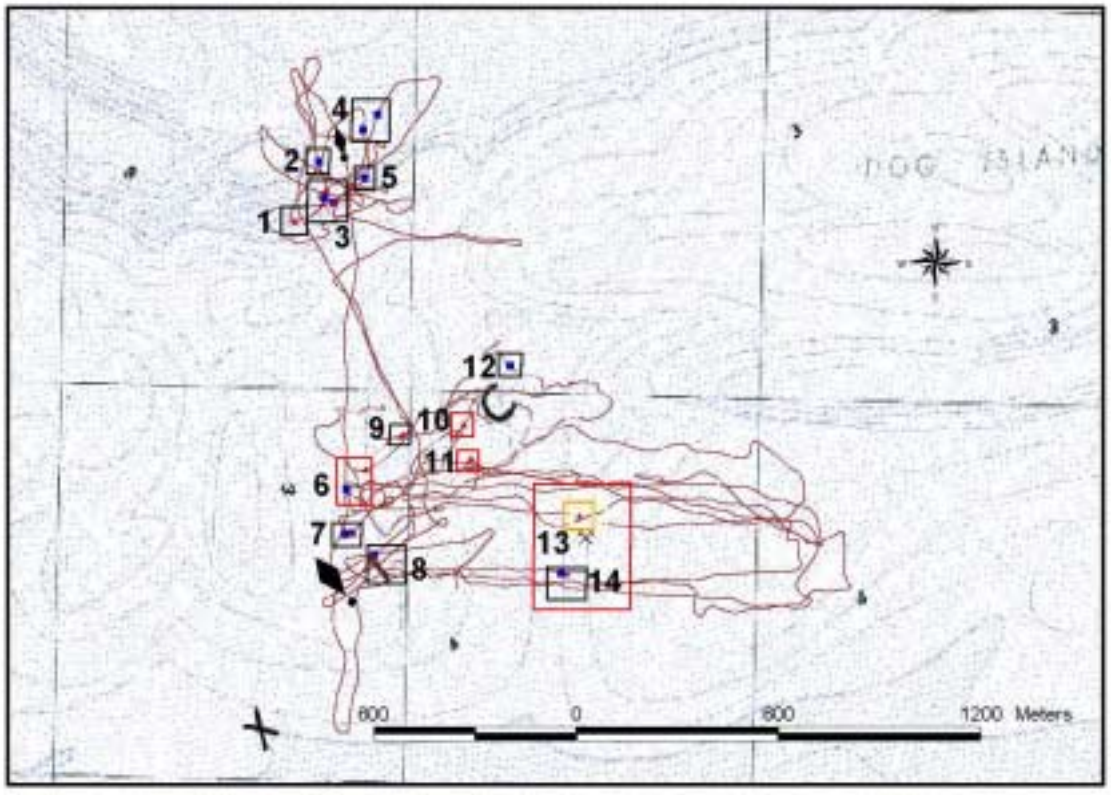

Figure 13. Detail of Dog Island Reef magnetometer areas.

Table 3. Dog Island Reef: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
Dog Island Reef	1	dipole	11.5 nT	16 sec	low, near buoy
Dog Island Reef	2	complex dipole	16 nT	25 sec	low, near buoy
Dog Island Reef	3	complex dipole	20 nT	25 sec	low, near buoy
Dog Island Reef	4	complex dipole	14 nT	20 sec	low, near buoy
Dog Island Reef	5	complex dipole	16.5 nT	20 sec	low, near buoy
Dog Island Reef	6	dipole	22.5 nT	21 sec	high, over 2 lanes
Dog Island Reef	7	positive monopole	15 nT	3 sec	low, Buoy #2
Dog Island Reef	8	negative monopole	222 nT	13 sec	low, Buoy #2
Dog Island Reef	9	negative monopole	15 nT	7 sec	moderate
Dog Island Reef	10	complex dipole	14.5 nT	20 sec	high
Dog Island Reef	11	dipole	14.5 nT	5 sec	high
Dog Island Reef	12	positive monopole	13 nT	3 sec	low
Dog Island Reef	13	positive monopole	37 nT	8 sec	high, near object excavated
Dog Island Reef	14	dipole	4 nT	6 sec	high, near object excavated

Fourteen anomalies were identified in the Dog Island Reef survey area. Five anomalies of high archaeological potential were identified, one was designated as moderate, and eight were considered low potential signals. Several of these low potential anomalies were near metallic buoys. Testing was conducted over anomalies 13 and 14 due to the high archaeological potentials on the magnetometer readings and a large metal tank or boiler-like structure observed by visual inspection (Refer to pages 79-82 in Archaeological Site Investigations).

Additional survey is highly recommended for Dog Island Reef. Future investigations should investigate the metal tank/boiler to determine its age, nationality, and function, in addition to survey in areas around the associated geological feature.

Lanark Reef

Lanark Reef was investigated based upon local oral tradition that a WW II Landing Craft Mechanized (LCM) was stranded there. Nearby Lanark Village was the site of Camp Gordon Johnson in the 1940's. The base served as an amphibious assault exercise ground in preparation for the D-Day invasion of the Normandy Beaches. It is likely that other WW II era vessels lie submerged in these waters based upon testimony of local informants. The Lanark Reef LCM had not previously appeared on any navigation chart prior to this survey.

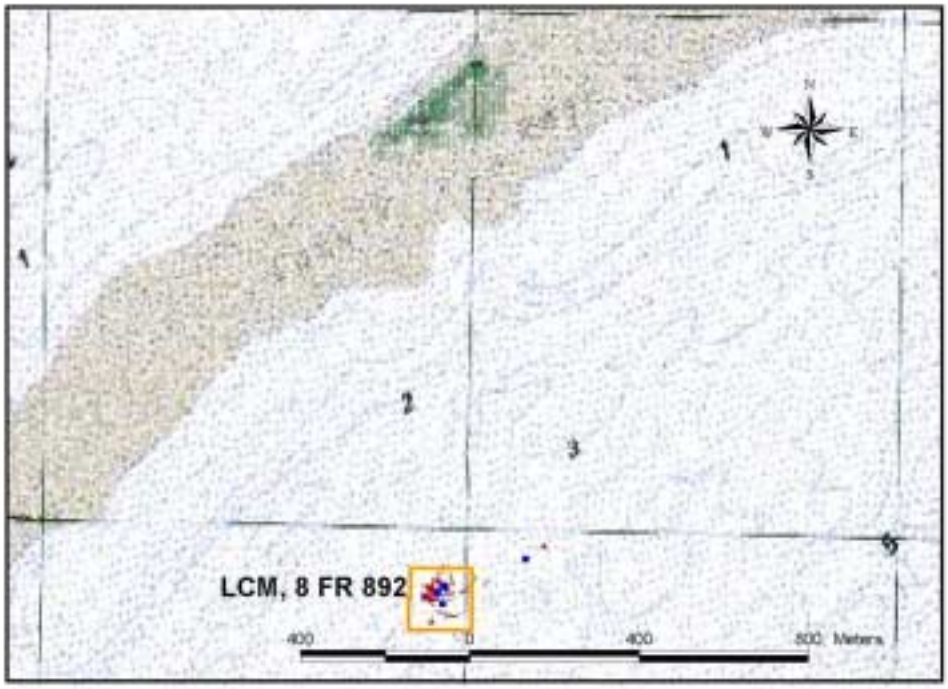

Figure 14. Detail of Lanark Reef magnetometer areas.

Table 4. Lanark Reef: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
Lanark Reef	1	dipole	771 nT	50 sec	Positive identification LCM wreck

In addition to magnetometer survey, Lanark Reef was investigated by snorkeling divers and side scan sonar imaging. The vessel is largely intact and resting upright on the bottom. A diverse biota exists on this vessel thus the vessel acts as an artificial reef and is a popular fishing location for locals. This site was designated as State Master Site File number 8 FR 892. (Refer to pages 75-79 in Archaeological Site Investigations) No additional magnetometer or side scan survey is recommended for this area, but the wreck could be further investigated for it cultural significance and monitored for the evolution of its reef community.

East Point (Dog Island)

East Point (Dog Island) was surveyed as a possible location of *Le Tigre*, based upon written accounts of the wrecking by survivors. Historical maps were consulted to confirm M. Viaud's testimony as to his wrecking 300 yards east of Dog Island. Although the island has shifted over the centuries since this event, it was believed that the vessel remains might be identified by magnetometer survey in this general vicinity.

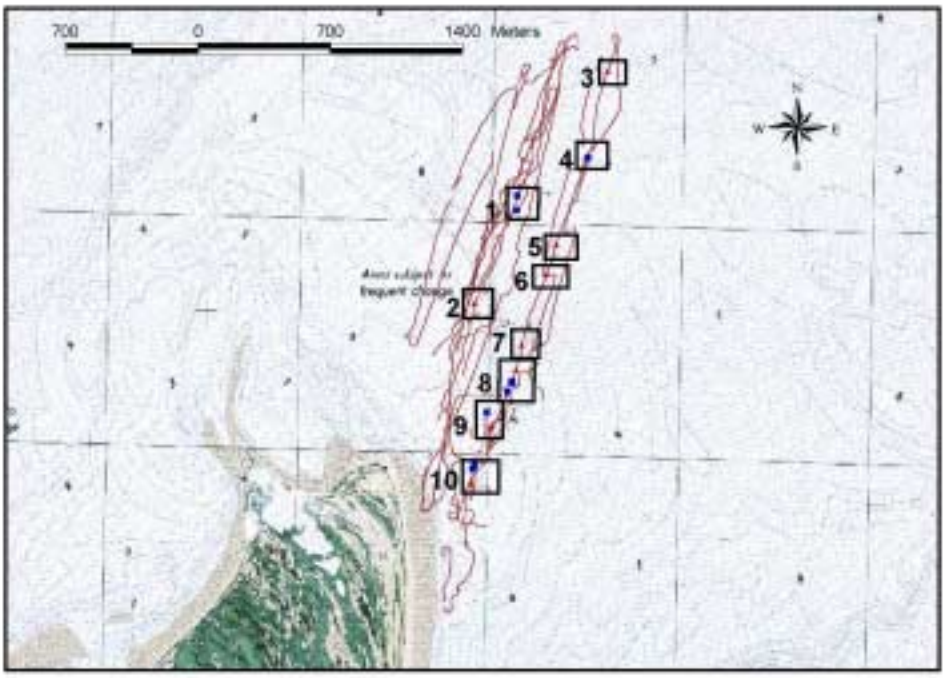

Figure 15. Detail of East Point magnetometer areas.

Table 5. East Point Survey: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
East Point	1	complex dipole	10.5 nT	9 sec	moderate
East Point	2	complex dipole	10.5 nT	9 sec	moderate
East Point	3	dipole	14 nT	4 sec	moderate
East Point	4	dipole	11 nT	7 sec	moderate
East Point	5	negative monopole	10 nT	13 sec	moderate
East Point	6	complex dipole	17.5 nT	18 sec	moderate
East Point	7	complex dipole	16.5 nT	20 sec	moderate
East Point	8	complex dipole	17 nT	15 sec	moderate
East Point	9	complex dipole	17 nT	15 sec	moderate
East Point	10	complex dipole	10 nT	10 sec	moderate

Ten anomalies were identified in the East Point survey area. All are designated as moderate archaeological potentials. No structural remains were evident from limited side scan sonar imagery; signatures for this area were less intense than from other survey areas. This could be due to deeply buried materials or small shallow buried items. More magnetometer survey is recommended for this area.

Ballast Cove

Ballast Cove (Dog Island) was surveyed as a result of local informant reports of submerged vessel remains visible during the early 1970's. Our informant indicated that he had seen an anchor, ship's timbers and what was described as a breast hook exposed proud of the sand in shallow water. The name itself implied a quantity of ballast would be found there, and it was our intention to differentiate between ballast dumps and wreck sites in this location.

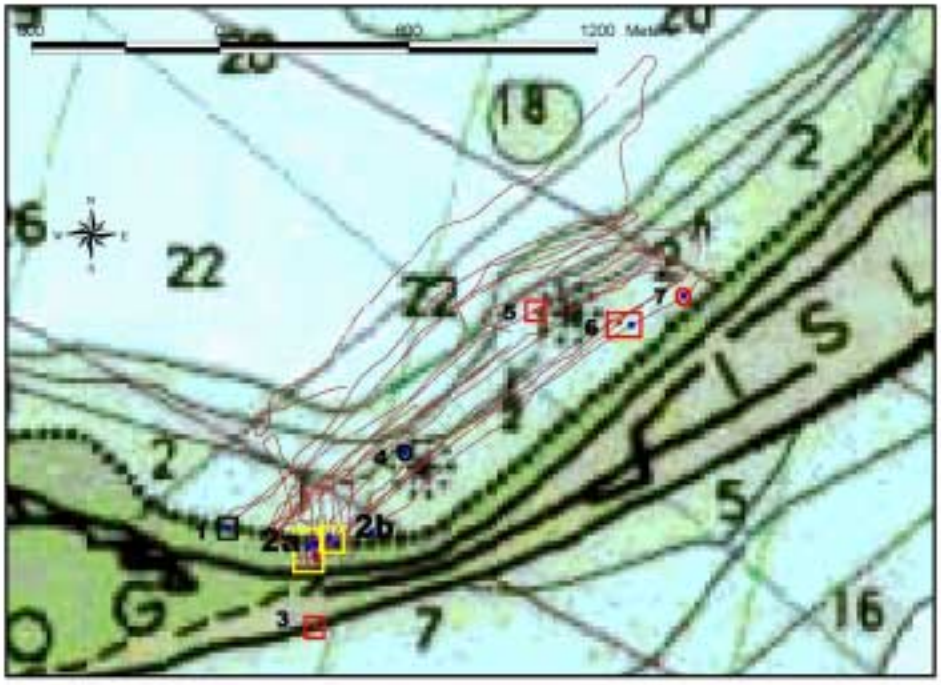

Figure 16. Detail of Ballast Cove magnetometer areas.

Table 6. Ballast Cove Survey: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
Ballast Cove	1	dipole	21 nT	14 sec	low; vessel turning
Ballast Cove	2a	dipole	98.5 nT	26 sec	very high
Ballast Cove	2b	positive monopole	243.5 nT	12 sec	high; metal box
Ballast Cove	3	dipole	29.5 nT	17 sec	high
Ballast Cove	4	erratic negative monopole	183.5 nT	14 sec	low; end of survey
Ballast Cove	5	dipole	27 nT	18 sec	high
Ballast Cove	6	complex dipole	39.5 nT	17 sec	high; over 2 lanes
Ballast Cove	7	positive monopole	171 nT	6 sec	high

The Ballast Cove survey area (along with the Cannonball Point survey area to be discussed below), is one of the more potential areas for archaeological remains. Eight anomalies were defined in this survey area (including 2a and 2b). Two of these anomalies (2a and 2b) were investigated by divers because of local informant information and magnetic signatures that spread over a large area where several vessels may have been grounded in the 1899 hurricane (Appendix H). Anomalies 5,6, and 7 are considered as high archaeological potential, corresponding to a ballast pile noted on the navigational map, and verified by limited side scan sonar survey (see pages 72-75 of Archaeological Site Investigations).

Cannonball Point

Cannonball Point (Dog Island) was surveyed in the hopes of recovering naval ordnance that might indicate the presence of wrecked warships, such as *H.M.S. Fox*.

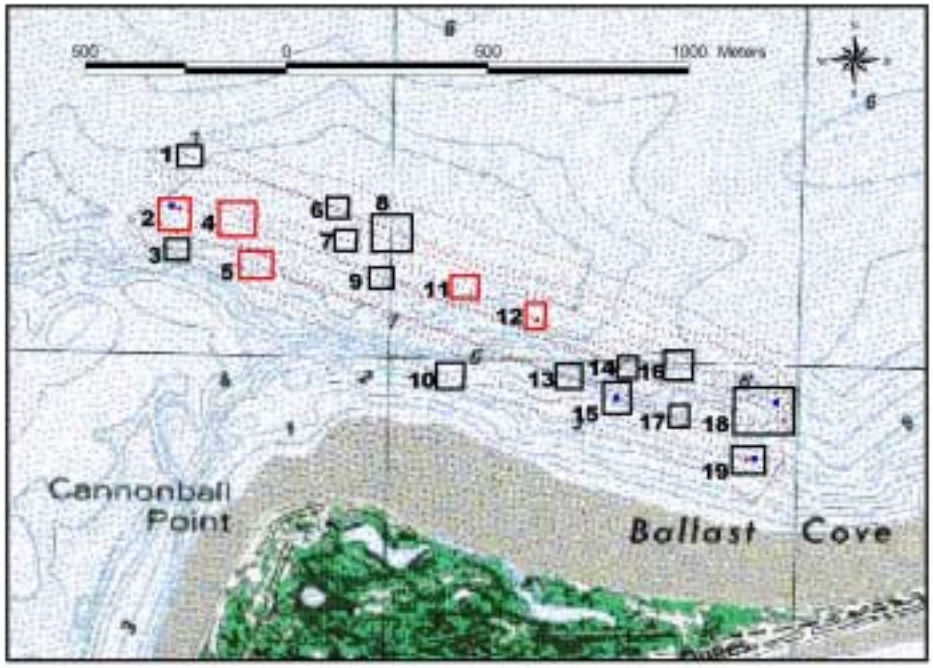

Figure 17. Detail of Cannonball Point magnetometer areas.

Table 7. Cannonball Point Survey: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma Variance	Duration	Archaeological Potential
Cannonball Point	1	dipole	23 nT	4 sec	low, turning about
Cannonball Point	2	dipole	38 nT	8 sec	high
Cannonball Point	3	double monopole	22 nT	5 sec	low
Cannonball Point	4	dipole over 3 lanes	30 nT	5 sec	high
Cannonball Point	5	dipole	27 nT	5 sec	high

Survey Area	Designation	Wave Character	Gamma Variance	Duration	Archaeological Potential
Cannonball Point	6	dipole	20 nT	3 sec	low
Cannonball Point	7	dipole	22 nT	5 sec	moderate
Cannonball Point	8	negative monopole	21 nT	3 sec	moderate
Cannonball Point	9	double negative monopole	12-21 nT	6 sec	moderate
Cannonball Point	10	dipole	15 nT	8 sec	low
Cannonball Point	11	dipole	28 nT	7 sec	high
Cannonball Point	12	double negative monopole over 2 lanes	27 nT	8 sec	high
Cannonball Point	13	dipole	27 nT	8 sec	high
Cannonball Point	14	dipole	18 nT	3 sec	moderate
Cannonball Point	15	dipole	23 nT	5 sec	moderate
Cannonball Point	16	dipole over 2 lanes	20 nT	4 sec	moderate
Cannonball Point	17	negative monopole	18 nT	5 sec	moderate
Cannonball Point	18	large dipole spread	26 nT	12 sec	low, turning about
Cannonball Point	19	dipole	31 nT	10 sec	low, turning about

There were 19 anomalies identified in the magnetometer survey of Cannonball point. Six of the 19 are considered to be high potential anomalies (2,4,5,11,12,13), but none of the anomalies is particularly large in strength or duration. The signatures are simple dipoles, probably indicating singular ferrous objects of small size. No diver survey was attempted on these targets. While the interpretation of this data is one of less significant finds, additional survey and testing needs to be done to isolate and define individual clusters or significant remains

.

Shipping Cove

Shipping Cove (Dog Island) was surveyed as the likely location of fourteen vessels stranded by a hurricane in August of 1899. Local archive records indicated that nine of the vessels were never refloated, and that their remains were likely to be found in Shipping Cove. Reports from Norwegian survivors indicated that the wreck visible at low water was the *Vale*, one of the wrecks involved in the 1899 tempest. It was also presumed that some former wharf structure might be located in this area based upon the name and reputation for being a center of turpentine and pine timber production (White et al 1995).

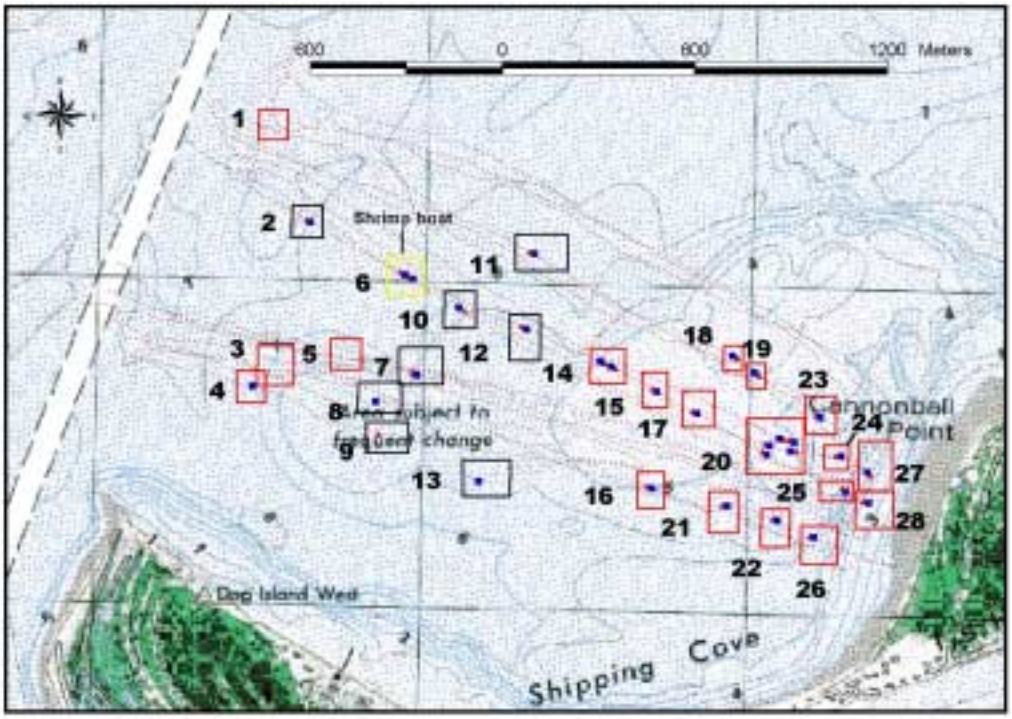

Figure 18. Detail of Shipping Cove magnetometer areas.

Table 8. Shipping Cove magnetometer Survey: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
Shipping Cove	1	complex dipole	20.5 nT	6 sec	high
Shipping Cove	2	negative monopole	420 nT	1 sec	low, likely modern debris
Shipping Cove	3	complex dipole	49 nT	10 sec	high, over 3 lanes & near #4
Shipping Cove	4	complex dipole	58 nT	10 sec	high, over 2 lanes & near #3
Shipping Cove	5	complex dipole	43 nT	6 sec	high, over 2 lanes
Shipping Cove	6	double negative monopole	280 nT	5 sec	low, wrecked shrimp boat
Shipping Cove	7	dipole	92 nT	10 sec	moderate
Shipping Cove	8	complex negative monopole	48 nT	5 sec	moderate

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
Shipping Cove	9	complex dipole	53 nT	6 sec	moderate
Shipping Cove	10	negative monopole	293 nT	1 sec	low, near wrecked shrimper
Shipping Cove	11	negative monopole	443 nT	1 sec	low, likely modern debris
Shipping Cove	12	negative monopole	291 nT	1 sec	low, likely modern debris
Shipping Cove	13	dipole	11.4 nT	5 sec	moderate
Shipping Cove	14	complex dipole	839 nT	15 sec	high, modern steel wreck, WWII?
Shipping Cove	15	negative monopole	278 nT	1 sec	high, possible pier remains
Shipping Cove	16	positive monopole	549 nT	1 sec	high, possible pier remains
Shipping Cove	17	negative monopole	296 nT	1 sec	high, possible pier remains
Shipping Cove	18	negative monopole	440 nT	1 sec	high, possible pier remains
Shipping Cove	19	negative monopole	300 nT	1 sec	high, possible pier remains
Shipping Cove	20	dipole	1094 nT	5 sec	high, possible pier remains
Shipping Cove	21	positive monopole	535 nT	1 sec	high, possible pier remains
Shipping Cove	22	positive monopole	530 nT	1 sec	high, possible pier remains
Shipping Cove	23	positive monopole	435 nT	1 sec	high, possible pier remains
Shipping Cove	24	negative monopole	296 nT	1 sec	high, possible pier remains
Shipping Cove	25	double negative monopole	300 nT	9 sec	high, possible pier remains
Shipping Cove	26	positive monopole	559 nT	1 sec	high, possible pier remains
Shipping Cove	27	negative monopole	307 nT	1 sec	high, possible pier remains
Shipping Cove	28	double negative monopole	300 nT	8 sec	high, possible pier remains

The Shipping Cove magnetometer survey was the most productive of all eleven survey areas. Twenty-eight anomalies were identified in the analysis procedures. Divers investigated anomaly number 6, a double negative monopole, which resulted from the presence of a wrecked shrimp boat (Refer to pages 85-86 in Archaeological Site Investigations). Targets 3,4,5 were assigned high archaeological potential because they returned a complex signature that occurs over several lanes of magnetometer data. Anomalies 14-28 may have historical significance. Even though these are large monopole targets with short duration (typically characterizing modern debris), the spatial distribution of these anomalies might indicate the location of a pier associated with the turpentine industry of the late 19th century.

Considering the presence of the alleged *Vale* and the photographic documentation of vessels grounded in Shipping Cove during the 1899 hurricane event, this area probably contains the remains of other historic vessels. This survey area is highly recommended for additional magnetometer, side scan sonar, and diver investigation survey and testing activities.

Windward Dog Island

Windward Dog Island was surveyed to locate the remains of the Dog Island Lighthouse. Its location was identified on maps from the 1860s, and it was deemed a simple matter to relocate the structural remains by surveying with side scan sonar. In addition, a local informant gave coordinates of a ballast pile to be investigated which resulted in the survey and test excavation of Harry's Ballast Pile. This ballast pile was considered potentially significant because it lay on the offshore side of Dog Island, in contrast to the abundance of ballast piles contained within the sheltered leeward Shipping and Ballast Coves.

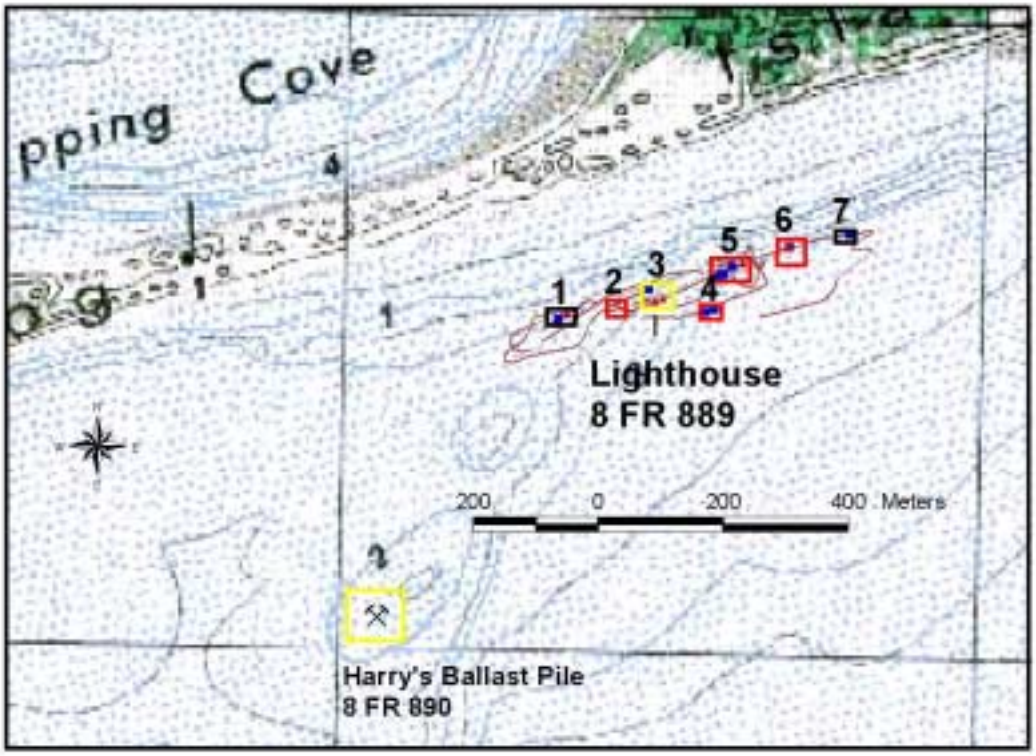

Figure 19. Detail of Windward Dog Island Magnetometer area

Table 9. Windward Dog Island Magnetometer Survey: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
Windward Dog Island	1	dipole	11 nT	7 sec	moderate
Windward Dog Island	2	complex dipole	10 nT	15 sec	high
Windward Dog Island	3	complex dipole	22.5 nT	40 sec	high, Lighthouse
Windward Dog Island	4	complex dipole	10 nT	20 sec	high
Windward Dog Island	5	complex dipole	10 nT	10 sec	high
Windward Dog Island	6	complex dipole	10 nT	10 sec	high
Windward Dog Island	7	complex negative monopole	8 nT	20 sec	low

Investigations on the windward side of Dog Island resulted in the relocation of the Dog Island lighthouse. Five magnetic anomalies given high archaeological potential are associated with the lighthouse, and probably represent debris from the fallen lighthouse structure.

The lighthouse was also imaged with side scan sonar (Figure 25), and reconnaissance dives were conducted to investigate the extent and condition of the remains (Refer to pages 60-66 in Archaeological Site Investigations). This site was designated as State Master Site File number 8 FR 889.

Diver investigations at Harry's Ballast Pile (8 FR 890) were based on local informant data. Side scan sonar was used to locate and image this feature. Magnetometer survey was also conducted in the area, but no anomalies were identified. Refer to pages 66-71 for additional details.

East Pass

East Pass was studied as one of several possible locations . *H.M.S. Fox* based upon historical accounts of William Augustus Bowles running aground between St. George and Dog Island (Wright 1967; McCarthy 1994).

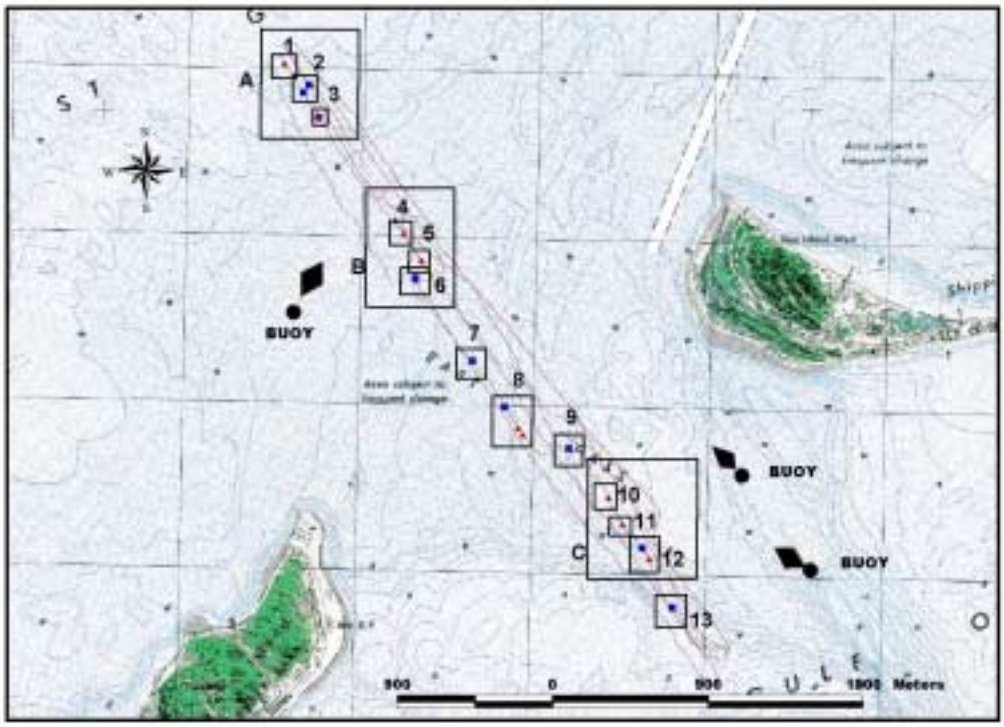

Figure 20. Detail of East Pass magnetometer area.

Table 10. East Pass: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
East Pass	1	complex dipole	12 nT	12 sec	moderate
East Pass	2	complex dipole	52 nT	11 sec	moderate
East Pass	3	double negative monopole	17 nT	17 sec	moderate
East Pass	4	complex dipole	33 nT	15 sec	low, buoy near cluster
East Pass	5	complex double negative monopole	30 nT	14 sec	low, buoy near cluster
East Pass	6	complex double negative monopole	40 nT	16 sec	low, buoy near cluster
East Pass	7	complex dipole	44 nT	10 sec	moderate
East Pass	8	complex dipole	47.5 nT	17 sec	moderate
East Pass	9	complex dipole	36 nT	11 sec	moderate
East Pass	10	complex dipole	37 nT	13 sec	low, buoy near cluster

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
East Pass	11	complex dipole	29 nT	9 sec	low, buoy near cluster
East Pass	12	complex dipole	46 nT	11 sec	low, buoy near cluster
East Pass	13	complex negative monopole	31.5 nT	7 sec	moderate

Thirteen magnetic anomalies were identified and grouped into clusters labeled A, B, and C. Because of the high-energy environment (currents and vessel of traffic), and the probabilities of dredging activities in the past, determination of the meaning or significance of the returns is difficult.

Group A is composed of anomalies 1-3 which are complex dipoles of approximately 25 gamma average over several lanes and trending for up to 17 seconds in duration. Cluster B (including anomalies 4,5,6) is probably not significant due to the close proximity of a navigational buoy. Cluster C (anomalies 10, 11,12) is also near a buoy and probably not significant.

Fox Point

Three areas near the eastern end of St. George Island were studied as another possible location of *H.M.S. Fox*. Local informants claimed that this area received the designation of Fox Point because of a single cannon that is rumored to have been seen there.

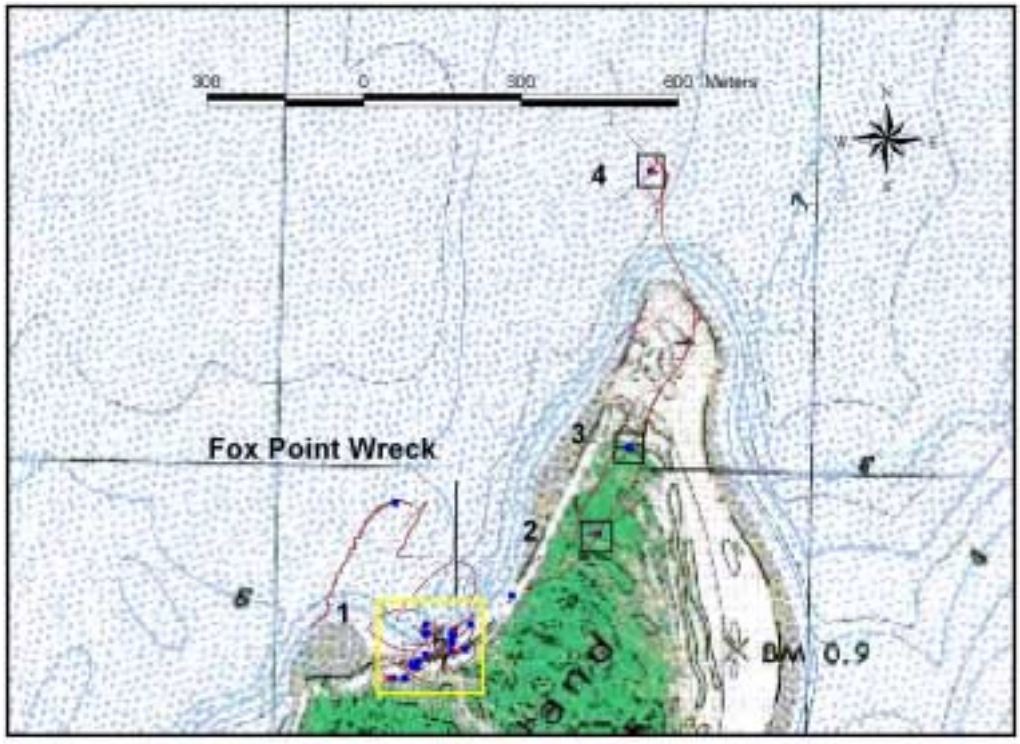

Figure 21. Detail of Fox Point magnetometer area (note that the apparent land based survey trackline was a function of selective availability errors) .

Table 11. Fox Point Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
Fox Point	1	complex dipole	295 nT	>50 sec	high, Fox Point Wreck
Fox Point	2	negative monopole	64 nT	1 sec	low
Fox Point	3	positive monopole	64 nT	1 sec	low
Fox Point	4	negative monopole	38 nT	1 sec	low

Four anomalies were identified during the survey. Cluster number 1 is a large magnetic anomaly returning about 300 gammas over background signals, and over 50 seconds of time. Side scan sonar and diver observations revealed no exposed structure at this location. Diver investigation by hand fanning revealed the presence of an electric winch with 2 stranded, rubber coated copper wires 1 meter beneath the sand. This feature is probably part of a buried intact steel hulled vessel. Without additional investigation it is unclear if this vessel is related to the amphibious operations at Camp Gordon Johnson during WW II, or some other commercial vessel. A better understanding of the history of deposition of the island sands could help to determine the age of this vessel.

Anomalies 2, 3, and 4 are negative monopole targets of 1 second duration, and probably not historically significant. These are probably modern debris.

Northeast St. George Island

Local informants also shared anecdotes regarding the presence of cannons exposed in shallow waters reported in the 1920's near the inside margins of St. George Island. The story goes that a local gentleman used to play on the cannons while his grandfather would fish somewhere along the leeward east end. Another story involves the extreme eastern tip of St. George Island being named Fox Point because a single cannon was found there by locals. A local pilot also claims to have seen cannons lying exposed after spring storms. It was hoped that marine remote sensing surveys would shed some light on these local legends.

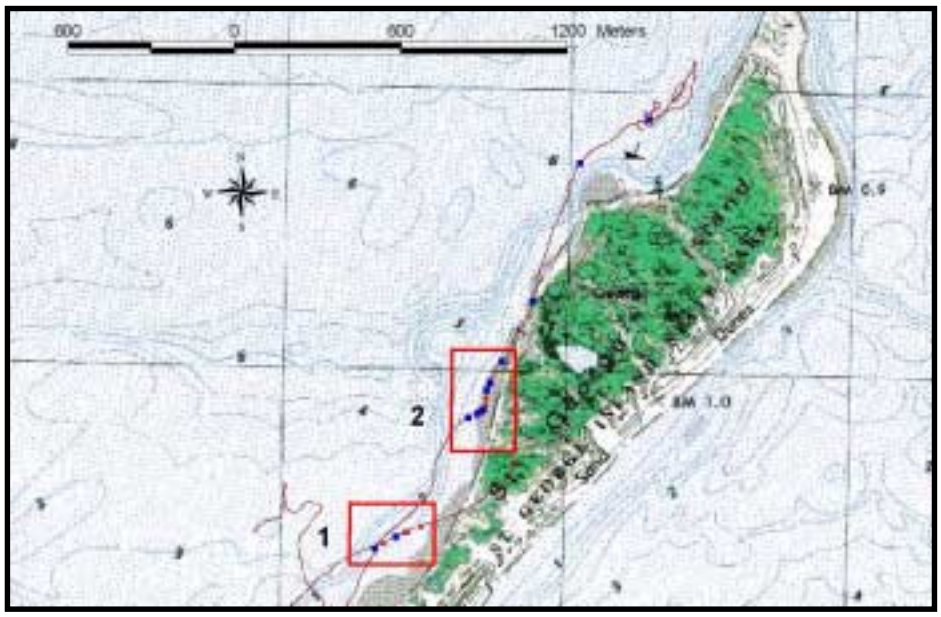

Figure 22. Detail of Northeast St. George magnetometer area.

Table 12. Northeast St. George: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
NE St. George Is.	1	complex dipole	113.5 nT	100 sec	high
NE St. George Is.	2	complex dipole	147 nT	122 sec	high

Anomalies 1 and 2 are complex dipoles averaging 120 gammas over a two minute run. Side scan sonar imaging revealed a large scatter of debris visible on the seafloor bottom. Surface observations revealed modern trash washed up on the beach. No diver investigations were conducted, and it is not clear if there are other historically significant resources in this area. It is recommended that this material be removed to improve the scenery of state park lands.

St. George Island

This area of St. George Island was investigated because of its potential for the remains of the *Fox*. Two different survey days were dedicated to this area.

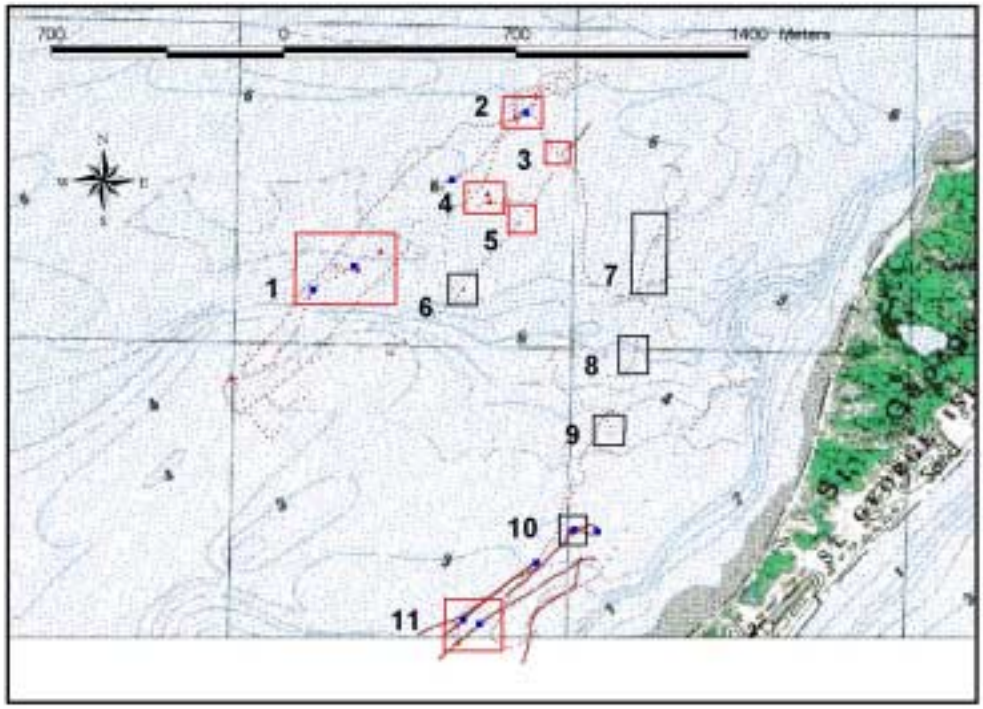

Figure 23. Detail of St. George magnetometer area.

Table 13. St. George: Magnetic Anomalies summarized by Type, Size and Archaeological Potential

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
St. George Island	1	complex dipole	29.8 nT	20 sec	high, shows over 3 lanes
St. George Island	2	complex dipole	31.8 nT	10 sec	high, shows over 3 lanes

Survey Area	Designation	Wave Character	Gamma	Duration	Archaeological Potential
St. George Island	3	complex dipole	23 nT	14 sec	high, shows over 2 lanes
St. George Island	4	complex dipole	26.8 nT	10 sec	high, shows over 2 lanes
St. George Island	5	complex dipole	23 nT	26 sec	high, possibly related to #4
St. George Island	6	double negative monopole	16.2 nT	10 sec	moderate
St. George Island	7	complex dipole	21.2 nT	13 sec	moderate
St. George Island	8	complex negative monopole	16 nT	12 sec	moderate
St. George Island	9	complex negative monopole	21.8 nT	14 sec	moderate
St. George Island	10	complex dipole	44.5 nT	21 sec	low, vessel turning
St. George Island	11	complex dipole	51.5 nT	50 sec	high, shows over 3 lanes

There were eleven anomalies identified in this St. George Island survey area. Anomalies 1-5 are considered high archaeological potential targets. Although their strength is low (30 gammas over normal on average), they are distributed over several survey lanes, for an average of 18 seconds in duration. These anomalies are not located near shore where modern debris is frequent, and are therefore considered potential to be the remains of historic vessels. Anomaly 11 is 51 gammas trending over a 50 second interval over three survey lanes. Diver reconnaissance is recommended at these anomalies to characterize and identify their nature.

Conclusion

The project successfully covered eleven discrete survey areas of various sizes and led to the diver investigation of ten promising anomalies. Five of these anomalies were considered significant enough to be listed in the Florida Master Site Files as archaeological sites. In addition, a number of other anomalies were identified and can be investigated in later field seasons. This survey, due to time constraints, was not able to cover all archaeologically potential sites in the Dog Island area; however, it is believed that this is a substantial beginning for future researchers. A significant amount of survey still needs to be conducted in the area of St. George Island as well as the mainland shoreline. The potential for discovery of WWII activities is high as well as nineteenth century sites connected with the industry and shipping of the local area. It is hoped that this data set will form a strong base for future investigation of cultural resources in the Dog Island/ St. George Island area.

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

Archaeological Site Investigations

Chuck Meide

Newly Discovered Sites

During the summer 1999 field season, a number of magnetic and sonar anomalies were located during the geophysical survey of Dog Island. These anomalies were then investigated and tested for their archaeological potential. This section presents a detailed overview of this investigation.

Archaeologists investigated a total of ten targets including a shipwreck, a ship grounding site, lighthouse ruins, ballast scatters/possible shipwrecks, and many other ballast dumps. Of these ten sites, five proved to be archaeologically significant and were recorded in the Florida Master Site Files. Table 14 summarizes the targets investigated during the 1999 summer field season. Figure 24 depicts the location of both the new and previously known archaeological sites investigated during the project.

Each of the targets investigated during this field season are discussed below. Data presented for each site includes both physical parameters (physiographic and locational data, surrounding sediment types, water depth, type or nature of site, condition of the site, and a discussion of potential threats to the site) and cultural parameters (function, cultural affinity, time period, and in some cases a detailed historical context). Other information includes lists of applicable side scan sonar image and digital image files, methods of discovery, and a discussion of site significance and recommendations for further work.

Table 14. Previously unknown archaeological sites and anomalies investigated during the 1999 summer field season.

Name	Site No.	Type	Comments
Dog Island Lighthouse	8FR889	Submerged Ruins	19th century
Harry's Ballast Pile	8FR890	Ship Grounding Site	No hull remains
Tile Ballast Scatter	8FR891	Artifact Scatter	Possible shipwreck
Lanark LCM Wreck	8FR892	Shipwreck	WWII landing craft
Tank Ballast Site	8FR895	Scatter/Prob. wreck	Probable hull remains
Bubba's Ballast Scatter	n/a	Ballast Scatter	
Other Ballast Dump sites	n/a	Ballast Dumps	Many such sites in cove
Fox Point Wreck	n/a	Shipwreck	Modern wreck
Shipping Cove Shrimp Boat	n/a	Shipwreck	Modern wreck
Dog Island Reef Anomaly	n/a	Modern Debris	Probably modern

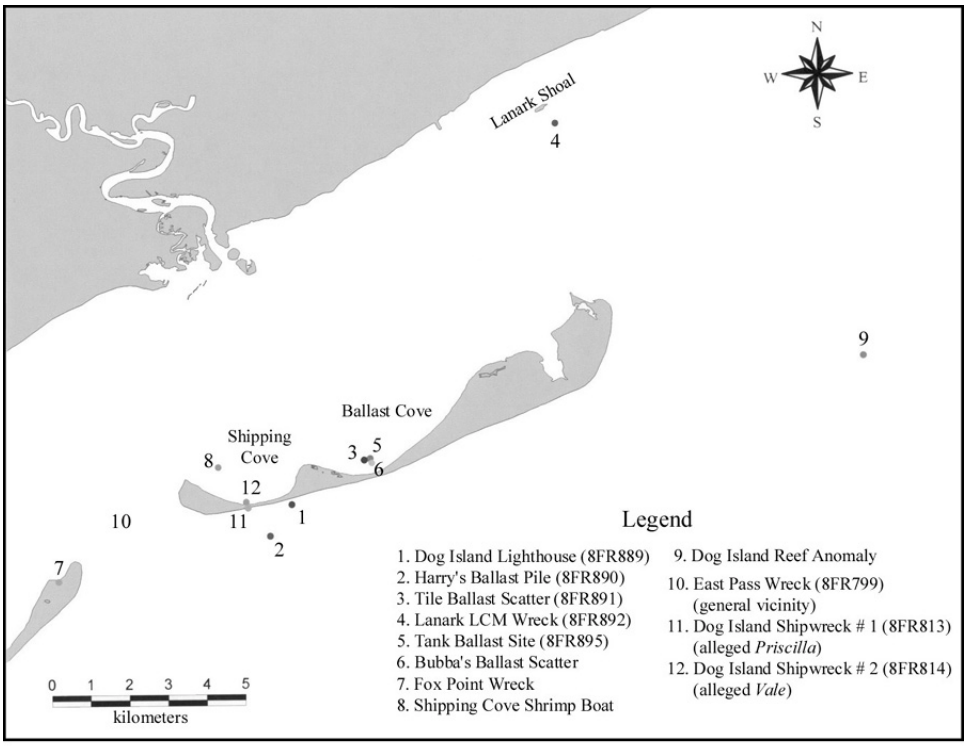

Figure 24. Map showing the location of all sites and anomalies investigated during the 1999 Dog Island Shipwreck Survey.

Dog Island Lighthouse (8FR889)

Type: Submerged ruins of collapsed brick lighthouse.
Physiography: Located on the Gulf (southern) side of the island, opposite the east end of Shipping Cove (160 meters due south of the island).
Depth: 4.5 m (15 feet)
Approximate Area: 322 square meters of rubble are exposed on the seafloor. The scatter is spread over an area of about 23 m by 14 m; it is likely that more structure lies buried in sediments.
Substrate: Sand
Time Period: 1839 to 1873
Cultural Affinity: American (Territorial, Antebellum, Civil War, and post-Civil War)
Discovery Method: Side scan sonar survey, analysis of historic maps, and local informants.
Condition: Good
Significance: High
Sonar Image Files: (note: no GPS locational control)

11jun005.mst	*	Time: 11:27:16 Hdng: 90°	R channel	50 m scale
11jun006.mst		Time: 11:35:58 Hdng: 270°?	Both channels	50 m scale
11jun007.mst	*	Time: 11:45:04 Hdng: 90°?	Both channels	20 m scale
11jun008.mst		Time: 11:46:46 Hdng: 90°	L channel	20 m scale
11jun009.mst	*	Time: 11:47:12 Hdng: ?	L channel	20 m scale
11jun010.mst		Time: 14:10:48 Hdng: ?	R channel	20 m scale
11jun011.mst		Time: 14:12:38 Hdng: 130°	R channel	20 m scale
11jun012.mst		Time: 14:13:50 Hdng: 300°	R channel	20 m scale
11jun013.mst		Time: 14:16:10 Hdng: 120°	L channel	50 m scale

11jun014.mst		Time: 14:17:30 Hdng: 300°	L channel	20 m scale
11jun015.mst		Time: 14:19:42 Hdng: 80°	R channel	75 m scale
11jun016.mst		Time: 14:21:20 Hdng: 250°	R channel	75 m scale
11jun017.mst	*	Time: 14:23:04 Hdng: 75°	L channel	20 m scale
11jun018.mst	*	Time: 14:24:50 Hdng: 270°	R channel	10 m scale
11jun019.mst		Time: 14:27:08 Hdng: 90°	L channel	10 m scale
11jun020.mst		Time: 14:27:20 Hdng: 90°	L channel	10 m scale
11jun021.mst		Time: 14:27:30 Hdng: 90°	L channel	10 m scale
11jun022.mst		Time: 14:29:40 Hdng: 270°	R channel	100 m scale

* signifies an exceptionally good image

Digital Image Files:

11JUN007.jpg Picture looking towards shore from lighthouse site

Field Investigations: The site was located on 11 June 1999 during a side scan sonar survey of the Gulf coast of Dog Island using as a guide a 19th century nautical chart depicting the location. A series of passes were made with the sonar set on a variety of ranges and channels in order to delineate the site and produce images of it and its environs. In addition to generating sonar records, archaeologists dived the site to physically inspect the ruins. Five dive teams of two to three divers each spent an aggregate of 4.61 diver-hours investigating the site, on two separate days. Unfortunately, divers—hampered by extremely poor visibility—were restricted to simply noting observations.

The site is characterized by a scatter of large sections of articulated brick masonry (Figures 25). Several large, curved sections of the tower wall were recognizable, and very few loose bricks were observed. No hardware or other related artifacts were observed, though when the magnetometer was deployed above the site a significant magnetic anomaly was detected. Divers noted during hand-fanning that a significant amount of structure is buried beneath sediments. The site displayed a significant amount of relief: the tallest of these areas, at the western end of the site, rose more than 3 meters above the seafloor. Theses areas of high relief can be readily seen in the sonar-generated site plan (Figure 25) indicated by the long, dark shadows extending to the north. The bricks exposed to seawater were covered with a thin layer of marine growth, though it was apparent they were originally red in color. The Dog Island Lighthouse now serves as an artificial reef. The most common fish species encountered were Atlantic Spadefish (*Chaetodipterus faber*) and Sheepshead (*Archosargus probatocephalus*).

Artifacts Recovered: A single brick was recovered from 8FR889, and designated FS 01. It measured 22.8 cm by 6.6 cm by 9.4 cm and was red in color (Figure 26). Three digital photographs were taken of the FS 01 in the field laboratory: FR889-FS01_brick1.jpg, FR889-FS01_brick2.jpg, and FR889-FS01_brick3.jpg. Appendix A presents the artifact inventory for the entire project. Artifacts collected were assigned a consecutive Field Specimen (FS) number according to the particular site (for example, the three artifacts collected from 8FR890 are numbered FS 1, 2, and 3, while the artifact collected from 8FR889 is numbered FS 1).

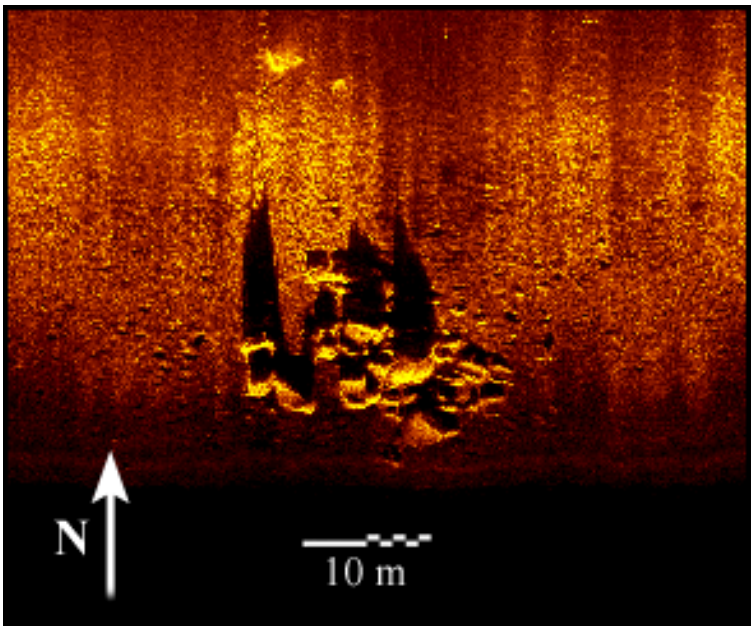

Figure 25. Sonar-generated "site plan" of the Dog Island Lighthouse, 8FR899. From sonar file 11jun005.mst.

Figure 26. Brick recovered from the Dog Island Lighthouse site, 8FR889. Field Specimen 01. Photo taken by James McClean.

Historical Context: Much of the following is derived from Thomas W. Taylor's work *Florida's Territorial Lighthouses, 1821-1845* (1995: 219-231). His 13 page account of Dog Island Lighthouse's history is very detailed and rich in primary source texts.

By the early 1830s Apalachicola was rapidly growing into one of the most important seaports on the entire Gulf coast. The west entrance to Apalachicola Bay was marked with the St. George Lighthouse, but it soon was realized that navigational markers for the eastern entrance were also

needed. On 9 December 1833, a group of Apalachicola merchants described in a memorial to Congress the need for such a marker:

> That vessels cannot, however, safely enter, without the aid of a light on the island, and buoys to mark the channel.
>
> That independently of the commercial facilities which would arise from these works, they must prove important in a national point of view, opening a safe harbor for public vessels. Your Memorialists, therefore, respectfully and earnestly solicit an appropriation of money for their accomplishment (Carter 1959: 923-924).

Despite this and additional correspondences and statements, it was not until 3 March 1837 that Congress finally appropriated "$10,000 for a light-house at or near the east entrance of Apalachicola Bay and $1,000 for buoys to mark the channel . . ." (Taylor 1995: 221).

Plans were made to start construction on Dog Island in spring of 1838, but this was delayed due to the ongoing Second Seminole Indian War. Construction did not actually begin until fall 1838, and continued through winter. The lighthouse was completed on 23 February 1839. The lantern mounted in the newly constructed 40 foot tall brick tower was a revolving and flashing apparatus containing 14 patent lamps with 16-inch reflectors fueled by spermaceti whale oil (Taylor 1995: 223, 224). The light flashed in order to distinguish it from the existing lighthouse at St. George Island. The light on Dog Island could be seen from 15 miles away (Cipra 1976: 9; Holland 1988: 216). Jacob D. Meyers received the first appointment as Dog Island Lighthouse Keeper on 25 July 1839 (Hurley 1990: 47).

Unfortunately, the new lighthouse soon began to deteriorate, and within two years was described as only "[i]n passable Order" (Taylor 1995). This may have been due to a problem that plagued other early Gulf lighthouses which were designed after the brick towers of New England: the softer ground here provided no solid footing. Of the first 40 brick lighthouses built on the Gulf coast, at least 25 sank into the bottom or blew down (Cipra 1976: 3).

Though the Dog Island Lighthouse weathered its first hurricane on 14 September 1841, it would eventually succumb to the next one on 4 October 1842. According to the 14 November 1842 *Apalachicola Journal*, the lighthouse "was ruined when 20 to 30 feet of the tower blew down. As the keeper's house was swept off the island, his wife was drowned along with several other residents of low-lying areas nearby." By this time the keeper was Latham Babcock, who had brought his wife and child to live with him only ten months prior (Hurley 1990: 47).

The lighthouse was replaced in spring 1843 with a wooden frame lighthouse and a new keeper's residence built by Winslow Lewis for the price of $4,100 (Taylor 1995: 225). The iron lantern from the first tower was salvaged and repaired, along with the original lamps and reflectors. Babcock resigned and was followed by Oliver Crawford and then Joseph Ridlin (Hurley 1990: 47). With successive keepers came successive storms, and the new wooden lighthouse weathered the "perfect hurricane" of 8 September 1844, the great hurricane of 12 October 1846, and the massive floods of the 23 August 1850 hurricane (Taylor 1995: 226-227). But these would seem frail in comparison to the "Great Middle Florida Hurricane" of 23 August 1851. At the time it was called "the most

destructive storm [Apalachicola] has ever witnessed." All three of the regional lighthouses, Cape St. George, Cape San Blas, and Dog Island, were "blown down or washed away" (*Tallahassee Sentinel* 1851).

All three lighthouses were re-built. The new Dog Island Lighthouse, a forty-foot tall, whitewashed brick edifice like the original, was completed in 1852. This is the tower pictured in Figure 28. During the Civil War, the lighthouse keeper William Baker was forced to evacuate by November 1861. Turning the lighthouse and adjacent keeper's home into something of a recreational center, Yankee soldiers confiscated his swine and poultry along with his furniture (Rogers 1986: 63). At some point it seems that Confederate forces raided Dog Island to burn the ladder and wooden components of the lighthouse, along with the keeper's house, in order to mitigate its usefulness as a Yankee lookout tower (Taylor 1995: 229; Cipra 1976: 9). It is recorded in an 1861 letter, however, that the structure proved a useful observatory (Rogers 1986: 63), so if there was a raid it may have happened after that date. A post-war survey indicated that the lighthouse's stairway was burnt, and that the lens showed signs of target practice (Cipra 1976: 9).

After the war the lighthouse was repaired and put back into service. The low, sand spit upon which it stood, however, was prone to heavy erosion from storms to such a degree that the Lighthouse Board stated that "[t]he eventual destruction of the present tower . . . cannot be doubted" (Cipra 1976: 9). These fears proved valid when, during an 1872 storm, the tower was pushed a foot out of perpendicular. As the island continued to erode out from under the tower, it began to lean further. The movement of the barrier island significantly impacted the lighthouse's integrity. Figure 27 is from an 1859 nautical chart, and shows the position of the lighthouse at that time. Finally in the hurricane of 18-19 September 1873 the final lighthouse fell. The storm's fury was such that both the tower and the adjacent domicile were blown away. No lighthouse would ever again be built on the island. Eventually, in 1895, a replacement tower was constructed, this one a steel-framed screwpile tower near Carrabelle designated the Crooked River Lighthouse.

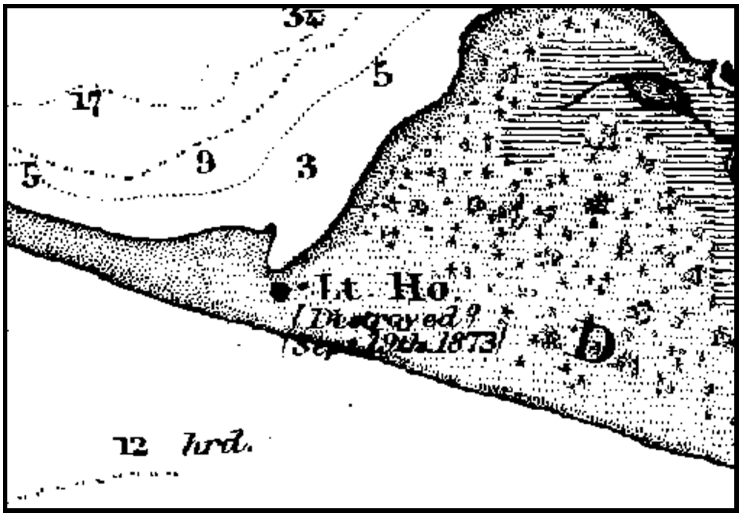

Figure 27. Position of the lighthouse in 1859 (U.S. Coast Guard chart, NOAA 1999).

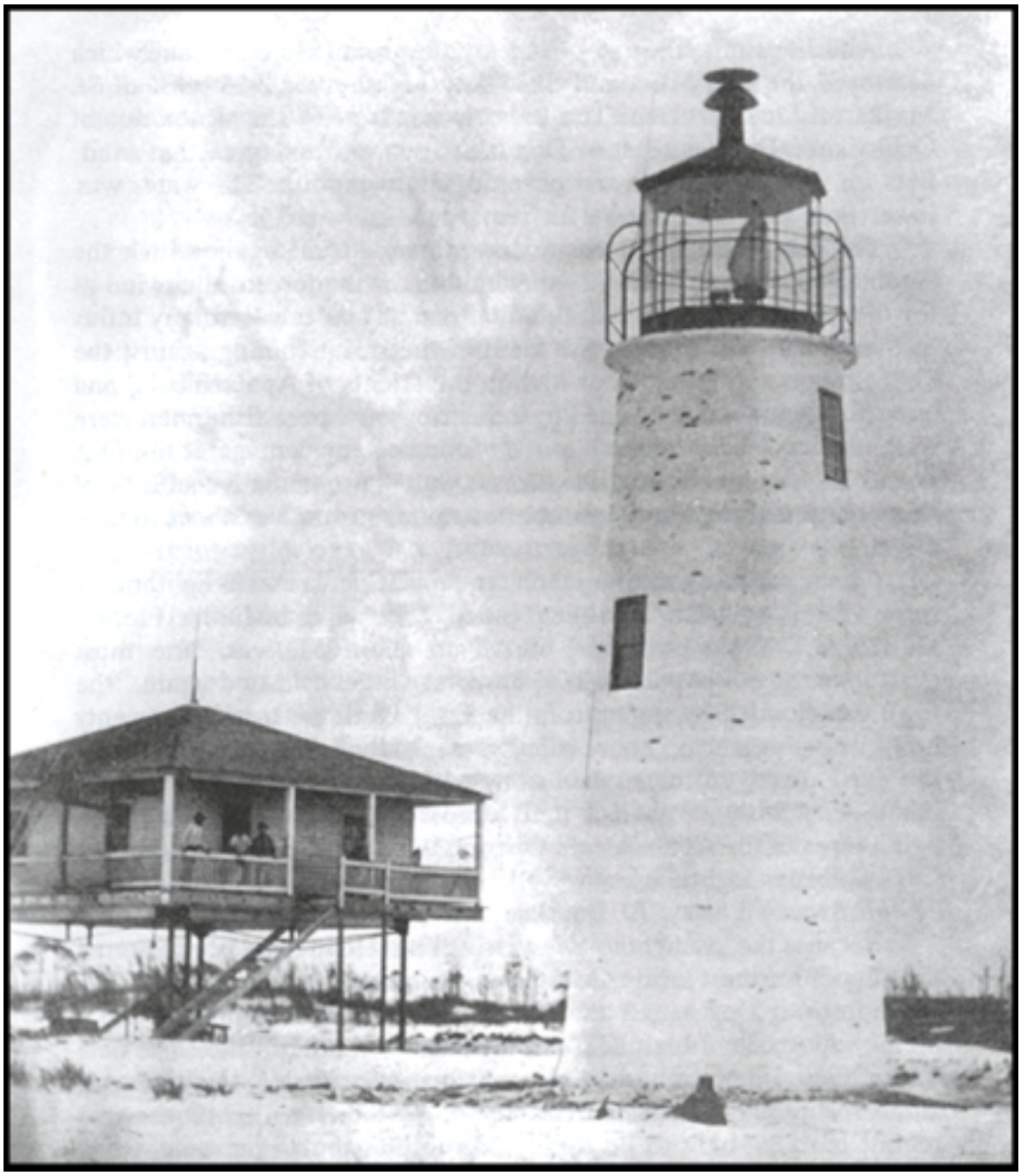

Figure 28. Dog Island Lighthouse as it appeared in the fall of 1859 (Taylor 1995: 228).

Impact: The Gulf side of the island is subject to frequent wave and storm action. This, combined with the site's high relief and shallow location, makes it susceptible to environmental conditions. The sturdiness of the rubble, however, would seem to preclude it from all but the most severe of storm activity. In addition, some of the structure is so close to the surface that it may be in danger of damage from recreational boat propellers. While it is a popular fishing site among locals, its exact location does not seem to be widely known. The looting of bricks may be the biggest

potential problem, though a substantial effort would have to be exerted in order to pry bricks from articulated masonry.

Recommendation: This site is one of the most significant to be discovered during the 1999 survey. Only preliminary investigations were conducted during the 1999 field season, thus there is much more work that can be done. The source of the strong magnetic anomaly should be identified, through magnetometry, metal detector work, and test excavation. The structure exposed on the surface should be thoroughly mapped, and a well-designed series of test excavations could elucidate the layout of the entire structure. Further survey around the immediate area of the lighthouse could possibly locate the remains of the keeper's domicile or associated artifactual scatter. At the very least, the site should be periodically monitored, using both sonar and diver investigations.

Harry's Ballast Pile (8FR890)

Type: Intact ballast pile. Does not appear to be the remains of a shipwreck (i.e., no hull remains are present).
Physiography: Located in open water offshore, on the Gulf side, opposite the approximate center of Shipping Cove. It is situated about 790 meters due south of the island, and some 950 meters away from the lighthouse ruins.
Depth: 2.75 to 3.65 m (9 to 12 feet)
Approximate Area: The exposed ballast pile is approximately 6 meters by 8 meters. No scattered components were observed away from main pile.
Substrate: Muddy sand
Time Period: Probable 19th century, could date anywhere between 16th and early 20th centuries.
Cultural Affinity: Unknown European or American
Discovery Method: Local informant (Harry Andrews) in conjunction with side scan sonar survey.
Condition: Good
Significance: Moderate
Sonar Image Files: (§ indicates lack of GPS locational control)

10jun010.mst	§	Time: 15:37	Both channels	50 m scale	initial discovery
10jun011.mst	§	Time: 15:39	L channel	20 m scale	blurry image
10jun012.mst	§	Time: 15:41	L channel	20 m scale	good image
10jun013.mst	§	Time: 15:43	Both channels	20 m scale	
10jun014.mst	§	Time: 17:40	L channel	20 m scale	excellent image
10jun015.mst	§	Time: 17:48	L channel	20 m scale	diver north of pile
10jun016.mst	§	Time: 17:50	L channel	20 m scale	diver north of pile
10jun017.mst	§	Time: 17:51	L channel	20 m scale	diver north of pile
27jul009.mst		Time: 12:56	Both channels	20 m scale	poor image, 120°
27jul016.mst		Time: 13:00	L channel	20 m scale	poor image, 280°
27jul019.mst		Time: 13:06	L channel	20 m scale	post-excavation, 210°
27jul020.mst		Time: 13:09	L channel	20 m scale	post-excavation, 30°
27jul021.mst		Time: 13:12	L channel	20 m scale	poor image, 188°
27jul022.mst		Time: 13:13	L channel	20 m scale	partial image, 336°
27jul023.mst		Time: 13:15	L channel	20 m scale	post-excavation, 274°

Digital Image Files:

10JUN009.jpg – 015JUN015.jpg	Preliminary diving operations on site
9921JUL001.jpg – 9921JUL022.jpg	Magnetometry and divers on site
9921JUL023.jpg – 9921JUL024.jpg	Diving operations on the site
9921JUL025.jpg – 9921JUL032.jpg	Prepping for excavation

9922JUL002.jpg – 9922JUL018.jpg	Excavation and diving operations on site
9922JUL033.jpg – 9922JUL052.jpg	
9923JUL001.jpg – 9923JUL007.jpg	
Ex000001.jpg – Ex000012.jpg (23JUL99)	
P0000121.jpg – P0000137.jpg (23JUL99)	
9924JUL001.jpg – 9924JUL020.jpg	
P0000138.jpg – P0000190.jpg (24JUL99)	
001.tif – 021.tif; 027.tif – 029.tif (24JUL99)	Aerial photographs of operations on site
032.tif – 035.tif (24JUL99)	
25JUL99001.tif – 25JUL99023.tif	Excavation and diving operations, and
9927JUL001.jpg – 9927JUL017.jpg	documentary film shooting (25JUL99)

Field Investigation: a local informant and amateur nautical archaeologist, Harry Andrews, initially brought this site to the attention of the field survey team. Mr. Andrews, the proprietor of a local marina and hotel, The Moorings, in Carrabelle, proved very helpful to the survey crew. He spends much of his free time searching the local area for ballast piles and shipwreck remains, using as his primary tool a personally-owned side scan sonar. Mr. Andrews had discovered and dived upon this ballast pile.

With Mr. Andrew's assistance the site was re-located using the FSU side scan sonar on 10 June 1999. Upon initial investigations, divers reported a low-relief pile of rocks measuring about 6 by 8 meters. There was very little if any scattered material on the seabed outside of the actual ballast pile. A concentrated effort was made to document the ballast pile by making numerous passes with the side scan sonar. A number of images, at a variety of ranges and resolutions, were generated, such as that in Figure 29.

It is possible to interpret the site in one of three ways. The first scenario is that a sailing vessel wrecked at this location, and the pile of stones on the seafloor represents the exposed remains of this shipwreck. If this were the case, then it would be unlikely for any but the most durable of cargo-related artifacts to remain, but highly likely that the lowermost hull timbers along with artifactual debris present in the bilge would have survived. Another possible scenario is that a merchant vessel, possibly a 19th century lumber ship, anchored in this spot in order to offload its ballast before taking on a heavy cargo. A final possible explanation was that a sailing ship catastrophically grounded at this location and was temporarily stranded. This ship subsequently freed itself by jettisoning all or part of its perishable cargo and ballast stones. In this case, there would certainly be no hull remains present, though it would be possible that trash debris and other artifacts that had made their way to the bilge would still be present on the site. Additionally, heavy and durable objects, such as cannon, might have been dumped and could still remain buried in the surrounding sediment.

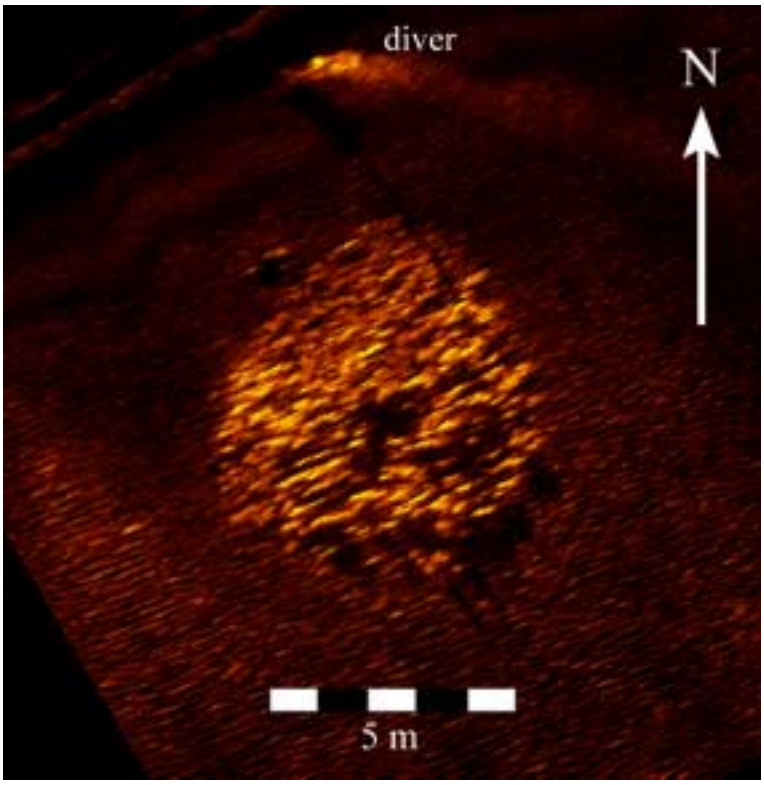

Figure 29. Image of Harry's Ballast Pile generated by the side scan sonar, before excavation. A scuba diver can be seen north of the ballast pile. From sonar file 10jun015.

In order to test the first of these hypotheses, it was necessary to partially excavate the site. Before disturbing the site, however, the exposed ballast pile was thoroughly recorded. Two rebar datums (designated A and B) were sunk at opposite ends of the pile. In order to generate a plan view of the site (Figure 30), two baselines (running north-south) were deployed on either side of the pile, and offsets were measured inwards. The ballast pile's longitudinal axis is oriented at roughly 344°, and it measures 7.62 m along this central axis. The pile is egg-shaped, with its widest point (5.24 m) being somewhat off-center on its southern end. In addition to a plan view, a longitudinal section was recorded. The pile displays very low relief, rising no more than 37 cm from the seafloor. The largest of the rocks, which were located on the surface of the pile, typically were no larger than about 50 cm wide.

It was decided to excavate a 1 m by 2 m unit in the approximate center of the ballast pile to determine if any hull remains existed beneath it. A simple PVC grid was anchored into place, and was used as a guide and mapping reference by the excavators. The grid was positioned so that its north-south axis was at an angle of 340°. Any artifacts uncovered were mapped using the grid and then collected. After excavation began, it was decided to extend the unit to the east for an additional 1.7 m, in order to complete a trench that almost bisected the entire ballast pile. Both the initial unit, and the subsequent unit extension, are denoted and labeled on the site plan in Figure 30.

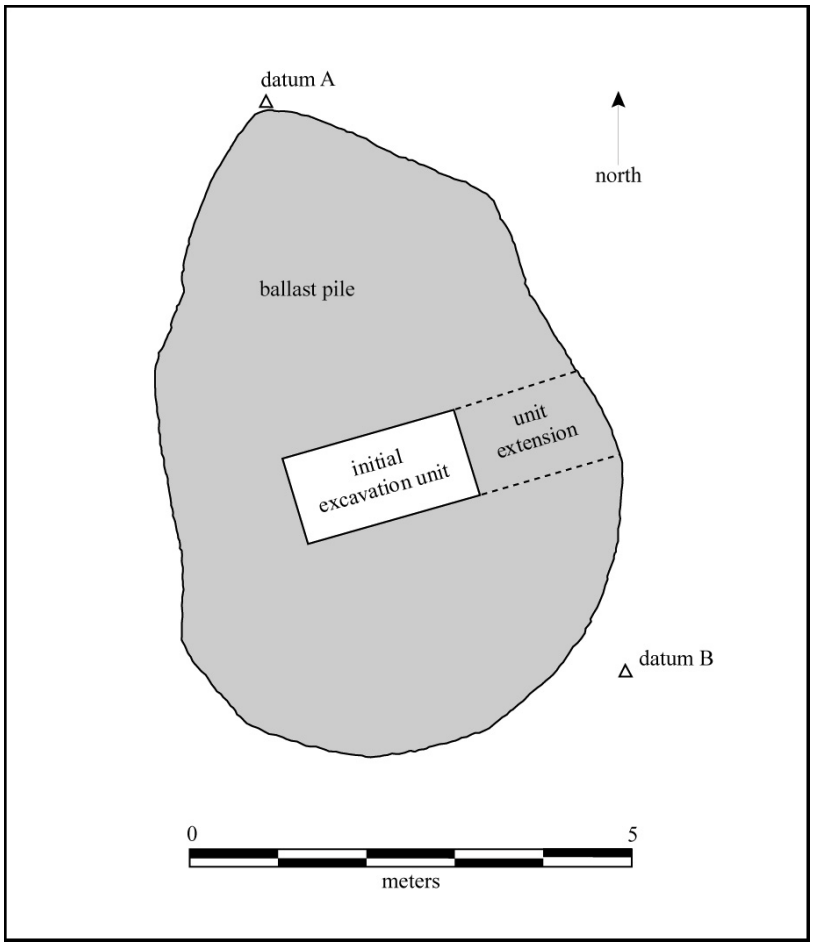

Figure 30. Site plan of Harry's Ballast Pile, 8FR890.

Divers removed the larger stones by hand, and used a 6" induction dredge to remove small stones and sediment. Due to diver safety a certain number of rocks had to be moved back from outside the unit in order to prevent wall collapse. Stones from within the unit were deposited at a position convenient for eventual backfilling. All of the sediment dredged was filtered through a ¼" screen, which was positioned on the seafloor and monitored by divers. The layout of this system can be seen in Figure 31, which is a side scan sonar image of the site produced after the excavation was completed, but before backfilling.

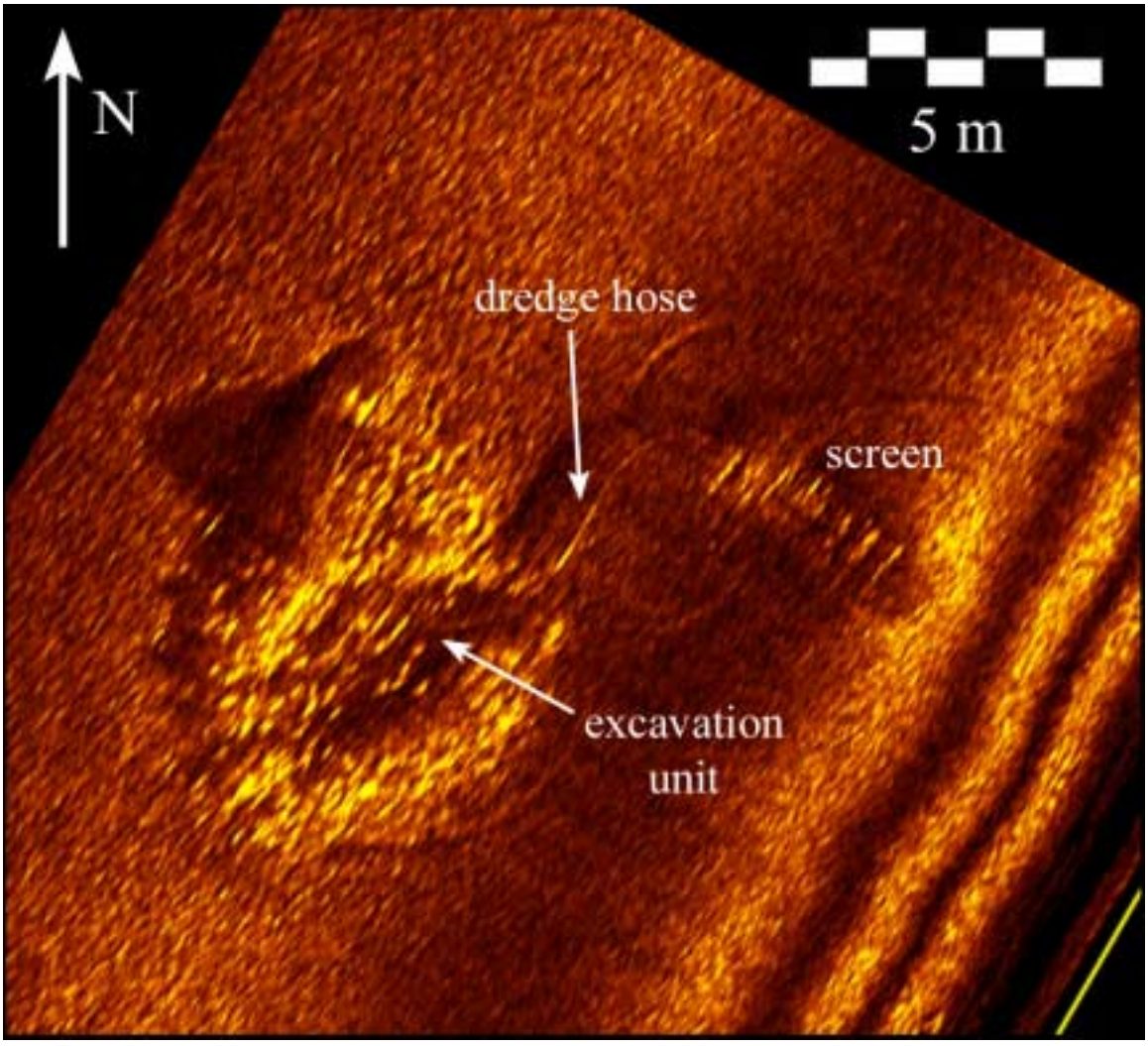

Figure 31. Post-excavation sonar image of Harry's Ballast Pile. The excavation trench can be seen bisecting the pile. The spoil screen anchored in place on the seafloor and the couple-jet dredge hoses can be seen in this image (sonar file 27jul020.mst).

After excavating approximately one meter below the grid the larger ballast rocks became sparse being replaced by smaller stones and pebbles. At a depth of between –1.5 and –1.7 m below datum, the rocks disappeared. No hull remains or historic artifacts were observed.

The lack of hull remains, historic artifacts, and iron objects in the vicinity of the site effectively rules out the first hypothesis of a possible shipwreck site. Thus the remaining two scenarios must be considered. The second possible scenario was that a merchant ship anchored at this location for the purpose of offloading ballast. This was the typical practice in the 19th century for ships taking on cargoes of lumber at Dog Island. These ships, however, usually dumped at Ballast Cove or elsewhere in the sheltered waters. With the capacity for sudden storms in the area, it would be needlessly hazardous to conduct this time-consuming maneuver offshore when protected bays are located so close by. Regardless of safety issues, an anchored vessel, unless in zero wind conditions would swing on its anchor line and create a different dispersal pattern of dumped ballast rocks. Alternatively, dumping rocks from a stationary platform, such as a stranded vessel, could make an intact pile of rocks such as this one. Thus the most likely

explanation for Harry's Ballast Pile is the third scenario, in which a relatively deep drafted vessel ran aground at this location, in no more than 12 feet of water (likely less, if a sand bar was present). In this situation, the crew would normally discard cargo, equipment, armament, and/or ballast in order to lighten and free the ship. This best explains the origins of a discrete pile of rocks located on the outside of the island, with no hull remains beneath. The fact that there are no cannons suggests that this vessel could have dated to the 19th century, when shipping was not only most active in the region but vessels generally went unarmed.

Artifacts Recovered: Other than a sample of ballast stones, only two man-made objects were observed and collected during the excavation of the ballast pile. Both were collected from the original 2 m by 1 m excavation unit, and provenience was recorded using this grid (so that grid north was at an actual angle of 340°, and grid east at 70°). FS 1 is a fragment of clear, seemingly modern glass, collected from 120 cm grid east, 80 cm grid north, at a depth of 34 cm from the (ballast pile's) surface. FS 2 is a whole brick, collected from within the grid at 100 cm grid east, 50 cm grid north, at a depth of 1 meter below surface. It measured 19.5 cm x 5.5 cm x 9.2 cm. FS 3 consisted of a sample of ballast rocks, 13 in number, all collected from within the excavation unit. Figure 32 illustrates nine of these stones from FS 3.

Figure 32. Selected ballast stones from Harry's Ballast Pile, 8FR890 (FS 3). Photo taken by James McClean.

Impact: Site is known to relatively few other than its original discoverer (Mr. Andrews). As it consists of ballast stones only, it would probably not be of particular interest to looters. It is subject to potentially high-energy waters being located on the Gulf side of the island, however, its low relief and substantial nature seem to preclude it from damage other than the most severe of storm activities.

Recommendation: This site was investigated, mapped, and partially excavated. It is believed that further excavation would not generate significant new information, however, the site should be subject to periodic monitoring.

Tile Ballast Scatter (8FR891)

Type: Large area of scattered ballast stones, ceramic tiles, and other historic (19th century) artifacts. The site may represent a ballast dump, though the high frequency of non-ballast artifacts (ceramics and tile fragments) and a promising magnetic anomaly (98.5 gammas) suggest that it may instead be the site of a shipwreck.
Physiography: Located in Ballast Cove, in the vicinity of the Tank Ballast Site. Positioned approximately 142 meters from the Tank Ballast Site, and 186 meters from Bubba's Ballast Scatter.
Depth: 2.75 to 3.65 m (9 to 12 feet)
Approximate Area: 15 m by 15 m (estimated; possibly much larger)
Substrate: Sandy mud
Time Period: Probable 19th century
Cultural Affinity: Possible American or European
Discovery Method: Magnetometer and side scan sonar survey
Condition: Poor to Fair (broken tiles and ballast stones scattered on sediment surface; buried portions of site may be in better condition)
Significance: Moderate, and potentially high (if submerged hull remains are found).
Sonar Image Files: 15jul131.mst Heading: 330° L channel 50 m scale

Field Investigation: This is one of many submerged ballast features located in Ballast Cove (Figure 33). The site, named the Tile Ballast Scatter, or the "Tile Pile," was initially discovered on 15 July 1999 during a combined magnetometer and side scan sonar survey. Designated Ballast Cove Anomaly 2c, the magnetic signature produced was a dipole wave measuring as high as 98.5 gammas and 26 seconds in duration (see the graphic representation on the right side of Figure 34). The sonar image showed a discrete area of scattered debris, presumably ballast stones, as seen in Figure 34. Other piles of probable ballast could also be seen in the image, one (possibly associated with the Tile Ballast Scatter) only 15 meters to the west, with two others about 25 meters to the south and east. The exact nature of the relationship between these various features, which can also be viewed in Figure 34, remains unclear at this time.

On 29 July 1999 divers investigated the site. It was soon realized that this site differed in nature from many of the other ballast sites investigated, such as Bubba's Ballast Scatter (described below). This site was characterized not only by scattered ballast, but a massive amount of broken tiles, along with some bricks, slate and flat (dressed?) stone fragments, and ceramic sherds.

This investigation was limited by very poor visibility (effectively zero). Only one diving day was spent on the site, in which an informal survey was conducted. Divers searched the area in order to get an idea of the extent and nature of the site, and a sample of tile fragments and other artifacts were collected. Indeed, the high frequency of ceramic tiles suggests a cargo rather than random fragments present in a ballast dump. This, along with the magnetic anomaly (which has not yet been located), suggests that the Tile Ballast Scatter may represent the remains of a shipwreck. On the other hand, the possibility exists, due to the high frequency of construction materials present, that this site may be the remains of a historic terrestrial structure blown into the cove during a past storm. In any case this site was considered significant enough to warrant listing in the Florida Master Site Files. Further fieldwork could better elucidate the nature of this likely 19th century site.

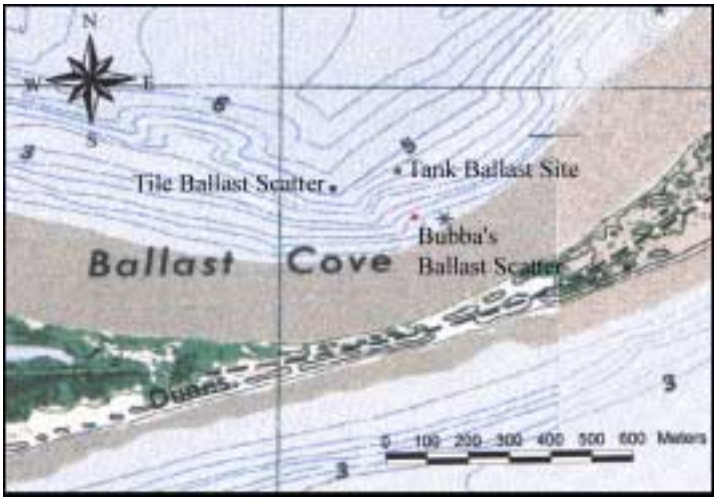

Figure 33. Locational map for the three submerged ballast sites. Depth is in meters, and "*" denotes rock obstructions (i.e., ballast dumps) (USGS Quadrangle: Carrabelle, FL and Dog Island, FL).

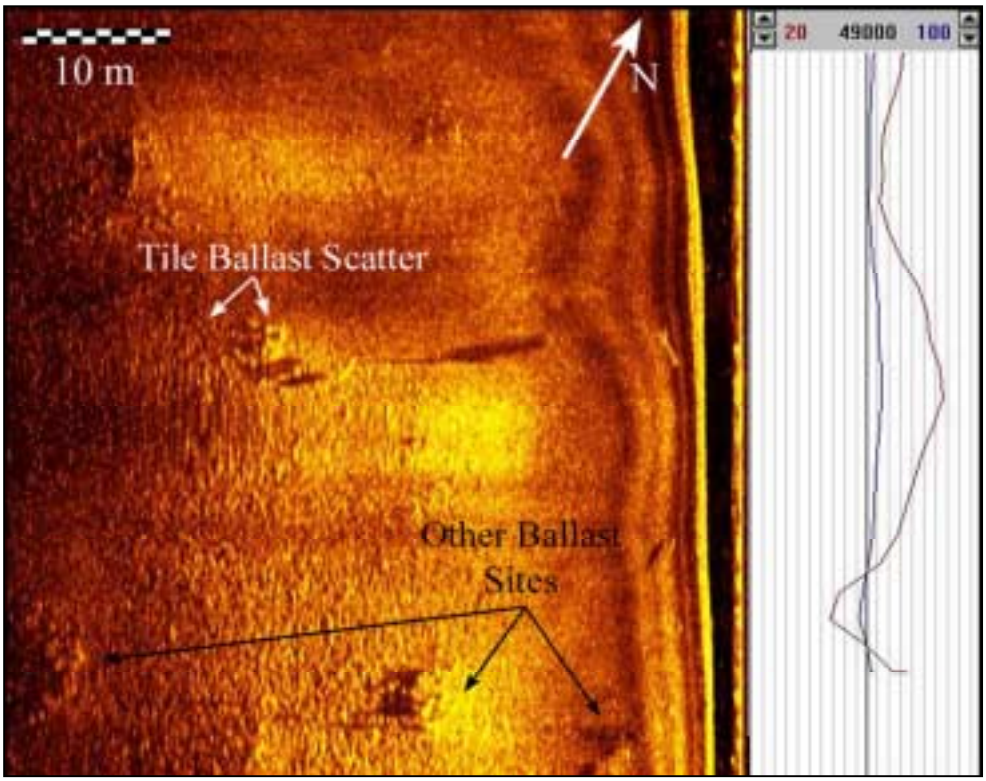

Figure 34. Sonar image and associated magnetic signature of the Tile Ballast Scatter (8FR891). Several adjacent ballast dumps are also visible. (15jul131.mst)

Artifacts Recovered: A total of 17 individual artifacts were collected. These (along with all other artifacts collected during the 1999 field season) were cleaned and placed in fresh water storage in the field laboratory, and subsequently transported to the George R. Fischer Conservation Laboratory located on FSU campus, Tallahassee. All of the artifacts save one (FS 3) seem to be associated with building construction materials. While this could be from some shipboard structure, such as the galley stove, it seems more likely that they represent cargo remains. The tiles are generally red in color. Most are flat and relatively thin, while others are thicker, and some are corrugated. Figures 35 and 36 illustrate the range of tiles recovered from the site. FS 03 is the base or foot of a ceramic (possibly porcelain) vessel or other object (Figure 37). It is not known if this is a fragment of some fixture, or a container. The foot or base is about 13.3 cm across at its widest point (at the bottom) and it narrows to about 10.4 cm across at the neck. The base is hollow, and relatively thick walled (ranging from 1.3 cm to 3.1 cm in thickness). The function of this piece remains unknown. In addition to the tiles and ceramic fragment, a brick (FS 01) and brick fragment (FS 02) were recovered, along with a piece of stone (FS 07), apparently dressed or shaped for use as a flagstone or other such architectural feature.

Figure 35. Three out of the nine thin tile fragments collected as Field Specimen 04. Photo taken by James McClean.

Figure 36. Thick, corrugated tile fragments recovered from 8FR891 (FS 05). Photo taken by James McClean.

Figure 37. The base or foot of a ceramic (possible porcelain) vessel or other object. Field Specimen 03, Tile Ballast Scatter, 8FR891. Photo taken by James McClean.

Impact: Bay waters are generally calm, so erosion is minimal, however, site integrity could be affected by severe storm action. The potential of looting always remains possible.

Recommendation: Further diving operations could help determine the nature, extent, and historical parameters of the site. The source of the magnetic anomaly should also be identified through metal detecting and test excavation. This site could be of archaeological significance if it is that of an historic shipwreck.

Lanark LCM Wreck (8FR892)

Type: Sunken shipwreck
Physiography: Situated northeast of Dog Island, adjacent to Lanark Shoal (1.8 km due south of the mainland near Lanark). The broken hull is exposed on the seafloor, and is just awash at very low tides.
Depth: 2.75 m (9 feet)
Approximate Area: 15 m by 15 m
Substrate: Mud
Time Period: 1940s (World War II)
Cultural Affinity: American
Discovery Method: Side scan sonar and magnetometer survey in conjunction with local informant, Philip Fountain.
Condition: Fair to Good
Significance: High
Sonar Image Files:
31jul005 through31jul010.mst

Field Investigation: a local informant, Philip Fountain, provided information on the location and nature of the sunken watercraft. It is believed by locals to be a LCM (Landing Craft, Mechanized) lost during World War II when the island was part of Camp Gordon Johnston.

The survey crew sought out the site in the final days of the project. Using the side scan sonar, magnetometer, and information from Mr. Fountain. The substantial metal hull was soon located on 31 July 1999. In addition to being seen in the sonar image of the seafloor, the wrecked hull generated a magnetic anomaly of 771 gammas (Figure 38). The survey team briefly investigated the site due to poor visibility (less than a meter). The hull of the alleged LCM is situated in about 2.75 to 3 meters of water and is partially broken into three large segments (this also can be seen in the sonar image). The overall length of the broken hull is about 16.6 m (54' 6") in length and 4.26 m (14') wide. The main deck rises between 1 m (3' 5") and 1.27 m (4' 2") from the seafloor, while the "A-frame" (as the divers described it) or landing ramp at the bow rises 2 m (6' 9") from the bottom. Interior frames were spaced 2' 6" (0.762 m) apart.

Artifacts Collected: None.

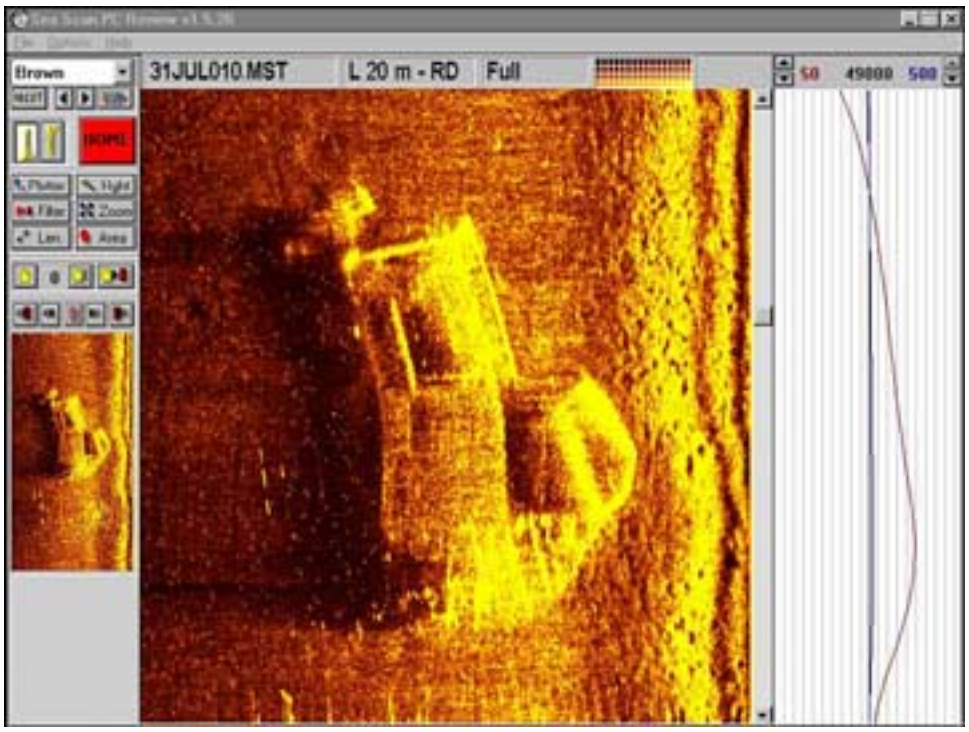

Figure 38. Screen capture from the combined side scan sonar and magnetometer output of the Lanark LCM site. Magnetometer readout is the linear graph on the right side (scale in gammas). Image (file 31jul010.mst).

Historical Context: In 1942 almost half of Franklin County, including the barrier islands, was taken over and incorporated into U.S. Army Camp Gordon Johnston for the duration of World War II (Coles 1994; Gask 1943; Huntsman 1992). The Army Air Corps used the islands as target practice, and also as training sites for mock amphibious assaults by the Army, Navy, and Coast Guard. Indeed, Dog Island, lauded by General Omar Bradley in his narrative *A Soldier's Story*, played a vital role in the preparation for D-Day and the ensuing conquest of Nazi Europe (Bradley 1951).

At that time Dog Island's shores were lined with concrete gun emplacements and other defensive barriers in order to simulate Nazi shorelines. Live ammunition was used during assaults, but the only casualties that occurred during these exercises were mishaps at sea. One of these tragedies was a wreck that occurred during a severe storm in early March 1943 when a vessel ran aground on a sandbar during a night landing exercise, drowning 14 (Coles 1994: 14; Huntsman 1992; *Amphibian* 1943; *Apalachicola Times* 1943). It is not known if this wrecked vessel, with its loss of life, is the same as the apparent LCM discovered by the 1999 survey team. The same storm saw the loss of many other landing craft, and the Lanark LCM wreck could be any one of these. Further archaeological and also historical research may provide an answer.

The LCM, or Landing Craft, Mechanized, was one of many classes of amphibious assault vessels used by the U.S. military forces during World War II (cf. Ladd 1976; Jane's 1985; Clancey 1999a; Clancey 1999b). Additionally, there were several types of LCM, distinguished by numbers (e.g., Mark I, Mark II, or simply 1, 2, 3, etc.). Selected characteristics of some of these different LCM classes, compared with those available from the archaeological survey of the Lanark LCM wreck, are listed in Table 15.

Table 15. Selected characteristics of various LCM classes, compared with the Lanark LCM wreck (8FR892)

Type of LCM	**LCM (2)**	**LCM (3)**	**LCM (4)**	**LCM (6)**	**Lanark LCM**
Length	45' 0"	50' 0"	56' 0"	56' 2"	~ 54' 6"
Beam	14' 1"			14' 0"	~ 14'
Draft	13'			3' 9"	> 4' 2"
Displacement	29 tons	23 tons	23 tons	60 to 62 tons	
No. built	147	8,631	2,718		
Speed	8.5 knots			9 knots	
Armament	2 x 50cal mg	2 x 50cal mg			
Compliment and capacity	4 crew and 100 troops, or one 13.5 ton tank, or 15 tons cargo	4 crew		4 crew and 80 troops, or one tank, or 34 tons of cargo	
Source	Clancey 1999b	Clancey 1999a	Clancey 1999a	Jane's 1985:709	

The "M" in LCM stood for "mechanized," which meant that this type of landing craft could carry vehicles up to and including a single 30-ton tank. Their wheelhouses were armored so that a .30 caliber bullet would be stopped, and their capacious fuel tanks not only allowed them to cruise almost 1300 km (800 miles) when unloaded, but also made them extremely buoyant if damaged. They were typically armed with two .50 caliber machine guns. Usually manned by a crew of 4, the LCM was an extremely adaptable watercraft, and was used for ferrying troops and equipment, for resupply, and for medical evacuation.

One feature that all LCMs shared was a landing ramp, which was upright while underway, and could be lowered when beached for troop or vehicle deployment. They had a fairly simple design; the craft was oblong, rectangular, and square-ended. The wheelhouse was in the aftermost area, landing ramp in the bow, and most of the area in between was reserved for cargo or troops. The LCM in Figure 39 is unknown, however the hull design (plan and longitudinal views) in Figure 40 is type 6. This particular type of LCM was of welded steel construction, and its engines were 450 bhp diesels, 2 shafts, capable of 9 knots.

If the local legends conveyed by informant Philip Fountain are correct, then the shipwreck on Lanark Shoal is indeed a LCM associated with the WWII military activities of Camp Gordon Johnston on Dog Island, and probably sank during the March 1943 storm. The archaeological evidence gathered thus far seems to corroborate this supposition. The sunken vessel, though broken up, appears to have been an oblong, square-ended watercraft of exactly the same width and an estimated length of within two feet of typical LCMs. Further archaeological investigation and historical research has the potential to identify this particular vessel, its specific role in the Camp Gordon Johnston activities, and the details of its loss or abandonment.

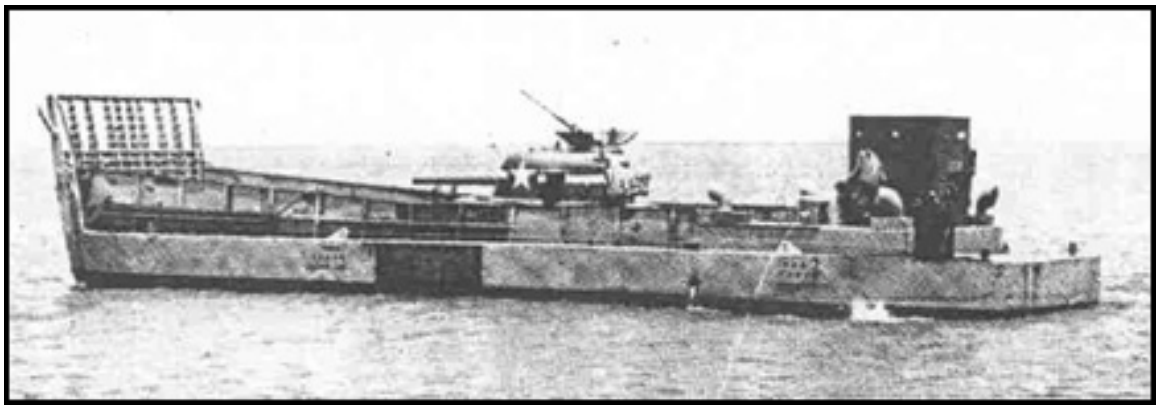

Figure 39. LCM, type unknown, loaded with a single tank. Landing ramp is visible in the upright position at the forward end of the vessel (Photograph courtesy of Richard Fox).

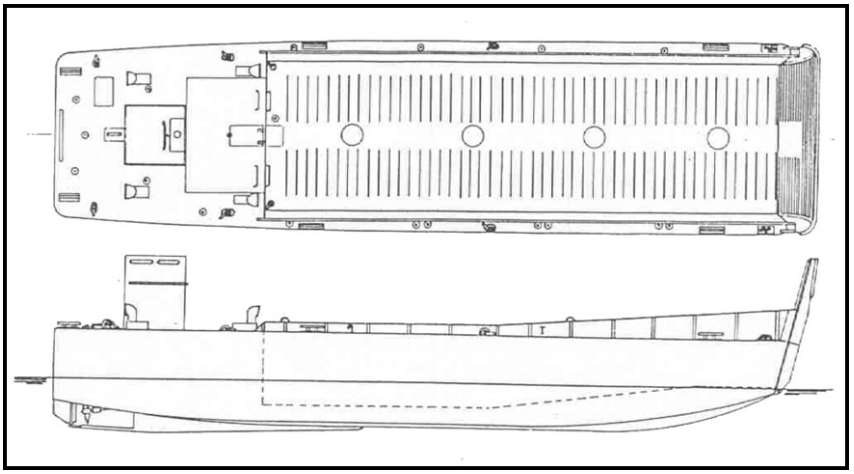

Figure 40. Hull plan, longitudinal and plan views, of an LCM (6) (Diagram courtesy of Richard Fox).

Impact: The site is known to local anglers, but probably not in serious danger of looting. The hull would be subject to damage from foul weather, though the bay waters are generally calm. The fact that the hull is sometimes exposed during low tides may put it into danger of impact from recreational watercraft.

Recommendation: There has been a recent rise of interest in the archaeology of the Second World War, and the interest in this particular site will prove even greater given the 50th anniversary of the D-Day invasion. This site should be subject to a more thorough investigation, including the mapping of the wreck and its surrounding area, sampling of artifacts and possible test excavation, documentation through videography and photography, and complete documentation of the hull remains. The site should also be subject to a program of periodic monitoring.

Tank Ballast Site (8FR895)

Type: Extensive surface scatter of ballast stones along with historic artifacts and possible modern debris; a probable shipwreck site. May be the shipwreck described by local informant Bubba (of the Moorings, a Carrabelle marina).
Physiography: Situated in the lower center of Ballast Cove, 120 m away from Bubba's Ballast Scatter at a bearing of about 350°, approximately 142 m away from the Tile Ballast Scatter, and exactly 400 m due north of the island. See Figure 24.
Depth: 4.5 m (15 feet)
Approximate Area: 40 m by 40 m (estimated; full extent undetermined)
Substrate: Sandy mud
Time Period: Possible 19th century
Cultural Affinity: Possible American or British
Discovery Method: Side scan sonar and magnetometer survey.
Condition: Fair
Significance: Unknown without further testing; possibly high
Sonar Image Files:

15jun007.mst	Time: 13:22:40	Heading: 150°	L channel	20 m scale
15jun008.mst	Time: 13:24:24	Heading: 150°	L channel	20 m scale
15jun009.mst	Time: 13:26:40	Heading: 150°	L channel	20 m scale
15jul108.mst		Heading: 70°	Both channels	50 m scale
15jul109.mst		Heading: 70°	Both channels	50 m scale

Field Investigation: The Tank Ballast Site was discovered during the side scan sonar survey of Ballast Cove on 15 June 1999. The most prominent feature on the site was a large, 3 m by 1 m by 0.68 m metal tank or box (which gave the site its name). The preliminary sonar images of this feature (Figure 41), which was initially believed to be modern debris, indicate that there is a significant amount of ballast scattered nearby. It is possible, considering the presence of historic artifacts among the ballast, that the metal box may represent the remains of structure or hardware from a historic (possibly 19th century) shipwreck, such as a water tank.

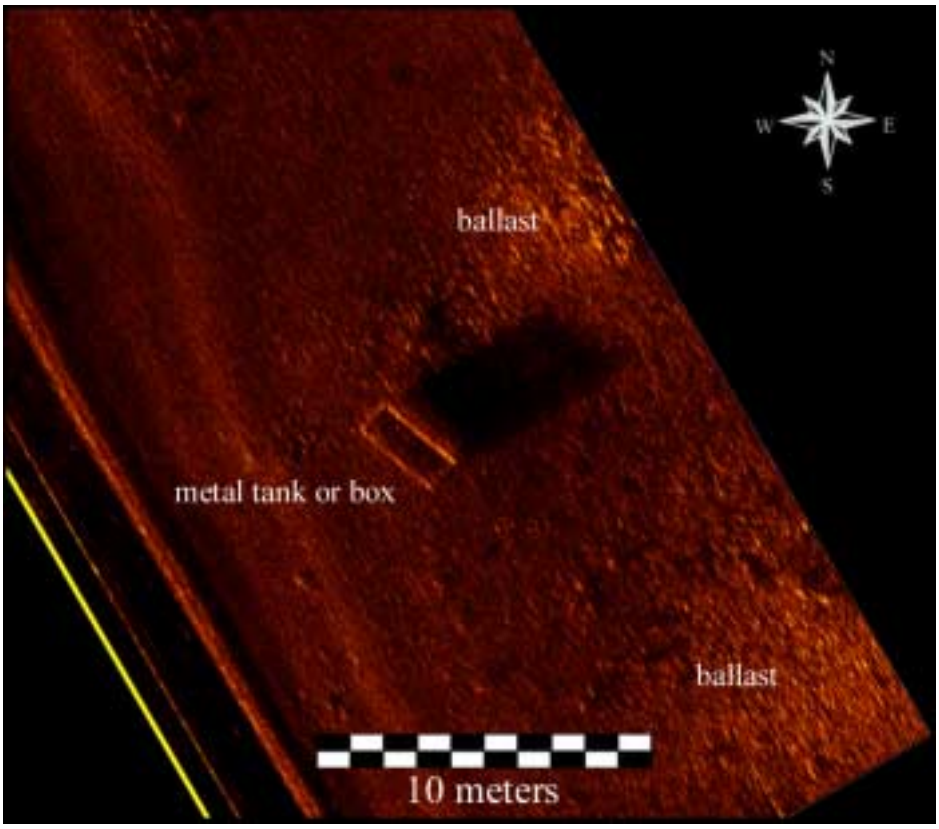

Figure 41. Sonar image of a portion of the Tank Ballast Site. The 3 m by 1 m metal box or "tank" can be seen, as can the ballast scatter extending to the northeast and southeast (sonar image 15jun008.mst).

Figure 42 is a second sonar image, covering a much larger area of the underwater landscape. The tank can clearly be seen in the center of the image, as well as the associated ballast scatter to the northeast. In addition, a large number of other ballast dumps or scatters can be seen surrounding the main area of the site. One of the first objectives was to gather a number of side scan sonar images of the site and its environs in order to better understand the nature and extent of the site.

One brief dive was conducted on the site on 15 June 1999 as part of this preliminary investigation. Two divers explored the immediate vicinity of the site, measured the dimensions of the box/tank, and collected two historic artifacts. As with other sites in Ballast Cove, visibility was a limiting factor.

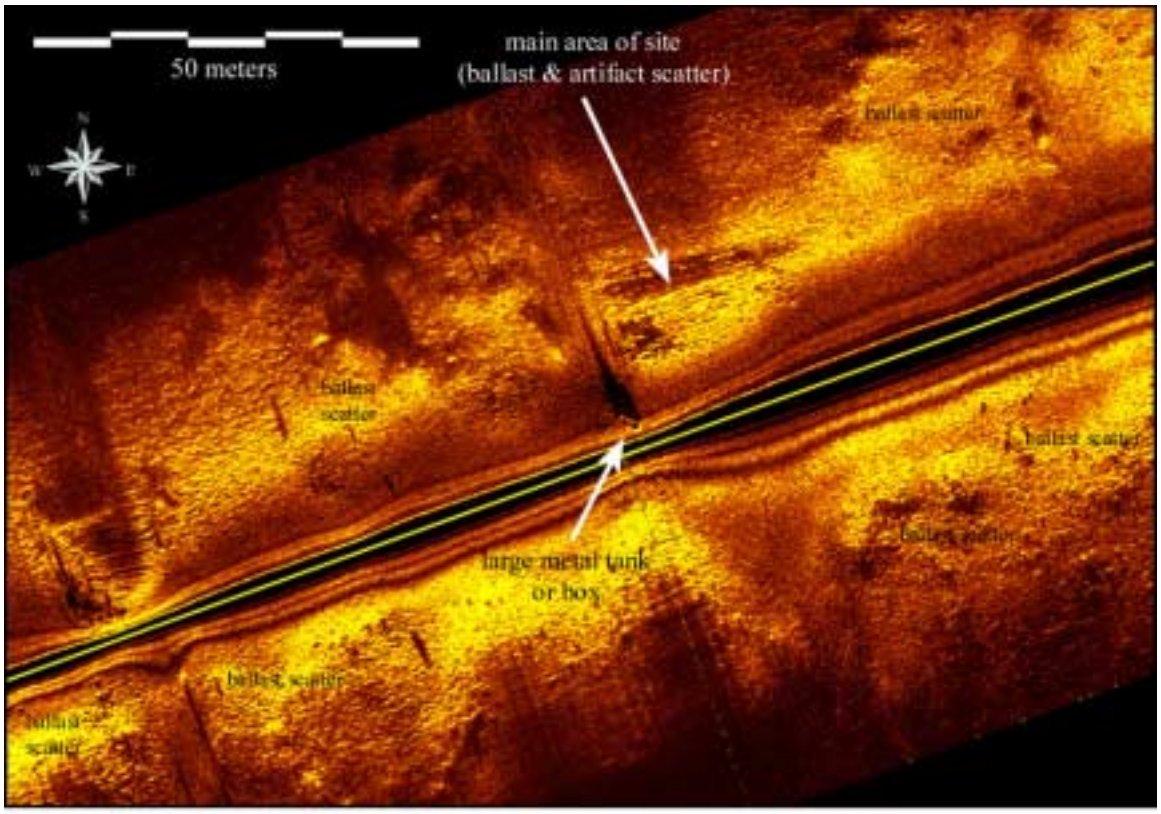

Figure 42. Sonar image of the Tank Ballast Site (8FR895) and environs. The metal 1m by 3m tank or box is visible adjacent to the primary cultural deposit. Many other areas of ballast are visible surrounding the main site. (15jul108.mst, 15jul109.mst)

Artifacts Recovered: During the 1999 summer field season, only two artifacts were recovered from this site. FS 01 is a sherd of probable 19th century stoneware (Figure 43). Most of a maker's mark is clearly visible on its surface (Figure 44). The mark consists of script inside an oval outline, surrounding a symbol and the word "LONDON." The script on the upper part of the oval reads: "G. JENNINGS" (more was on the lower part of the oval, but is now missing). The symbol, inside the oval and above the LONDON, is a mason-like symbol consisting of a pair of dividers positioned points down (inverted V) superimposed over a V-shaped object. FS 02 is a small brick fragment.

Figure 43. Exterior and interior view of FS 01, a stoneware sherd from Tank Ballast Site. Photo taken by James McClean.

Figure 44. Detail of maker's mark on FS 01. Mark reads "G. JENNINGS" and "LONDON," and depicts a mason-like symbol within an oval. Photo taken by James McClean.

Impact: Bay waters are generally calm and site appears relatively stable. Could be subject to erosion, especially during extreme storm activity. Potential for looting is always present.

Recommendation: Further fieldwork is recommended.

Bubba's Ballast Scatter

Type: Ballast scatter, possible ballast dump site or shipwreck.
Physiography: Located in the shallows of Ballast Cove, 275 m due north of shore (directly offshore the second telephone pole to the west of the solitary house). Located in vicinity of "rocks" symbol (touching the lower left end of the symbol itself) on NOAA nautical chart. Positioned 120 m away from the Tank Ballast Site, and 186 m away from the Tile Ballast Scatter. See Figure 24.
Depth: 1.5 to 2 m (4 to 6 feet)
Approximate Area: 5 m by 10 m
Substrate: Sandy mud
Time Period: possibly 19th century
Cultural Affinity: possibly American or European
Discovery Method: Local informant ("Bubba", a youth who works at The Moorings, Carrabelle) and subsequent swimmer search.
Condition: Fair to Good.
Significance: Low (?) Could be potentially moderate or even high if hull remains were located.
Sonar Image Files: (note: no GPS locational control)

15jun002.mst	Time: 13:11:42 Heading: 150°	Range: 20 m
15jun005.mst	Time: 13:16:42 Heading: 150°	Range: 20 m
15jun006.mst	Time: 13:21:12 Heading: 150°	Range: 20 m

Field Investigation: This site was discovered on 30 May 1999 following Bubba's description of the wreck site. This particular ballast scatter, limited in extent, may or may not be associated with the wooden-hulled, iron-fastened shipwreck described. A number of runs were made over this area with the magnetometer, but no significant anomalies were detected.

The site itself was a small area of scattered ballast on the surface of the sea floor (Figure 45). The ballast is roughly cut and varies in size from that of a bowling ball to that of a baby's fist. Several "test pits" were randomly excavated using hand-fanning, and more rocks were observed up to a depth of approximately 60 cm. Modern debris was uncovered, however no historical artifacts other than the ballast stones were found. The nearby "Tank Ballast Site" may actually represent the shipwreck described by Bubba.

Artifacts Recovered: Six ballast rocks were recovered for photographs and subsequently returned to the site. They were of a variety of types, including schist, quartzite, and granite.
Digital image files: 30MAY007.jpg, 30MAY008.jpg, 30MAY009.jpg, and 30MAY010.jpg.

Impact: Bay waters are usually very calm, however, some natural erosion is likely during heavy storm action.

Recommendation: This site may be that of a wooden-hulled, iron-fastened shipwreck observed by local informant Bubba, though no hull remains were found and no magnetic signature was detected. It may be worthwhile to continue to search for the shipwreck Bubba described (much of it was covered in sediment when he originally observed it years ago).

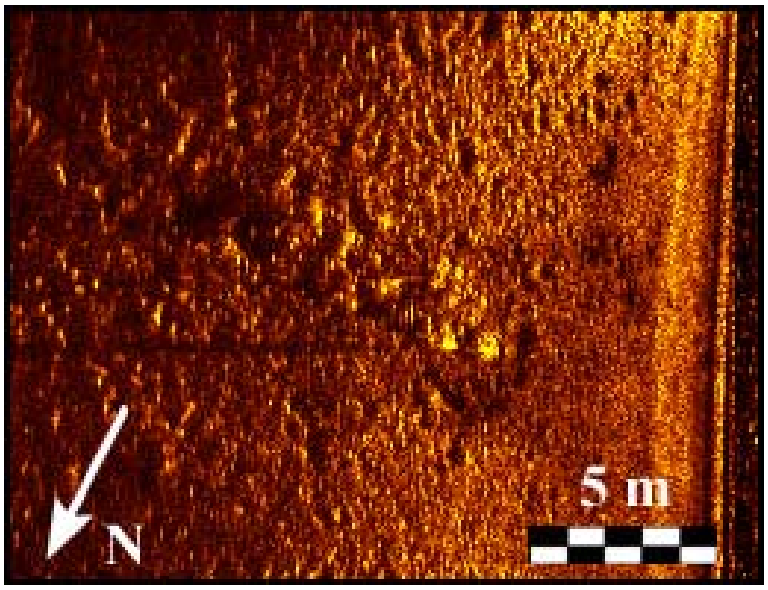

Figure 45. Sonar image of Bubba's Ballast Pile. Ballast rock scatter is visible in the center of the image. (detail from file 15jun005.mst).

Fox Point Wreck

Type: Metal-hulled shipwreck
Physiography: Located in the shallows on the inshore side of the tip of St. George Island. Situated about 650 m in from the easternmost tip of St. George, and about 2.75 km away from Marsh Island.
Depth: 1.5 m (5 feet)
Approximate Area: Full extent unknown; site is completely buried.
Substrate: Muddy sand
Time Period: Possibly modern (mid- to late 20th century)
Cultural Affinity: Unknown, possibly American
Discovery Method: Magnetometer survey
Condition: Fair to good
Significance: Potentially high if it is a mid-20th century vessel associated with military exercises as part of Camp Gordon Johnston during WWII.
Sonar Image Files: None

Field Investigation: This site was found through magnetometer survey at the eastern end of St. George Island. A significant anomaly, a complex dipole more than 50 seconds in duration and registering 295 gammas, lead researchers to excavate in this location. Metal wreckage was discovered within 30 cm of the sediment surface. Divers working in very low visibility described a large winch, possibly associated with the modern wreck of a shrimper or fishing boat. Further exploration determined that this site was indeed that of a shipwreck. Very little time (a single day) was spent investigating this anomaly, as it was only discovered in the very final days of the summer 1999 field season. Further excavation could identify the nature of this site, though it is presently believed to represent the remains of a relatively modern vessel.

Impact: Site is totally buried in the sediment, therefore it is more than likely stable and protected from much natural erosion.

Recommendation: While further test excavation could better elucidate the nature, function, and time period of the wreck, it appears to be modern and therefore no further work is recommended at this time.

Shipping Cove Shrimp Boat Wreck

Type: Modern steel-hulled shipwreck; shrimper
Physiography: Located at the northern extreme and in the western half of Shipping Cove, 770 m due north of island. Marked on NOAA nautical charts with (submerged) shipwreck symbol.
Depth: 6 m (20 feet)
Approximate Area: 30 m by 15 m
Substrate: Sandy mud
Time Period: Modern (late 20th century)
Cultural Affinity: Modern American
Discovery Method: Magnetometer survey (relocated with side scan sonar and use of NOAA nautical chart).
Condition: Fair
Significance: Low
Sonar Image Files:

15jun012.mst	Time: 15:28:20 Heading: 150°	
15jun013.mst	Time: 15:34:58 Heading: 100° (approx.)	
15jun014.mst	Time: 15:39:10 Heading: 330°	
15jun015.mst	Time: 15:42:32 Heading: 140°	
15jun016.mst	Time: 15:43:54 Heading: 330	
15jun017.mst	Time: 15:48:38 Heading: 330	Range: 20 m
15jun018.mst	Time: 15:52:24 Heading: ?	Range: 20 m

Digital Image Files:

15JUN022.jpg-030.jpg	Diving operations on shrimp boat (surface)
15JUN033.jpg-035.jpg	Divers on site of shrimp boat wreck (surface)

Field Investigation: The magnetic anomaly associated with the Shipping Cove Shrimp Boat Wreck was initially identified during the magnetometer survey conducted on 21 May 1999. The anomaly registered as a double negative monopole, lasting 5 seconds in duration and measuring 280 gammas. The anomaly, when plotted on a NOAA nautical chart in ArcView, was seen to be juxtaposed with a submerged wreck symbol, and on 15 June 1999 the survey team sought out and relocated the anomaly using side scan sonar. The actual shrimp boat wreck was within 500 feet of the GPS waypoint taken from the NOAA nautical chart.

A dive team consisting of two divers spent 24 minutes assessing the wreckage. The wreck is in very poor (almost zero) visibility, and this hampered the assessment to a certain degree. It is somewhat broken up, and characterized by sharp, jagged pieces of metal, fallen booms or spars, and tangled metallic rigging elements. Divers described what appeared to be a large winch (for hauling nets?), a massive boom with a circular fitting at one end, a large amount of snagged monofilament line, and a hard, metal “bottom” (possibly the wheelhouse or the hull itself).

Local informant Bubba (who works at the Moorings in Carrabelle) claimed he remembered when he was very young (ca. 10-15 years ago) witnessing a shrimpboat going down in the area. This claim has not been confirmed, though it could be the wreck in question.

Artifacts Recovered: One diver brought up a single animal bone, one half of a pelvis which appeared to be butchered. It was identified as a belonging to a small mammal, however due to the low level of archaeological significance it will likely be discarded rather than conserved.

Impact: Wreck may be subject to some erosion, though bay waters are generally calm. Metal of the hull and rigging is deteriorating as would be expected.

Recommendation: This site, a modern shrimp boat wreck, was not deemed old enough or of enough archaeological significance to assign a site file number. A brief (24 minute) assessment by two divers was enough to determine the function, condition, and approximate age of the wreck. Further work on the site is not recommended.

Dog Island Reef Anomaly

Type: Magnetic anomaly; probable modern debris
Physiography: Located on Dog Island Reef, 5.76 km due east of Dog Island, and 11.35 km from the FSU Marine Laboratory boat basin. Situated on a sandy bottom, away from any limestone outcroppings or other "reef" features.
Depth: 4.9 m (16 feet)
Approximate Area: 20 m by 10 m
Substrate: Sand
Time Period: Possibly 20th century
Cultural Affinity: Possibly American
Discovery Method: Magnetometer survey
Condition: Poor
Significance: Low

Field Investigation: Dog Island Reef Anomaly # 1 was located during magnetometer survey of Dog Island Reef on 19 July 1999. Two adjacent anomalies, one a positive monopole measuring 37 gammas over 8 seconds and the second a dipole registering 4 gammas over 6 seconds, were detected in this immediate area. The larger anomaly was re-located, marked, and on 27 and 28 July, divers investigated the site. After re-locating the marker on the seafloor, divers set up a 20 m by 10 m grid on the bottom, with the anomaly marker located in the center of this area. Divers employed a submersible metal detector to systematically survey this area. At the same time, a 2 m by 1 m test unit was excavated directly over the spot marked as the source of the anomaly.

The initial test unit unearthed no cultural material. The unit was excavated to a depth of about a meter. In addition, the dredge hose was used to "probe" a core an additional 1.5 to 2 meters below that depth, however nothing was found.

Divers surveying the area with the metal detector identified one strong "hit." A second 2 m by 1 m test unit was excavated in this area, uncovering a large metal artifact. It is likely that this object was the source of the anomaly, however the exact nature of this object remains unknown. It is iron, about 1.1 m in length, 34 cm in diameter, and cylindrical in shape. The inside of the rather thin-walled object is coated with a layer of pinkish rubber. One end is open, and the entire object is split (by deterioration probably along a construction seam) for almost its entire length

along one side. The closed end is rounded, reminiscent of a modern scuba cylinder without a valve. In the center of the closed end is a small (2.6 cm in diameter) circular plug or disk made of an opaque glass or plastic. The object was recorded *in situ*, and left in place. The function of this unique object is unknown.

Due to mechanical problems, the metal detector survey could not be completed. However, much of the 10 m by 20 m area was searched. No other metal artifacts were detected in the area.

Artifacts Recovered: The artifact discovered was not recovered. However, three small fragments of the inner rubber coating were taken as a sample (designated Field Specimen 1 for this anomaly). They are currently being stored in the George R. Fischer Laboratory at Florida State University's Anthropology Department.

Impact: Minimal impact; potential for disturbance through storm action.

Recommendation: The site does not appear to be historic in nature. No further fieldwork is recommended. Laboratory testing of the rubber samples taken, if identified as natural or synthetic, may confirm the modern nature of the site.

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

Reassessment Of Previously Known Archaeological Sites

Chuck Meide
Fasteners written by Edward Wiser

The East Pass Shipwreck (8FR799)

Sometime between the latter half of the 18th century and the mid-19th century, it is possible that a sailing vessel was lost somewhere in East Pass, about mid-way between St. George and Dog Islands. Some two centuries later, local shrimpers accidentally discovered this site. A Mrs. Miller of Miller Seafoods in Eastpoint, Florida reported this possible shipwreck site to the state after her two sons, who had been shrimping in East Pass, snagged their nets on something below. Freeing them, the brothers noticed they had dragged up two ceramic tiles. The tiles, photographs of which are on file at the Florida BAR (negatives 84 N06-13-ARS) were subsequently identified as possibly French, dating to the late 18th or early 19th century (James Dunbar, personal communication, April 1999).

Though the shrimpers had told state archaeologists they would take them to the location of the site, they changed their mind, declining to do so. State archaeologist Danny Clayton completed a site file form for the East Pass Wreck, designating it as site 8FR799. Although archaeologists have never physically observed this site, it is possible that the remains of an historic shipwreck lie somewhere in the general vicinity (cited as 29° xx' xx"N, 84° xx' xx"W in the site files) identified by the Miller brothers.

One of the objectives of the 1999 Dog Island Shipwreck Survey was to locate and investigate this possible site. Subsequently, much of the area between St. George and Dog Islands was surveyed with both magnetometer and side scan sonar. The magnetometer survey covered about half of the entire East Pass, including most if not all of the area designated by the Florida Master Site Files as the "general vicinity" for site 8FR799. Unfortunately, no significant magnetic anomalies were registered in this area.

In addition to the magnetometer survey, a separate survey for the East Pass Wreck using the side scan sonar was conducted. A block of the seafloor, measuring roughly 1.5 km by 1.9 km, was chosen and designated the Tile1 survey area (named after the 18th century tiles found on the site). This survey area, pictured in Figure 46, included the entire area defined as the site's general vicinity. Its four corners were arbitrarily chosen as waypoints, and their coordinates are listed in Table 16. This survey area, which covered almost 2.85 km², was completed in two days. Due to technical problems, there was no integrated DGPS data in the sonar files, though positional control for the survey vessel was provided by a hand-held GPS system. Regardless, the images produced by the side scan sonar did not produce any anomalous features.

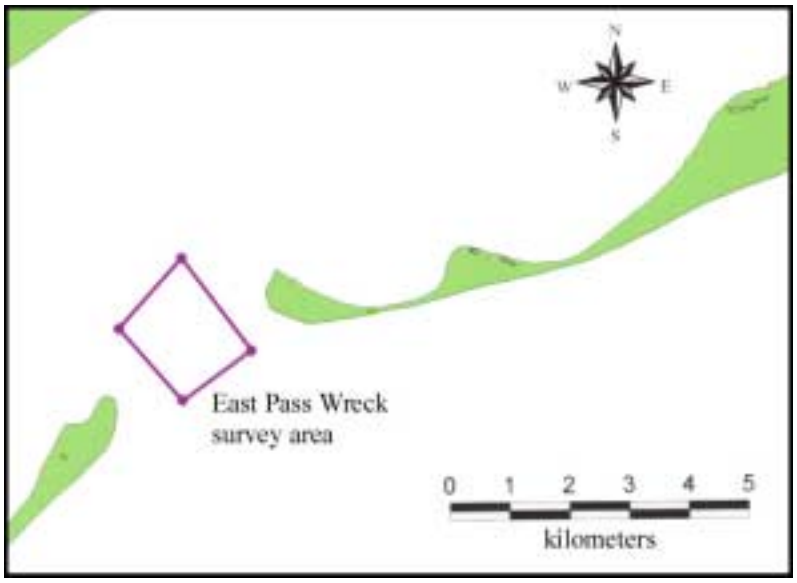

Figure 46. Area surveyed with side scan sonar in order to re-locate the possible East Pass Shipwreck site (8FR799).

Table 16. Location of the East Pass Wreck side scan sonar survey area.

Waypoint Designation (East Pass Wreck sonar survey)	**Longitude/Latitude**	**Longitude/Latitude (decimal degree)**
N corner of Tile1 survey area (wyp 1)	84° xx.xxx’	-84.xxxxxxx
	29° xx.xxx’	29.xxxxxxx
E corner of Tile1 survey area (wyp 2)	84° xx.xxx’	-84.xxxxxxx
	29° xx.xxx’	29.xxxxxxx
S corner of Tile1 survey area (wyp 3)	84° xx.xxx’	-84.xxx
	29° xx.xxx’	29.xxx
W corner of Tile1 survey area (wyp 6)	84° xx.xxx’	-84.xxxxxxx
	29° xx.xxx’	29.xxx

Recommendations and Conclusions

Despite the efforts of several days of survey, the remains of the possible East Point Wreck (8FR799) was not located by researchers during the 1999 Dog Island Shipwreck Survey. This suggests that, if indeed there is a shipwreck in the vicinity, its remains are now buried under sediment and contain little or no ferrous material. Another explanation is that the site is not of a shipwreck at all, but instead an area where part or all of a historic cargo of ceramic tiles was accidentally or purposely jettisoned from a vessel. Though cargoes were typically discarded in times of emergency to lighten ships, this may be an unlikely explanation considering there was enough relief to cause a snag on shrimp nets.

Regardless of its nature, this site still remains unseen by professional archaeologists. It should be pointed out that even if this site does not constitute a shipwreck, it still represents a historic debris scatter and certainly is still a valid archaeological site. It should be relocated and assessed in the future to determine its exact nature and significance. Unfortunately, it is unlikely that further

remote sensing will produce positive results, at least if it were conducted in the same search area. One avenue of inquiry that may prove successful would be to contact the original discoverers of the site, to see if they could re-locate the site themselves, or confirm the location currently listed in the Florida Master Site Files. Further geophysical survey outside of the defined search areas may also prove useful, if indeed the general vicinity of the site as listed in the Site Files is incorrect.

Dog Island Wreck # 1, the alleged *Priscilla* (8FR813)

Local residents have long known of the existence of a wooden–hulled shipwreck beached on the Gulf shore of Dog Island, opposite Shipping Cove. Some had speculated that this vessel might be an old Spanish ship, leading them to (incorrectly) propose that the origin of Carrabelle's name was derived from the early Spanish vessel type "caravel" (Roger Smith, personal communication, April 1999). Upon cursory inspection, however, archaeologists soon realized that the hull remains represented a much later vessel, probably dating to around the turn of the century.

Archaeologists first visited the wreck on 30 June 1987. An informant named Ernest (an employee of the FSU Marine Laboratory) who used to play among the hull timbers as a child, brought this site to the archaeologists' attention. A team of Tallahassee archaeologists, including Richard Haiduven, KC Smith, David Muncher, and Joseph and Alexandria Nolin, spent six hours on this wreck site, documenting the nature, condition and characteristics of its hull remains. The wreckage appeared to be that of a wooden-hulled, iron-fastened sailing vessel, probably schooner-rigged, dating to around the turn of the century. They reported this site to the Florida Master Site Files as Dog Island Shipwreck # 1, where it was given the site number 8FR813.

The archaeologists believed that the shipwreck was the remains of the late 19th century fishing smack *Priscilla*, which wrecked in 1914. This identification was based in part on a letter written by maritime historian David Baumer (Baumer no date; included in this report as Appendix I). Baumer discovered an entry for the *Priscilla* in the 1900 *Merchant Vessels of the United States*, which listed her as a 48 ton schooner built in 1893 in East Booth Bay, Maine, whose homeport was Pensacola, Florida. *Priscilla* was owned by the E.E. Saunders & Company in 1911. Baumer could not find *Priscilla* listed in the *1917 Gloucester Master Mariner's Association List of Vessels*, which led him to assume that she wrecked sometime before 1917. Singer (1992: 40), in his *Shipwrecks of Florida*, states that on 24 September 1914 *Priscilla* was stranded on "Carrabelle Bar," which may or may not be a reference to Dog Island Shipwreck # 1's final resting place outside Dog Island.

After the initial archaeological assessment, Richard Haiduven returned to the island on a later date in order to record the hull in greater detail. Despite his effort, no formal report on this work was ever produced (Roger C. Smith, personal communication, June 1999). This site was next visited on 1-4 September 1995 by a team of University of South Florida archaeologists lead by Dr. Nancy White (White et al 1995: 26-27). Operations included photographing it and observing its current condition.

In 1999, the Dog Island Shipwreck Survey crew visited the site first in April and then periodically during May, June, and July. Archaeologists spent the equivalent of several days observing the site, noting its current condition, documenting it via side scan sonar, and recording an outboard longitudinal profile of the forward area of the hull. A single artifact, a plank with fasteners which had become disarticulated and washed ashore, was recovered for analysis. The following section

discusses the physical and cultural aspects of this shipwreck, summarizing the 1999 work and its results.

Location, Physical Attributes, and Condition of the Site

Dog Island Shipwreck # 1 is located on the west side of the island, on the Gulf shore, approximately 2 km east of the western extremity of the island, and opposite Shipping Cove (see Figure 10). (USGS Quadrangle: Carrabelle, FL 1981 (revised 1992), UTM Zone 16, Easting 726560, Northing 3296420, and Longitude 84° xx.xxx' W, Latitude 29° xx.xxx' N [Decimal degree: -84.xxxxxxx, 29.xxxxxxx])

The wreckage is located in the surf zone where it is almost completely submerged at high tide. The hull is in surprisingly good condition, considering its position in a relatively high energy area and its constant cycle of exposure and re-immersion. Though it is admittedly in remarkable condition for its location it has suffered some damage since its original documentation in 1987.

The wreckage is oriented with the bow pointing toward shore. It measures approximately 23.1 m by 6.1 m, and is buried in the sand to an undetermined depth. In 1987 the hull was characterized as "covered in green algae" and strewn with "broken wood fragments [which have] separated from the hull" (Haiduven 1987: 1-2). White (et al 1995: 27) reported a lack of disarticulated fragments, though she did not conduct an underwater inspection at the time. In 1999, numerous tiny fragments of wood—floating in the water and mixed into the bottom sediment—were observed in the immediate vicinity of the hull, and one disarticulated plank was observed ashore. Additionally, while no significant algae growth was observed, most of the exposed hull was covered with barnacle growth. Both Haiduven and White noted that the buried portions of the hull were in much better condition than those exposed; this statement holds true for the 1999 season as well.

Over time the alleged *Priscilla* has been subjected to changing environmental conditions by being periodically exposed and then partially reburied by shifting sediments. Haiduven commented "substantial tidal movements of sand and water have a considerable effect on this site, alternately preserving and destroying sections of the hull" (Haiduven 1987: 2). In addition, the island has "moved away" from the stationary hull, so that the site is now in deeper water. Photographs from 1987 show recorders standing by the bow in about ankle-deep water, but in 1999 the bow is in approximately 90 cm of water. Figure 47 shows an image of the wreck taken at low tide in 1987. The water is so shallow that the wreck lies completely exposed and there is a substantial dry area behind the wreckage. Compare this with the photograph taken at low tide in 1995 (Figure 48), when only the forward third of the wreck is dry and exposed on the beach. Notice in the 1999 photograph that none of the hull was exposed on dry beach sand (Figure49). In 1987, the sediment covered a point much higher up on the hull than it does in 1999 (i.e., at present more of the hull is exposed above the seafloor, probably due to erosion around the wreck, and the site also lies in deeper water). It is logical to assume that, if Dog Island continues its slow but steady march towards the mainland, the wreck will at some point become completely submerged, even at low tides. This may help preserve the hull remains, the upper 10 to 30 cm of which have completely deteriorated since 1987.

Figure 47. Dog Island Shipwreck # 1, the alleged *Priscilla*, as it appeared in June 1987 at low tide (Courtesy Florida Bureau of Archaeological Research).

Figure 48. Dog Island Shipwreck # 1 as it appeared in September 1995 at low tide (White et al 1995: Figure 18).

Figure 49. Dog Island Shipwreck # 1, the alleged *Priscilla*, as it appeared on 14 May 1999. Photograph taken by Chuck Meide.

Geophysical Site Investigation

On 11 June 1999, the alleged *Priscilla* wreck was documented using the side scan sonar. A number of passes were made adjacent to the shoreline at a variety of range settings , generating several images of the site (see Table 17). The side scan sonar provides an accurate technique in recording features of a site that are underwater. No magnetometry was conducted on the site.

Table 17. Summary of side scan sonar images taken of Dog Island Shipwreck # 1.

File Name	Time	Channel	Range	Heading	Comments
11jun001.mst	11:08:12	left only	20 m	90°	Poor image (mostly out of range)
11jun002.mst	11:09:30	right only	20 m	270°	Very good image
11jun003.mst	11:12:02	left only	20 m	90°	Very blurry image; poor quality
11jun004.mst	11:12:16	right only	50 m	270°	Good image

Figure 50 is a side scan sonar image of the entire site. The outline of the hull remains can be seen in the image, in addition to the interior structural features such as longitudinal and transverse bulkheads. Figure 51 is a closer view of the site. Bottom features, such as sand ripples, and structural features such as bulkheads, frame ends, and the mast stump are visible. This image is of remarkable quality considering that part of the hull breaches the water's surface (which is why the bow area is fuzzy in both figures).

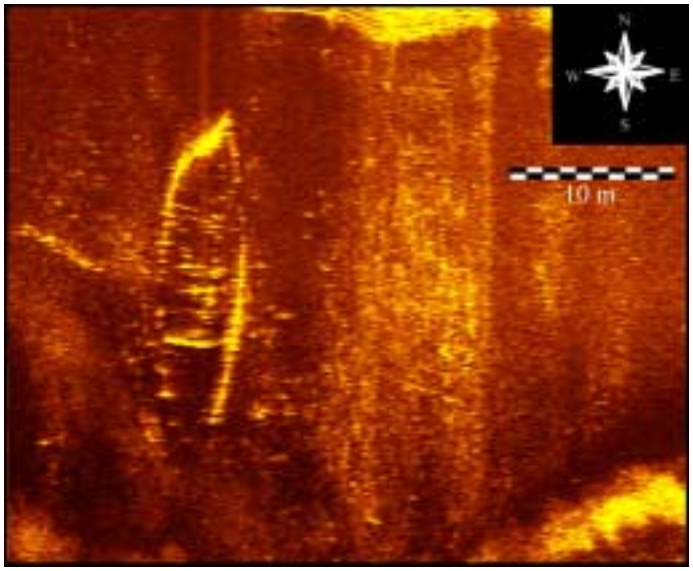

Figure 50. Side scan sonar image of Dog Island Shipwreck # 1 (alleged *Priscilla*) and surrounding area. From sonar image file 11jun004.mst.

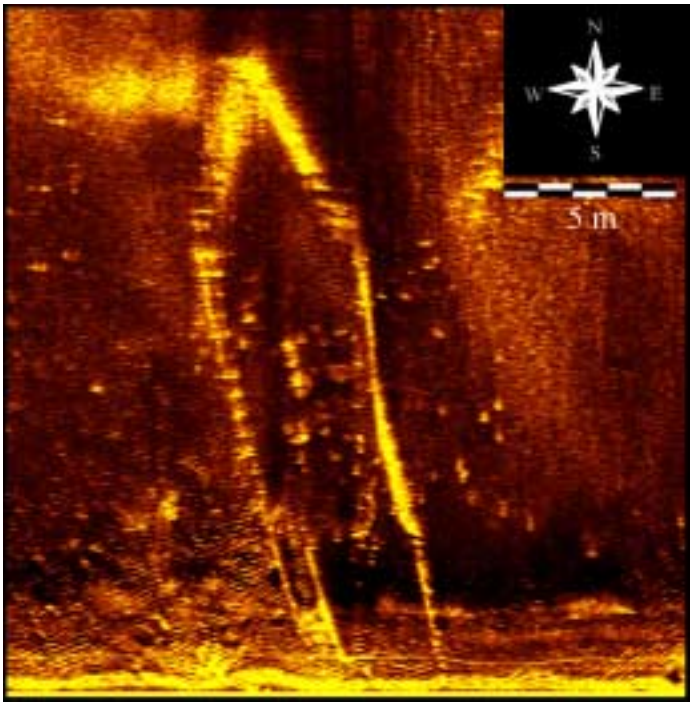

Figure 51. Side scan sonar image of Dog Island Wreck # 1 (alleged *Priscilla*). From sonar image file 11jun002.mst.

Description of Hull Remains

The field crew spent a considerable amount of time observing, photographing, and recording a longitudinal profile of the forward 5 meters of the starboard side of the bow. (Figure 52) The following is a description of the vessel and its construction features based on the 1999 field season and Haiduven's 1987 observations.

Figure 52. Graduate students in the FSU-PUA Underwater Archaeological Field School recording a profile of the forward 5 meters of the vessel's hull. Photo taken by Chuck Meide.

The wreck is considerably intact and articulated, though the aftermost section is broken up and not evidenced above the bottom sediments (probably much of the lower stern structure is present buried beneath the seafloor). Haiduven observed timbers suggesting the vessel to be transom-sterned. The hull measures 23.1 m (75.78 feet) in length and is 6.1 m (20.01 feet) across at its widest point (about 12.2 m or 40 feet from the tip of the bow). The ship is oriented with its bow towards shore (more or less due north) and is listing slightly to its port side (Figure 53).

Figure 53. View of the bow, Dog Island Shipwreck # 1. Note the hardware and fittings for the bowsprit rigging in the foreground, and the slight list to the port side. Photo taken by Chuck Meide.

Haiduven in 1987 noted that 9 to 10 strakes of hull planking were present on either side of the vessel. At least one or two planks (from the uppermost strakes) have completely deteriorated since that time. Two of the outer hull planks were measured and found to be 4 cm (1 ½") thick and 12.5 cm (5") wide. The observed planks were attached to the frames with square, iron spikes or dump bolts. These spikes have shoveled or pointed tips and ballpeened heads. Also evidenced were wedged wooden trunnels, 2.6 cm or about 1" in diameter. Both of these types of fasteners can be seen in Figure 54. This photograph is a detail of a plank observed on the beach directly in front of the wreck. The plank, which appears to be a hull plank from the port side near the stem, was collected for analysis and designated FS 01. The surviving length of this plank fragment is 1.17 m, its greatest thickness is 5.2 cm (about 2"), and its greatest width is 15 cm or about 6". Fasteners present in this plank fragment include the two square holes, with iron remains, and a 1" diameter wedged trunnel seen in Figure 54, as well as another square fastener hole. No bottom sheathing of any kind was noted on this or any of the articulated hull planks.

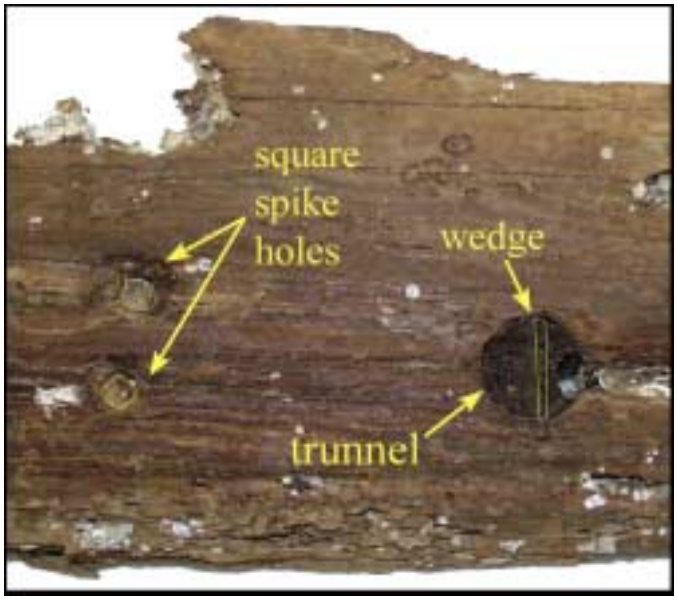

Figure 54. Detail of hull plank (FS 01) from Dog Island Shipwreck # 1 (alleged *Priscilla*, site 8FR813), showing fasteners. Photo taken by James McClean.

The bow is particularly well-preserved and exposed which made it easily accessible for inspection. The stemson has survived with filler planks on each side, attached to deadwood and ceiling planks. Along the interior starboard side of the bow there were, in 1987, the remains of nine beveled ceiling plank tops. Only a few of the ceiling planks were still present in July 1999. These planks are typically 4 cm (1 ½") thick and 28.5 cm (11 ¼") wide. Also present is a butted longitudinal ceiling with a filler piece between it and a longitudinal shelf clamp or inner wale. This clamp is made up of four pieces, and measures 23 cm or 9" in thickness. Frames protrude outboard and above the clamp. Typical frame dimensions range from 9 cm by 13 cm (3 ½" by 5 1/8") to 9 cm by 16 cm (3 ½" by 6 ¼"). Iron bolts or spikes protrude from many of the frame tops.

There appear to be a total of six cant frames, which are transversely fastened with iron bolts, in the bow area between the first hull frame and the stempost. On the port side interior of the bow

there is a breasthook made up of two pieces. This composite member is 16 cm by 16 cm (6 ¼" by 6 ¼"), and measures 1.92 m (6' 10") in length. The upper beveled edges of seven ceiling planks are exposed in this area, depending on the amount of sand inside the hull, which changes over time. Above these planks there is positioned another ceiling plank, seemingly running the length of the ship. It is probably a composite member, made up of two or more planks scarfed together. Two more shelf clamps or inner wales, 5 cm (2") thick and attached with iron fasteners, run longitudinally above the highest ceiling plank. A deck clamp survives, positioned on top of the frames. It measures 5.5 cm by 14 cm (2 1/8" by 5 ½"). Five frames protrude past the deck clamp, which is notched around them. Above the deck clamp, Haiduven noted the presence of a plank with scupper holes, however, this was not observed by the 1999 survey crew.

On the exterior of the bow, the stempost protrudes from the sand for a length of 1.7 m. Figure 55 is the longitudinal profile of the forwardmost five meters of the hull. Attached to the outside of the bow assembly is a 6.5 cm (2 ½") wide iron strap, along with three concreted fittings for turnbuckles and a large, downward-protruding bolt-like fitting measuring at least 0.90 m in length (these can be seen in Figure 53). Haiduven characterized these fittings as likely being the lower rigging for a bowsprit stay or dolphin striker. Similar straps can be seen in the sketches of late 19th century fishing schooner bow assemblies in Figure 56.

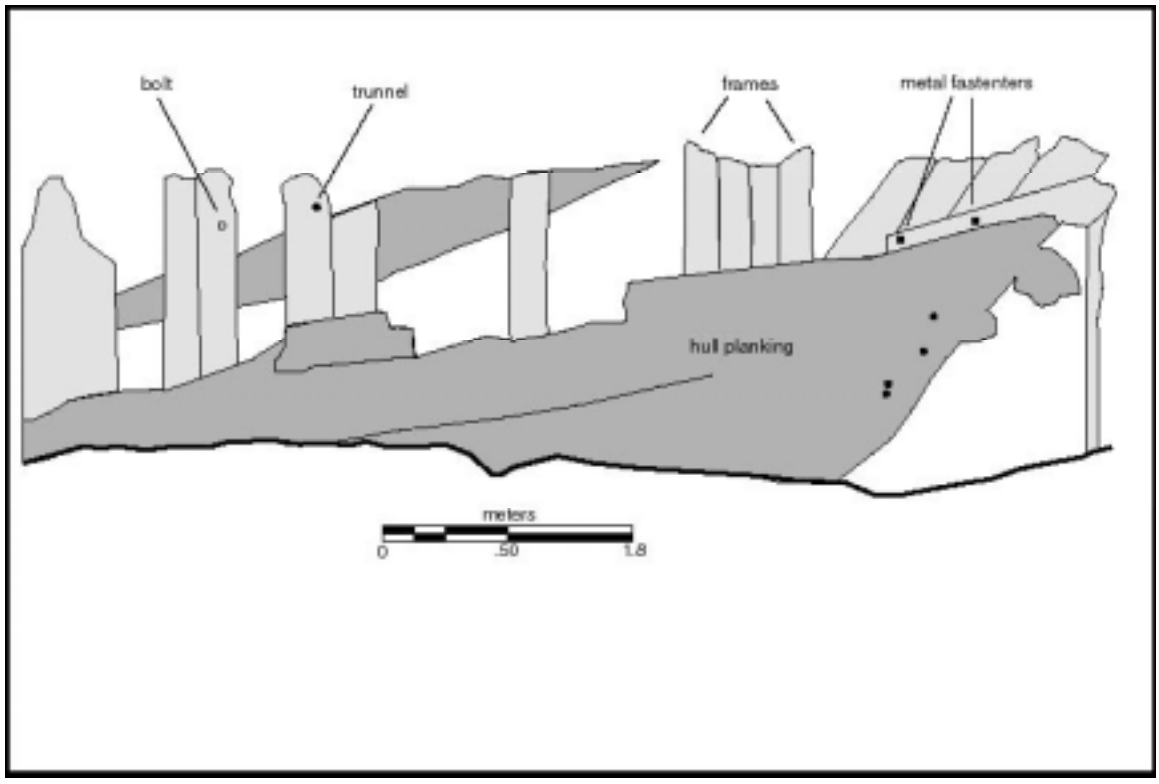

Figure 55. Longitudinal profile of Dog Island shipwreck #1 (alleged *Priscilla*) bow structure.

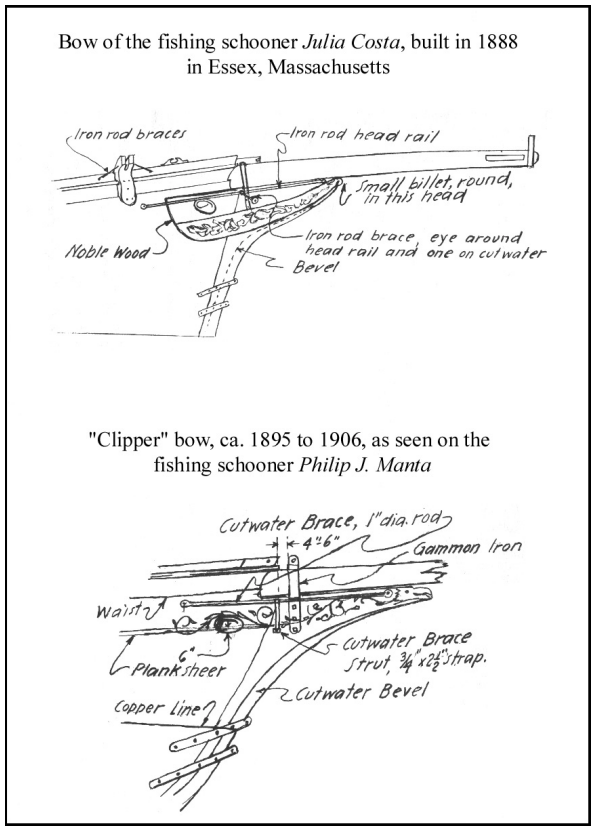

Figure 56. Sketches of two fishing schooner bows. Bowsprit rigging straps are present on both vessels, similar to that on Dog Island Wreck # 1 (Chapelle 1973: 362-363).

As stated before, the 1999 investigators noted no trace of the stern. It apparently has become buried or else completely deteriorated since 1987. Haiduven described the stern area, however, in his 1987 field notes. He noted the remains of the two lowest transom planks, 19 cm or 7 ½" wide, with two 15 cm (6") square longitudinal timbers aft of these and attached to them with a large iron "staple-like" fitting, which Haiduven suggested might be a rudder post. He also noted "[a]t least ten ceiling planks run each side of the centerline, two of which define centerline, 28 cm (11") wide each, treenailed (or plugged) without wedges, 2 cm [¾"] in diameter."

The interior hull preservation provides a surprising amount of structure. Fluctuating conditions made recording the interior of the hull problematic. On some days virtually the entire interior was full with sand, while on others most of it was bare of sediment. Regardless, some aspects of the interior hull structure were observed. The lowermost area of the hull appears to have been compartmentalized with two rows of six box-like divisions, created by bulkheads. A central gangway divides the two areas of bulkhead compartments. The inboard edge of the box-like compartments is comprised of 5 cm by 15.2 cm (2" by 6") stanchions sandwiched between tongue-in-groove planking. In addition to the longitudinal and transverse bulkheads, the stump of the main mast was located 12.20 m (40') back from the tip of the bow. This is at the widest area of the ship. The base of the mast, which shows damage from teredo worms, measures 30 cm (about 1') in diameter. In the vicinity of the mast base, inside the hull on the port side, a large deadeye was observed. Its outer edges were heavily concreted, possibly from the remains of the iron chainwale still in place. The entire artifact is firmly cemented to the hull's structure where it has fallen from its original position outside the hull.

Discussion and Conclusions

Whether or not this shipwreck is that of the *Priscilla*, it seems clear that the hull is indeed that of a late 19th century sailing vessel, most likely a fishing schooner. During the second half of the 19th century, the commercial fishing of red snapper, mullet, skipjack, pompano, sea trout, bluefish, catfish, and flounder would thrive along Florida's Gulf coast, especially with the increasing availability of ice by the 1880s (Rogers 1986: 116; Smith et al 1997: 20). Small vessels known as chings, usually between 5 and 20 tons, plied the coastal fishing trade, while larger 50 to 60 ton schooners called smacks ventured further offshore. Tradition holds that smacks got their name from the smacking of the tails of live fish against the sides of the fish wells which were built into these boats before the widespread use of ice (Cozzi 1999). Dog Island Shipwreck # 1 clearly falls into this category of fishing vessel.

Figure 57 depicts the plans of the New England fishing smack *Lottie S. Haskins*. She was well-known for her sailing abilities and also because she fished unusually well. This vessel was very similar in a number of ways to *Priscilla* and the Dog Island Shipwreck # 1. Both *Priscilla* and *Lottie* were schooner-rigged, New England built, and constructed between the years 1890 and 1893. *Lottie S. Haskins* was designed (and later commanded) by George M. McClain, and built in 1890 by Tarr and James at Essex, Massachusetts. Her registered dimensions were 70.5' in length, 20.4' in breadth, and 8.5' in depth, which are similar to those listed for *Priscilla* and measured on the Dog Island Shipwreck # 1 (see Table 18). *Lottie*'s moulded length at the main rail was 107', moulded beam, 19' 10", and 8' 11" moulded depth (Chapelle 1973: 177). Her rigging would also probably have been similar to that of Dog Island Shipwreck # 1, and she was equipped with bowsprit shroud spreaders (Chapelle 1973: 177).

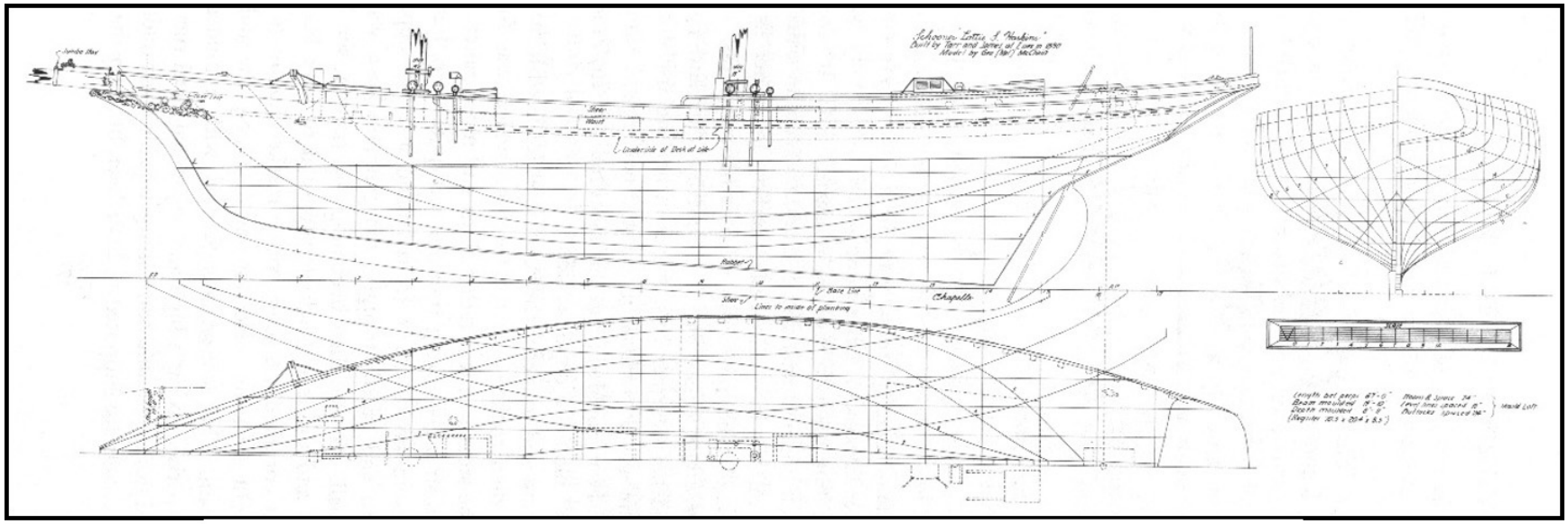

Figure 57. Plans of fishing schooner Lottie S. Haskins, 1890 (Chapelle 1973:Plate73).

As stated before, *Priscilla* was a red snapper fishing boat out of Pensacola. A 48 ton (or 64 net tons) schooner, she was built in 1893 at Boothbay (also listed as East Booth Bay), Maine. Both Singer and Baumer list her dimensions as 69.3' by 19.8' by 8.9' (see Table 18). Baumer's research led him to believe that *Priscilla* wrecked in the area sometime between 1911 and 1917. This corresponds to Singer's data, which states that *Priscilla* was wrecked on 24 September 1914. It is certain that both Baumer and Singer are referring to the same vessel named *Priscilla*. It is probable, though by no means certain, that the wreckage called Dog Island Shipwreck # 1 is indeed that of *Priscilla*. Table 18 shows that the beam dimension is virtually identical for both Dog Island Shipwreck # 1 and the *Priscilla* (the two differ by 0.21' or less than 7 cm).

The length measurement is somewhat more problematic. The hull remains of Dog Island Shipwreck # 1 were 1.98 m or 6.5' longer than those stated for *Priscilla*. This discrepancy could be explained by the fact that the length of the wreckage was measured at an arbitrary point (i.e., the uppermost surviving part of the hull) while the *Priscilla*'s figure of 69.3' (21.12 m) could have been taken along the keel, between the perpendiculars, or along her main rail. Individual measurements at these three locations could produce figures that varied by much more than 1.98 m (6.5').

Table 18. Dimensions of *Priscilla* from various sources, compared with the measurements of the Dog Island Shipwreck # 1 hull remains and with those of the schooner Lottie S. Haskins (Chapelle 1973: 177)

Source	Length	Breadth	Depth	Tonnage
Singer 1992: 40	69.3'	19.8'	8.9'	48
Baumer 1988	69.3'	19.8'	8.9'	48 gross/64 net
Dog Island Wreck # 1	75.78' (23.1 m)	20.01' (6.1 m)		
Lottie S. Haskins	70.5'	20.4'	8.5	

Dog Island Wreck # 2, the alleged *Vale*[1] (8FR814)

In the shallows of Shipping Cove, at a point just opposite the location of the alleged *Priscilla* wreck, lies the remains of a sunken vessel that was lost some 15 years before *Priscilla*. This large, shipwrecked vessel is wooden-hulled, but displays large iron structural components. Its existence has long been known, and is currently marked on NOAA nautical charts. Archaeologists Richard Haiduven, KC Smith, David Muncher, and Joseph and Alexandria Nolin first reported this site in 1987. They named the site Dog Island Shipwreck # 2, and its site number was designated 8FR814. These archaeologists' investigation was cursory in nature and apparently no report or detailed description was produced at the time. A more thorough investigation took place in 1990, under the direction of FSU student Chip Wright as part of the activities for the FSU class *ANT 4131: Techniques of Underwater Site Research*. Wright, during the two-day period of 16-17 April 1990, mapped the surface remains of the vessel, excavated to determine the extent and nature of buried structure, and collected a number of artifacts for analysis (Wright 1990).

Wright concluded, from his field investigation and subsequent historical research, that this wooden-hulled wreck was one of the lumber vessels stranded in this area during the hurricane of 1 August 1899. While it was clear from the archaeological evidence that this wreck was likely that of a late 19th century sailing vessel, nothing was found that clearly suggested an association with any of the ships involved in this particular incident. As seen earlier in this report, historical documents and photographs have provided a rich record of the 1899 shipwreck event, and much of this record was available during Wright's study. Wright suggested that Dog Island Shipwreck # 2 could possibly be the *Jafnhar*, *Vale*, *Latvia*, or *Cortesia*.

The site was revisited in 1995 by a team of USF archaeologists lead by Nancy White (et al 1995: 27-30). They observed the site from shore, thus not inspecting the vessel remains closely. White did, however, relate an incident that occurred in 1963 (apparently unknown to Wright). In that year a visit was paid to Dog Island landowners Jeff and Bill Lewis by one Thorvald Iversen, an 86-year-old Norwegian (White et al 1995: 29). He had been a sailor on board the Norwegian bark *Vale*, and he wanted to visit the spot where he had shipwrecked so many years before. Iversen, who would later provide details of the shipwreck event in a letter (Iversen 1964; included as Appendix D), identified what would eventually be called Dog Island Shipwreck # 2 as his old ship *Vale*.

While an account from an actual shipwreck survivor would seem to be irrefutable evidence of Dog Island Shipwreck # 2's identity, it must be remembered that Iversen was an 86-year-old man trying to recall an event that occurred some 64 years earlier. Even though an event as traumatic as a shipwrecking must provide a vivid memory for years to come, it must be understood that human memory is not infallible. A striking example of this is the fact that Iversen (1964: 1) reports the date of the event as being six months away from the actual wrecking date. Contemporary newspaper accounts and maritime registers confirm this apparent mistake by Iversen. There is no way to reliably assign an identification to Dog Island Shipwreck # 2, however the site has generally been referred to as the "old Norwegian wreck," though no archaeological evidence has ever been uncovered corroborating Iversen's account. One of the primary goals of the 1999 field season was to investigate the remains of this vessel so that we may better understand this site and confirm Iversen's identification of it as the *Vale*.

[1] Pronounced "Vah-luh"

Location, Physical Attributes, and Condition of the Site

Dog Island Shipwreck # 2 is located on the west side of the island, approximately 2 km east of the western extremity of the island, in the shallows of Shipping Cove (see Figure 10). Specifically, it is located on the USGS Quadrangle: Carrabelle, FL 1981 (revised 1992), UTM Zone 16, Easting 726360, Northing 3296580, and Longitude 84° xx.xxx' W, Latitude 29° xx.xxx' N (Decimal degree: -84.xxxxxxx, 29.xxxxxxx). It lies directly offshore from a small, cement block bunker-type structure (which may house a pump apparatus), near the ruins of a wooden-frame structure. Also located just to the east of and roughly parallel to the shipwreck is a defunct pier. The wreck itself is within meters of the shore, and at low tides its iron structure is exposed (Figure 58). As this poses a hazard to watercraft, the site of this wreck is noted on NOAA nautical charts.

The site is situated in shallow water, so that the bow end is in only about 0.3 m (1') of water at low tide, while the stern end further out in the cove is in about 1.5 m (5') of water. The vessel lies perpendicular to shore, oriented at an angle of 146° where it covers an area of about 45 by 15 meters. Though virtually no wood was exposed upon initial inspection, hand-fanning quickly revealed timber remains only centimeters below the sediment surface. These timbers are in an exceptionally good state of preservation.

There are other components of the site that are exposed and readily observed. At the shallow end of the wreckage there are several iron objects that break the water's surface at low tide. The first of these are two massive, heavily concreted sections of what are probably one or more iron boilers. They are located slightly to the side of the forwardmost section of the ship, effectively marking the bow. Located further out from the bow is a large, twisted strip of iron identified as an iron breasthook. Once shaped to fit on the interior of the bow, this reinforcing piece is no longer affixed to the hull, but loops around with its final meter protruding from the water at low tides. Beyond the breasthook is a single starboard side iron knee rider piercing the surface. This is the only iron knee rider that remains intact on the site. Many more have broken off at a point near the mud line, and their concreted remains trace the outline of the hull remains as they were originally articulated.

Overall, the site can be characterized as a wide area of scattered debris, situated above a substantial wooden hull that is completely buried in sediment. In addition to the three protruding features described above, there are areas where the articulated copper sheathing and wooden hull remains are exposed. In addition, a variety of modern material, such as monofilament line and fishing weights, are snagged on the historic wreckage throughout the site.

Figure 58. Dog Island Shipwreck #2, the alleged *Vale*, as it appears at low tide. Photo taken by Chuck Meide.

Objectives and Methodology

The objectives of the 1999 field season at Dog Island Shipwreck # 2 were to reassess the site, and excavate and record limited areas of the hull to expose construction features and possible diagnostic artifacts. Researchers in 1999 used as a guide Wright's 1990 map depicting the exposed features, however this map left many questions unanswered. While Wright's efforts did provide the general dimensions of the overall hull, the 1990 field investigation generated little detailed information on the hull's construction (i.e., timber scantlings) and failed to uncover any artifacts that might help identify the vessel or its nationality. Thus to better understand the nature of the vessel a number of areas within the site were excavated. These high priority areas included the bow area, the stern area, the centerline (in order to locate the keelson), and the outer edges of the vessel towards midships.

Before disturbing the site through excavation, a grid system was deployed across the wreck for positional control. A baseline marked in one-meter intervals was laid along the centerline of the vessel directly over the center of the keelson at an orientation of 326° (reciprocal 146°). Its initial length was 46 meters but was subsequently extended another ten meters for a total of 56 meters. This baseline was tied into an arbitrary Cartesian grid system in order to simplify the mapping process. The 0 E, 0 N point was set some distance to the grid south, so that the baseline constituted the 10 (grid) north line. Datum A, at the start of the baseline (at the shallow end) was therefore 0 E, 10 N, while Datum B, at the other end of the baseline (46 meters away, at the deep end of the site) was designated 46 E, 10 N. For the remainder of this report, designations such as 46 E, 10 N should be understood as referring to grid east and grid north.

Excavation was carried out by divers hand-fanning sediment away from visible hull remains to expose timbers. Key features such as the keelson, the bow and stern, and areas of the outer hull perimeter were located. Any artifacts encountered were left in situ and recorded. Some artifacts were significant enough to be removed either temporarily for surface recording and photography, or permanently for conservation and analysis. Artifacts and samples recovered for analysis were designated with consecutive Field Specimen (FS) numbers. Appendix H includes the list of artifacts recovered from Dog Island Shipwreck # 2.

Mapping was conducted with the aid of 1 m by 1 m PVC grids equipped with string at 10 cm intervals. These could be positioned over the hull features in question and easily tied into the existing grid system by measuring their position in relation to the baseline. Divers recorded the hull remains in detail on mylar (transparent waterproof "paper") with a pre-drawn grid template. Back at the field headquarters the individual 1 m by 1 m grids were reduced in scale and used to compile an ongoing master site plan (Figure 59). Little effort was made to record the vertical stratigraphic provenience of artifacts, due to the synchronous nature of shipwreck site deposition.

Wooden Hull Remains

The hull of Dog Island Shipwreck # 2 is composed of wooden components with iron reinforcing members, in what was commonly called "composite construction." Unlike many later composite-built ships this vessel displays wooden frames while the iron hull members appear to be limited to iron knees, knee riders, and at least one iron breasthook. The iron components of the hull are discussed separately, following the presentation of the wooden hull remains.

The sunken hull, which is almost completely covered in sediment, is positioned perpendicular to shore with its bow pointing towards the beach (at a bearing of 146°). The overall length of the surviving hull remains is 41.92 m or 137.53 feet. This dimension, measured from the tip of the stem to the tip of the sternpost, is very close to the registered length of the *Vale*, which was 139 feet. Dog Island Shipwreck # 2 is listing about 15° to starboard. Figure 59 is a reconstructed cross-section of the hull, at a point near midships. Though the lower hull shape depicted in this illustration is hypothetical, the figure does accurately display the current position of the extant hull remains. The widest recorded area of the hull was approximately 10.4 m (34.12'). Considering the 15° list of the vessel, the reconstructed beam would measure approximately 9.4 m, or 30.84 feet. This figure is almost identical to the registered breadth of *Vale*, 30ft.

Figure 60 is the site plan generated by the 1999 field season. Efforts on this wreck consisted mainly of excavating five limited areas in order to record hull structure: at the bow, along the first eight meters of the port side, a small section of the starboard side at 16E to 18E, a four meter section of the port side at 25E to 29E, and the last 2.5 meters of the stern assembly. In addition, an attempt was made to locate and map most of the collapsed iron knee riders and the protruding stumps of these components. Finally, the keelson was re-located, and most of its length along the centerline of the vessel was exposed at various times throughout the project. The completed site plan depicts the structural features exposed in these areas.

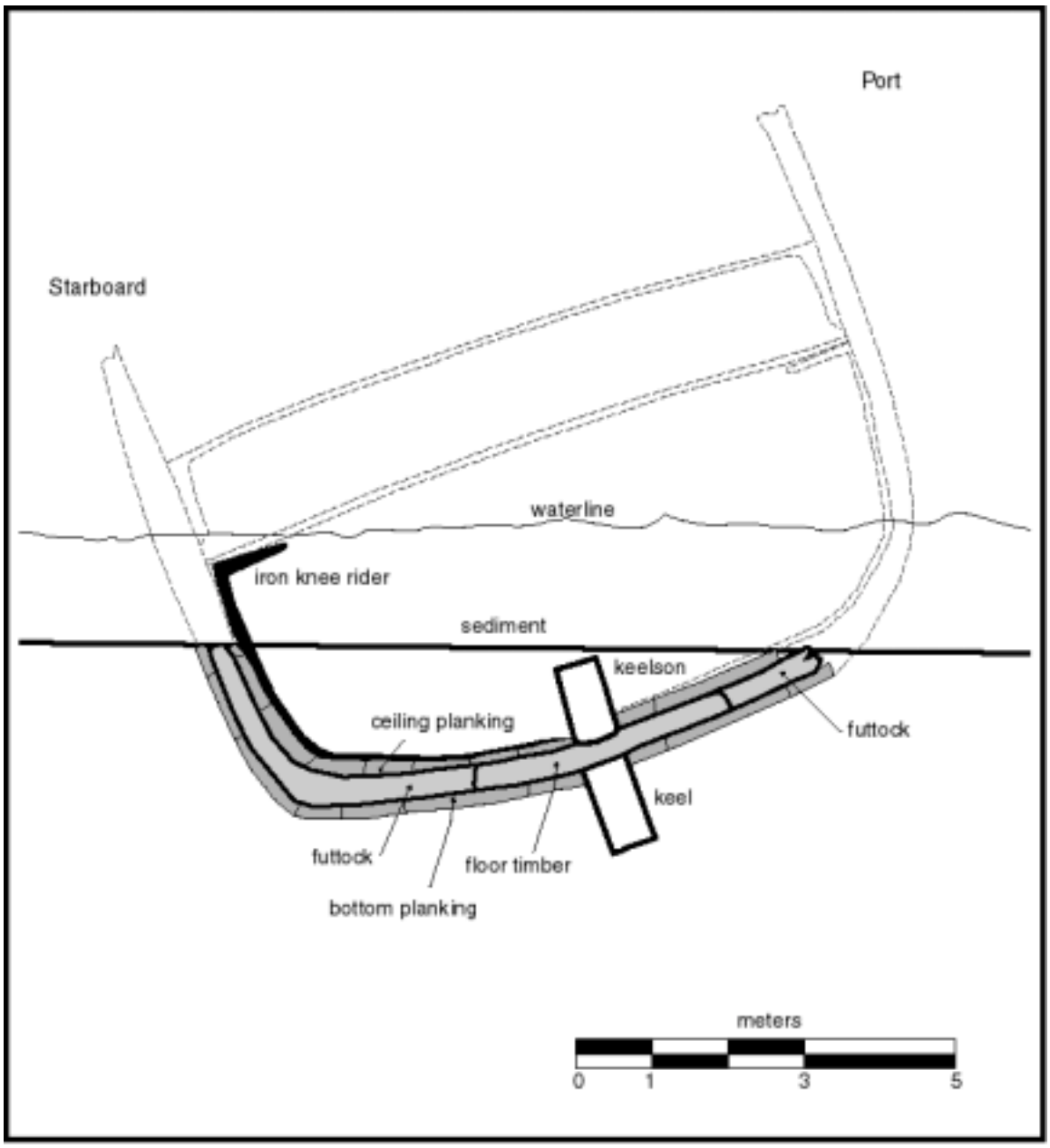

Figure 59. Cross section of the hull of Dog Island Shipwreck #2, at a point near midships.

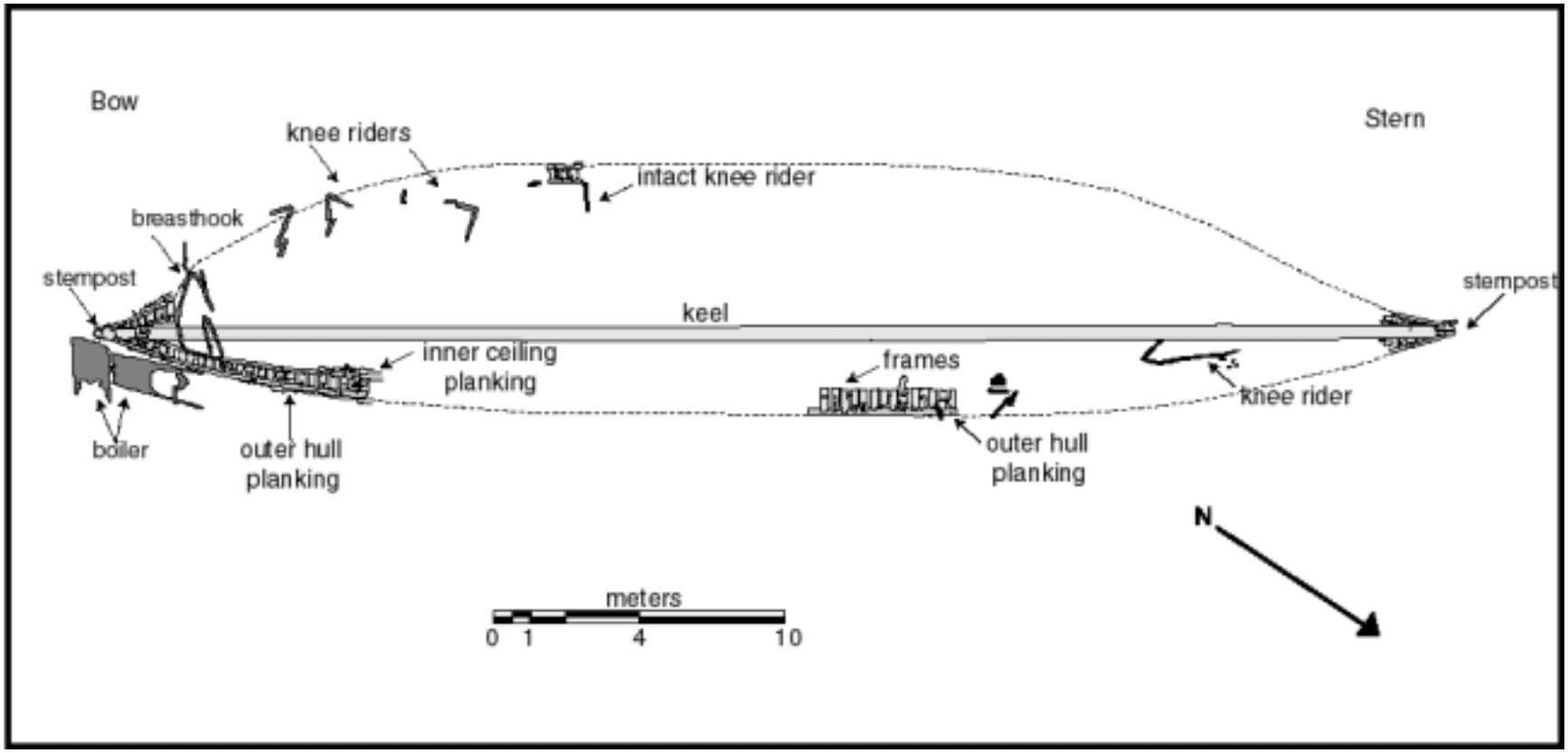

Figure 60. Site Plan of Dog Island Shipwreck # 2.

Table 19 lists the scantlings that could be recorded from the hull remains of the alleged *Vale*. For comparative purposes, the corresponding scantlings are included as recorded from the hull of *Catharine*, another lumber ship of Norwegian registry that wrecked offshore Pensacola (Burns 1999). In addition, the corresponding standard scantlings for a 600 ton ship and a 1400 ton ship (roughly the sizes of *Vale* and *Catharine*) are included as well. These latter scantlings were presented as the standard sizes required by classification societies or insurance companies in an early 20th century wooden shipbuilding manual (Desmond 1919).

Table 19. Scantlings and other dimensions of Dog Island Shipwreck # 2, *Catharine* (built 1870), and 600- and 1400-ton vessels (Burns 1999: Tables 1, 2; Desmond 1919: Tables 3E, 3F).

Hull Member	**alleged Vale**		**Catharine**		**600-ton ship**		**1400-ton ship**	
	inches	cm	inches	cm	inches	cm	inches	cm
Keelson								
sided	15 ¾	40	22	55.9	14	35.6	17	43.2
molded	> 29	> 75	10 ¼	26.1	32	81.3	56	142.2
Hull Planking								
thickness	4 ¾	12	5	12.7	3 ½	8.9	4	10.2
width	n/a	n/a	10	25.4	n/a	n/a	n/a	n/a
Ceiling Planking								
thickness	5 1/8	13	6	15.2	5	12.7	6 ½	16.5
width	6 +	15 +	10	25.4	n/a	n/a	n/a	n/a
Frames								
sided	9.8-11	25-28	13	33.1	11	27.9	13	33.1
molded	9 7/8	25	14 ½	36.8	13	33.1	16	40.6
Frame Spacing								
room & space	24.4	62	18	45.7	30	76.2	33	83.8
Stempost								
sided	10.8	27.5	n/a	n/a	14	35.6	16	40.6
molded	15.4	39	n/a	n/a	16	40.6	20	50.8
Sternpost								
sided	13.8	35	n/a	n/a	14	35.6	16	40.6
molded	21.7	55	n/a	n/a	16	40.6	20	50.8
Trunnels								
diameter	1¼-1.4	3.2-3.6	1 5/8	4.1	1 1/8	2.9	1 ¼	3.2
Drift Bolts								
diameter	1 3/8	3.5	n/a	n/a	1 1/8	2.9	1 3/8	3.5
Overall Hull Dimensions (from archival sources)								
length	139’	42.4 m	193’3/5”	58.98m	168’	51.2 m	214’	65.2 m
breadth	30’	9.1 m	38’2/5”	11.68m	35’	10.7 m	43’	13.1 m
depth of hold	17’	5.2 m	24’ 2½ tenths”	7.38 m	14’3”	4.3 m	20’	6.1 m
net tonnage	536	n/a	1360	n/a	600	n/a	1400	n/a
burthen tons	554	n/a	1398	n/a	n/a	n/a	n/a	n/a

Keelson

The keelson is the longitudinal member placed directly over the keel, sandwiching the frames ("ribs") against itself and the keel and providing longitudinal strength. The entire length of the keelson, measuring 39.75 m or 130.41 feet, has survived. It is unknown whether this timber is made up of two or three shorter segments scarfed together. The sided dimension (width) of the keelson ranges from 36 to 40 cm (14.17" to 15.75"). The molded dimension (thickness or height) of the timber remains unknown, though it is substantial (divers excavated a test unit on its port face at 25E and exposed almost a meter without encountering ceiling planking, suggesting that the keelson is at least 75 to 80 cm thick).

The keelson is pierced at regular intervals by large, copper-alloy drift bolts measuring 3.5 cm (1.37") in diameter with round, peened heads measuring 4.5 cm (1.77") in diameter. These substantial fasteners were driven through the keelson, frames, and into the keel below, thus measuring over a meter in length. They are spaced approximately 62 cm (about 2') apart, and in some cases there are two drift bolts at each frame. While the keel is preserved in the sediments below, it was not observed due to its depth.

No evidence of a rider keelson, sister keelson, or any other similar members was observed. It is possible that the timber described above is actually a rider or false keelson, which would be positioned on top of the true keelson.

Frames

Buried beneath the keelson and positioned along the upper surface of the keel, with their ends exposed along the outer edge of the wreckage, are the ship's frames. Frames create a skeleton which defines the shape and provides rigidity and strength in a frame-first hull. The frames of Dog Island Shipwreck # 2 survive for a distance of at least four meters out from the centerline on the port side, and for more than 5.2 m on the starboard side. The sided dimension (width) of the frames typically measures between 25 and 28 cm (9.84 to 11 inches), while the molded dimension (thickness or height) measures rather consistently about 25 cm (about 9 7/8").

As it was impossible for shipbuilders to find timbers naturally shaped in the same manner as a ship's hull, frames are by necessity composite pieces made up of floors (central components laid across the centerline of the vessel) and futtocks (attached pieces that are curved to form the cross-section shape of the hull). The only section of the frames that could be readily observed on this wreck was the distal surviving ends (of both floors and futtocks) along the outer perimeter of the hull (mostly on the port side).

This being said, parts of 48 framing members were exposed and documented, providing a reliable insight into the vessel's construction. Those frames exposed on the port side, represent floors and first and second futtocks. In some cases (towards the middle of the vessel), the floor wrongheads (distal ends of the floor timbers) were observed butting into the base (heel) of second futtocks. These joins took place about 1.9 m from the center of the keelson, suggesting that the overall length of the midships floor timbers is approximately 3.4 m or 11' 2". The paired frame members (floors and first futtocks, and first and second futtocks) are fastened together by 55 cm (21 5/8") long and 3.2 cm (1 ¼") in diameter transverse trunnels. Floors and their attached first futtocks are positioned approximately 4 cm (just over 1 ½") apart from each other and are separated from the adjacent frame pairs by approximately 8.5 cm (3 3/8"). Thus, the room and space (cumulative

frame spacing, from the molded edge of one floor to the corresponding point of the next) of this relatively tightly framed vessel averages approximately 62 cm or 2' 3/8".

Ceiling Planking

The ceiling (inner) planking is attached to the upper surface of the frames with both copper-alloy clinch bolts and trunnels. This planking forms the thick lining of the ship's hold, and protects the inner hull from shifting cargo as well as the external forces of the sea. The ceiling planking at 13 cm (5 1/8") is slightly thicker than the planking on the outside (which measures as much as 12 cm, or 4 ¾"). Due to the position of the ship's hull, the ceiling planks rise at a sharp angle from the sediment but in most cases not enough of the hull is exposed to measure the width of planking. In one area on the starboard side towards the bow a ceiling plank measured 15 cm (almost 6") across. This seems rather narrow and may represent some specially fit piece because most of the ceiling planks measure 25.4 cm (almost 10") wide. In comparison, the ceiling planks on the contemporary lumber ship *Catharine* were consistently 10 inches wide (Burns 1999: 58).

It was not possible to determine the length of any individual ceiling planks, though on contemporary lumber ships they would typically measure approximately 30 feet (9.1 m) (Burns 1999: 58). At least one join within a single strake was observed, in unit 10E, 8N. Though the planks were heavily deteriorated it appeared to be a simple butt joint. No special arrangement or increased number of fasteners was noted near the butt.

Hull Planking

The outer hull consists of a single layer of carvel-planking fastened to the frames. The outer surface of the planking is covered in copper-alloy sheathing which prevents damage from shipworm and the accumulation of marine growth. The thickness of the hull planking is approximately 12 cm (4 ¾"). The hooding ends of the forwardmost planks, rabbeted into the stempost, are slightly thinner at 9 cm (3 ½"). This thinning of the plank ends is typically done to allow a better join with stemposts (Steffy 1994: 273). Planks are approximately 25.4 cm (almost 10") wide. Nowhere on the hull is there enough structure exposed to determine the length of any individual hull plank, though it is possible that they are approximately 9.1 m (or 30") in length, as has been recorded on other contemporary lumber ships (Burns 1999: 55; Steinberg 1997: Figure 1).

Each plank terminates in a butt joint, one of which was observed in unit 10E, 8N. In this particular join both ends of the planks are fastened to the frame with a single copper-alloy clinch bolt (diameters of these bolts range from 1.9 cm or ¾" to 2.2 cm or 7/8") and a single copper-alloy, square-shanked dump bolt or spike. The spike is approximately an inch closer to the join than the bolt. This exact pattern was also seen at a butt joint in unit 28E, 7N. This spike/bolt pattern, however, seems to differ on the remainder of the planks. The remainder of hull planking seems to be fastened with one to two trunnels at each frame with only an occasional spike or bolt present.

Figure 61 is a photograph of a disarticulated hull plank that was located off the starboard bow. This plank was temporarily removed from the water for a photograph and a study of the fasteners. The end of this plank fragment, which appears to adjacent to the original join, displays a copper-alloy dump bolt (spike) next to a copper-alloy bolt, with a wooden trunnel located approximately 10 cm past the latter.

In several areas along the port side of the vessel, a substantial amount of well-preserved oakum (a caulking material used to waterproof seams) was observed between hull planks. Oakum is typically made from scraps of old rope that were unwound, picked apart, and soaked in pitch. This material was then driven into the planking seams using chisel-like caulking irons with specialized caulking mallets. A sample of this oakum was recovered and designated FS 2.

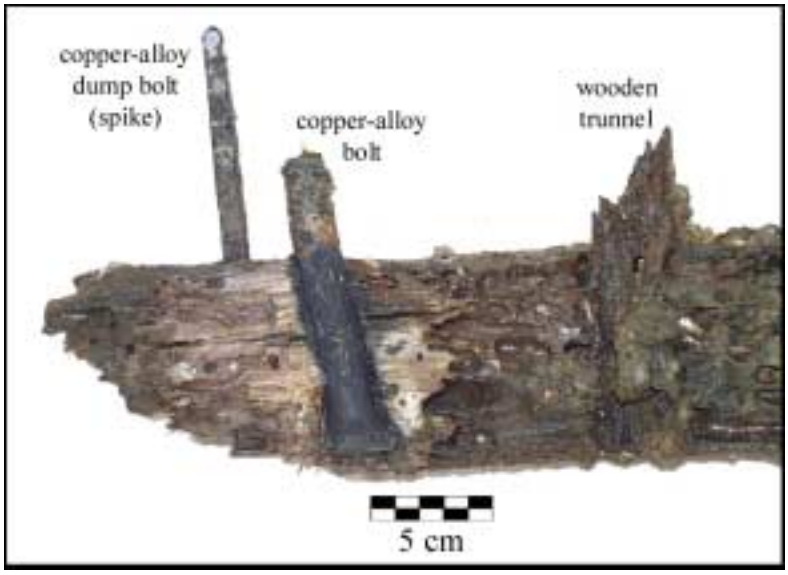

Figure 61. Fragment of a hull plank recovered from off the starboard bow, displaying fasteners adjacent to the plank butt (to the left). Note the signs of teredo worm damage. Photo taken by James McClean.

Hull Sheathing

Attached to the outside surface of Dog Island Shipwreck # 2's hull planking are hundreds of overlapping plates of copper-alloy sheathing. Copper sheathing was used to protect the bottom of wooden-hulled ships from teredo worm (shipworm) damage and to prevent the accumulation of barnacles and other sea growth. Originally an innovation developed by the British Royal Navy in 1761, this technology did not become common in the merchant marine until the close of the eighteenth century. Though it proved to be the most effective method of hull protection, there were some problems with coppering. The utilization of copper sheathing necessitated the use of all copper or copper-alloy fasteners below the waterline. In addition, copper is not only a soft metal prone to wear but also quite expensive.

In 1832, George Frederick Muntz developed a cheaper, more durable alloy of copper and zinc. Called Muntz Metal or "yellow metal," this alloy was made up of 59 to 61% copper, 38 to 40% zinc, and 0.5 to 1% tin (Crothers 1997: 330). By the 1850s, Muntz metal was extremely popular, and was present on most merchant ships until the invention of anti-fouling paint in the early 20th century (Stone 1993: 23).

The standard practice was to cover the entire hull beneath the waterline, so that the lower edges of the upper sheets overlapped the upper edges of the lower sheets, while the aft edges of the forward sheets overlapped the forward edges of the aft sheets. Rows were offset so that the sheets abutted in the center of the sheet above and below. The rows were roughly parallel to the keel, though the shape of the hull necessitated rows that shifted upwards at either end of the ship. To compensate for the curve of the hull the "Goring Belt" pattern was used, which entailed the placement of specialized triangular plates known as gore ends among the standard rectangular sheets at the bow and stern (Staniforth 1984a: 30; Stone 1993: 23). The individual sheets were placed over a material such as tarred felt or paper, and attached to the hull planks with copper-alloy sheathing tacks.

The sheathing on Dog Island Shipwreck # 2 seems to be arranged in somewhat of a different manner than that described above. While the forward sheets overlap those aft, it appears in at least one place (unit 10E, 8N), that the bottom edges of sheets are overlapped by the top edge of the row of sheets below. This is a somewhat unusual arrangement, suggesting that the hull was coppered from the waterline down. The usual method used on merchant vessels, which has been archaeologically demonstrated on other shipwrecks, entailed copperers starting at the keel at the sternpost and working forward and upward (Staniforth 1984b: 45). The British Navy, as well as the French, were known to use this alternative method whereby horizontal joins faced upwards (Staniforth 1984a: 28, Figure 2). It may be that Norwegian shipwrights traditionally eschewed the former practice.

A large amount of copper sheathing is visible on Dog Island Shipwreck # 2 along the outer edges of the extant hull. The plates are still articulated to the hull planks, and in some areas, particularly the bow, approximately 5 to 30 cm of sheathing extends past the uppermost strake of hull planking. One section of port side sheathing within 2.5 meters of the bow was exposed previous to excavation. It rises from the seafloor mirroring the contour of hull that no longer exists. Despite the amount of sheathing exposed by excavation, it was not feasible to dig deep enough to thoroughly examine an entire, intact sheet. Thus, information such as overall size and fastener patterns remains unknown. Many fasteners were observed in situ arranged in straight rows spaced approximately 5 cm (2") apart along the edge of the sheet. A representative sample of sheathing tacks was collected for analysis (eleven tacks in FS 6 and 11). These are described further below, in the section on fasteners.

In addition to the tacks a sample of copper sheathing (FS 10) was collected (Figure 62). This is a relatively large piece, approximately 60 cm by 12 cm. The piece was removed from the stem, where it was almost completely disarticulated when originally uncovered. It is irregularly shaped, incomplete, and rather poorly preserved; thus discerning any fastener patterns is problematic. Though it is likely that this fragment of sheathing, as well as the others on the hull, is true Muntz metal, its exact composition will remain unknown without metallurgical analysis.

Figure 62. Detail of a large copper sheathing fragment collected from the bow of Dog Island Shipwreck # 2 (FS 10). Photo taken by James McClean.

Bow Assembly

Much of the timbers that make up the bow of the vessel have survived in relatively good preservation. The first 2.5 meters of these bow timbers were completely exposed by excavation in order to study the nature of construction in this area. A plan view of the exposed bow timbers is presented in Figure 63.

The bow was built around the stempost, which was a heavy, curved timber (or assembly of timbers) scarfed to the keel and rising upwards and forwards. Seen in cross-section the stempost seems somewhat irregularly shaped, which may be due to the fact that the hull planks fit into deep rabbets that have been cut into the rear sides of the stem. The forward sided dimension of the post measures 27.5 cm (10.83”), while its aft face (which is angled 16° back from the forward face) measures only 24.5 cm (9.65”). This dimension does not include the two rabbets cut into the sides of the timber each of which measures approximately 12 cm (4 ¾”) in width and between 10 and 17 cm (3 15/16” and 6 11/16”) in length. The narrowest width of the stem, between the two rabbets, is approximately 21 cm. The port molded face measures 30.5 cm (1’) from the forward corner to the start of the rabbet, while the starboard face measures 24.5 cm (9.65”) between the same two points. The fore-and-aft thickness of the stempost across its center (this molded dimension includes the area taken up by the rabbets) is 39 cm (15 3/8”). Thus, the overall dimensions of the sternpost (27.5 cm by 39 cm) are very close to those of the sternpost of the *Dato*, another Scandinavian-built lumber vessel that has been archaeologically investigated, which measured 30 cm by 40 cm, (Souter 1997: 105).

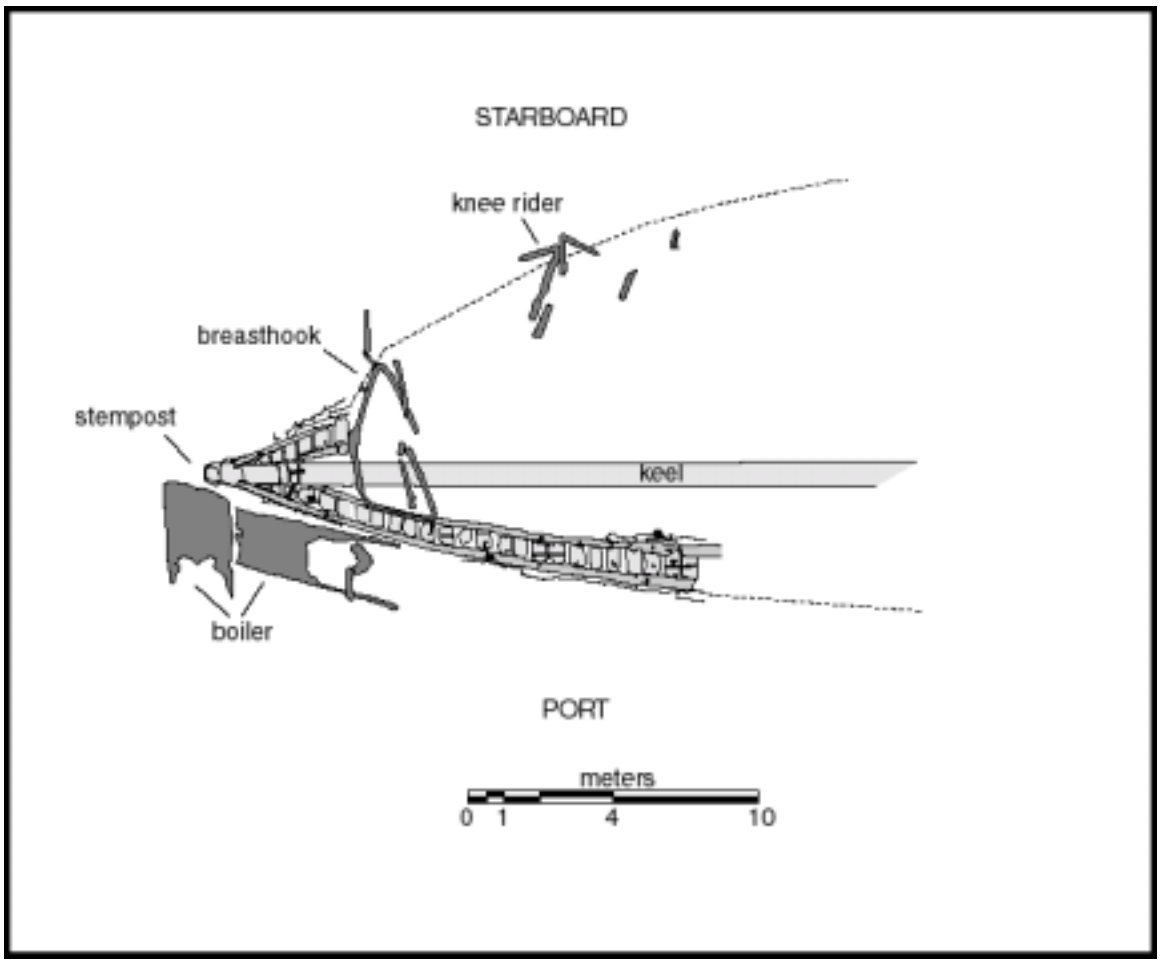

Figure 63. Plan view of bow of Dog Island Shipwreck #2.

Attached to the forward surface of the sternpost is another vertical timber. This upright timber, the forwardmost piece of the hull, is the gripe, false stem, or knee of the head, depending on its vertical position and the particular terminology of the shipwright. Regardless of its name, this external composite timber strengthened the stem, formed the cutwater at the waterline, and supported the headrails and figurehead at the upper end. Its cross-section is shaped like a snub-nosed triangle; the forward sided face measures approximately 20 cm (7 7/8") while the aft sided face (which is heavily deteriorated) would have measured approximately 28 cm (11"). The molded surfaces measure approximately 24 cm (9 7/16").

The outer surface of the gripe is at least partially covered with lead sheathing. A section of sheathing measuring approximately 53 cm by 22 cm (20 7/8" by 8 5/8") was recovered, photographed, and returned to its original location adjacent to this timber. The lead sheet was attached with copper sheathing nails directly over the copper sheathing which coated the exterior of the gripe. At least one other contemporary lumber vessel, the Finnish-built *Dato*, was found to have similar lead sheathing attached to the exterior surface of its stem (Steinberg 1997: 108). The bow structure of this vessel is illustrated in Figure 64. Unlike Dog Island Shipwreck # 2, the *Dato*'s stempost did not have copper sheathing present under the lead sheets, though the remainder of its hull was coppered. *Dato* also had no gripe or other timber attached to the exterior surface of the stem.

There are several substantial timbers attached to the interior surface of the *Vale*'s stempost. Only their uppermost parts were visible in the excavated area, thus their nature remains unknown. The first of these is the apron, a curved timber sometimes attached to the forward end of the keel and always attached to the after surface of the stempost. It is essentially an inner stempost. The remains of the apron are approximately 63.5 cm long and 37 cm wide (sided dimension). The forward corners of the apron are chamfered to fit into the area of narrowed hull planking. Two trunnels attach the adjacent hull planks to the apron at these chamfered corners. The forward surface of this timber is angled to butt against the similarly angled aft face of the stempost.

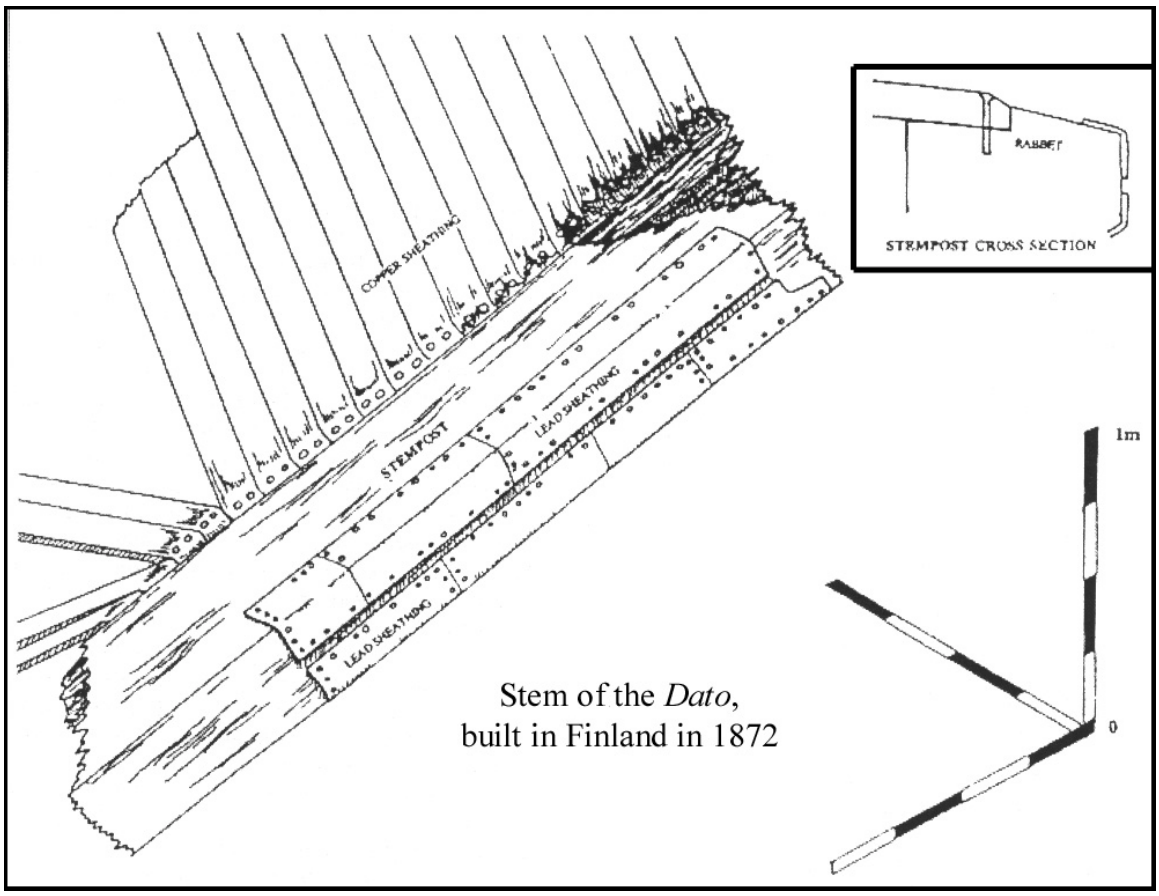

Figure 64. Bow structure of the Finnish-built lumber ship *Dato* (constructed in 1872) (Steinberg 1997: Figure 2).

The aft face of the apron butts into another timber which could be a scarfed component of the apron. Its exposed area measures approximately 18 cm by 37 cm. Its aft surface butts into another similar timber, possibly the stemson. The stemson is a large, knee-like curved timber mounted to the inner surface of the apron, which usually comprises the forward and upward extension of the keelson. This piece, which also measures approximately 18 cm by 37 cm, does indeed butt into the forward end of the keelson. The stemson, the possible apron component, the apron, stempost, and gripe are all in line with the keelson. It is possible that the two timbers aft

of the apron described above are actually components of the fore deadwood, though these filler timbers are usually located below the keelson.

Typically the frames in the bow area are specialized in nature and grouped into two types. The first type, located just forward of the square or "normal" frames, are known as cant frames because they are canted or angled forward. Beyond the cant frames, in the foremost area of the ship are the hawse pieces, which are angled forward to such a degree that they essentially run parallel to the keelson. The frames in the bow of Dog Island Shipwreck # 2 are hardly canted forward at all. The lack of true cant frames seems somewhat unusual, but is not unprecedented in the archaeological record (cf. Rosloff 1986).

There are timbers that may be interpreted as the bases of hawse pieces. The first three frame-like members on the port side and the first four on the starboard side appear to serve the same function as hawse timbers (providing framework in the forwardmost area of the bow). The heels of these pseudo-frames seem to butt into the apron. They are triangular or somewhat diamond-shaped perhaps so that they fit in the cramped area of the bow. The fact that there are three on the port side coupled with four on the starboard side points to a feature that has been seen to a lesser degree in some other timbers nearby: there is a certain asymmetry to the hull in the bow. The hull planks are rabbeted into the stempost at slightly different locations, and both the stempost and apron have asymmetrical cross-sections. The extra hawse timber on the starboard side may represent a piece used to fill in space created by the use of asymmetrical timbers. Whether these features indicate sloppy ship design or intentional construction features is not fully understood.

Stern Structure

At the opposite end of the shipwreck the stern timbers were exposed during excavation. Just over two meters of the aftermost section of the hull was exposed and subsequently recorded. Excavation and observation of exposed timbers suggests that its construction was simpler in nature than that of the bow. Figure 65 is the plan view of the stern structure.

Assuming its identification in historic photographs is correct, the stern of the *Vale* was round-tucked. This style of stern, common on large 19th century sailing vessels, was narrow and pointed below the waterline, but displayed a sizable upper overhang angled up and aft. During its working life, the *Vale*'s captain and officers would have lived in stern cabins, and it is likely that the remains of their domestic and personal items may have been deposited in the area. Unfortunately all of the upper works of the stern have long since deteriorated, and all that is left is the lower portion, even with and below the keelson.

The principal timber in the stern is the sternpost. This timber, upon which the rudder is hung, is the point at which the transom and planking ends are secured. The sternpost is secured to the end of the keel by mortise-and-tenon joints, however, the exact arrangement remains unknown due to limited time for excavation. The sternpost is shaped somewhat like a snub-nosed triangle in cross-section. It is roughly 35 cm (13 ¾") sided by 55 cm (21 5/8") molded. The sternpost is rabbeted to admit the ends (after hoods) of the hull planks. The rabbets cut into the molded faces of the sternpost are each approximately 25 cm (9 7/8") long. A long trunnel bisects the sternpost longitudinally holding it in place against the keelson and aft deadwood. The sternpost was sheathed in copper, as were all timbers located below the waterline. A disarticulated copper sheet was observed adjacent to the starboard side of the sternpost, measuring approximately 42 cm by 21 cm (16 ½" by 7 7/8").

Typically the aft edges of sternposts were shaved down to allow the rudder to swing freely, which appears to be the case in Dog Island shipwreck #2, though the upper portions of the sternpost are somewhat obscured by deterioration. No gudgeons (rudder straps) were observed on the after face of the sternpost, however as mentioned before, the entire stern was not excavated.

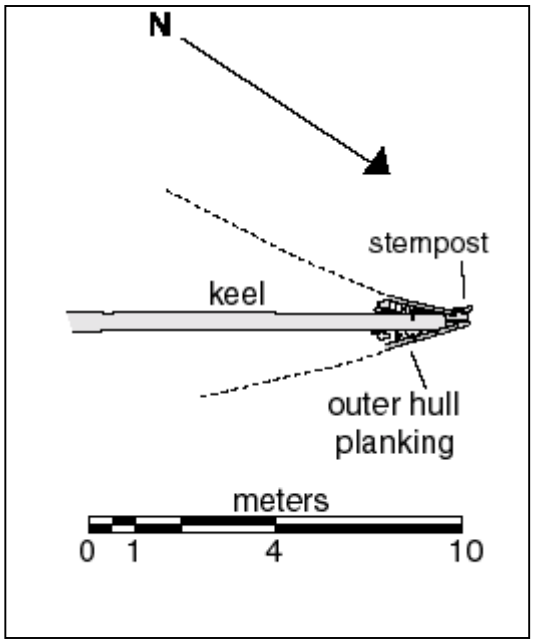

Figure 65. Plan view of stern of the Dog Island Shipwreck #2

The rudder, which (according to historic photographs) was still attached after the *Vale* ran aground, was not found on the site. It is possible that the rudder was purposely unshipped in order to salvage hardware such as rudder chains. If present, however, it is likely that the unhinged rudder remains buried in the immediate vicinity.

The forward surface of the sternpost butts directly into the aftermost end of the keelson. No horizontal knees or crutches were observed. It is possible that there is a sternson situated below the keelson, and there is certainly an assembly of aft deadwood timbers in this location. Neither, of course, could be observed without deeper excavation along either side of the stern.

The keelson is just over 38 cm (about 15") sided where it meets the sternpost. The sides of the hull are sharply angled in this area, and between the keelson and hull planking are a series of specialized frames. These are very slender so that they may fit into the narrow space of the hull. Unfortunately, these aft frames have deteriorated, obscuring their dimensions and shapes. Trunnels attach the outer planking and frames directly to the keelson.

Iron Hull Members

Vale was built (in 1878) about the time when composite-built ships were among the most common type of working merchant sailing vessels. Timber for shipbuilding, especially for curved pieces such as breasthooks and knees, had become somewhat scarce and thus increasingly expensive. The use of iron to reinforce or replace key wooden hull members was not a new idea.

In fact, it had been used in the 18th century by the Royal Navy and East India Companies and was noted in some cases to reduce the weight of the hull by as much as 35% (Jeffery 1988: 1). Ships constructed completely of iron were introduced fairly early in Britain where timber shortages were most pronounced, but it took a rather long time before they were accepted as the norm. This was the case despite obvious advantages in strength, durability, and the reduction of both weight and wasted space. The slow acceptance of iron-hulled sailing vessels is clearly illustrated by analyzing Lloyd's list of A1 classified ships. Lloyd's first accepted the classification of iron ships in 1838, and by 1852 there were only 58 iron-hulled sailing ships on their list (MacGregor 1952: 68).

There were a number of reasons that it took such a long time for iron-hulled ships to gain favor among shipwrights and merchants. A simple atmosphere of conservatism, a reluctance to trust the use of such a radical innovation, explains part of the problem. The additional cost for the construction of iron-hulled ships was a serious impediment, as it had been for the introduction of copper sheathing into the merchant fleet almost a century earlier. There were also ventilation problems on the earlier iron ships that caused severe and potentially cargo-damaging condensation on the inner surface of the hold (MacGregor 1952: 69). But perhaps the most significant problem was the inability to prevent bottom fouling on iron hulls. In addition to bottom fouling, the immense amount of marine growth that would accumulate on a hull could seriously impede the vessel's speed on its journey.

The solution to this problem was the introduction of composite-built ships which took advantage of an iron framework's ability to reduce weight while at the same time utilizing an outer hull of wood in order to use copper-alloy sheathing. There were a number of other advantages of composite-built ships, which soon became apparent. Composite ships could stow much more cargo, due to smaller scantlings made possible by iron reinforcements. Like iron hulls, composite hulls were stronger allowing use over many years without becoming strained or prone to leaking. Like wooden hulls, composite ships did not suffer from too much stiffness preventing speed in very strong winds; they were as fast in light breezes as wooden-hulled vessels. Composite hulls typically received high ratings from Lloyd's and could have their class renewed when it expired which saved the owner an immense amount in insurance costs (MacGregor 1952: 72).

The first composite-built ships utilized the standard wooden frames with iron components such as knees, knee riders, and breasthooks. Forged iron knees were common on British wooden ships by 1830 (Stone 1993: 30). During the first half of the 19th century a series of British patents for techniques of combining iron and wood in shipbuilding were granted, in 1813, 1839, and 1841. However, John Jordan's of November 1849 was the first well-engineered attempt to specify a complete iron framework in a wooden hull (MacGregor 1988: 142). By the 1850s Britain was building more and more composite ships. An increasing number of shipyards began utilizing iron frames, keels, beams, stems, and sternposts. The 1850s also saw the first composite-built ships in French dockyards but the tradition did not become truly commonplace until after 1863, when Jordan presented a paper at the Scottish Shipbuilder's Association, and Alexander Stephen devised a number of great improvements obtaining the agreement of Lloyd's Committee to classify composite-built vessels (MacGregor 1988: 143-144).

Composite construction was immensely popular in Britain in the 1860s, and by this time it was the norm to utilize complete iron frameworks instead of knees, riders, and breasthooks. Despite the initial rush to build this new type of ship, the practice would soon become obsolete. The completion of the Suez Canal in 1869 and the subsequent increased competition from steamships greatly curtailed the construction of composite sailing ships (Sexton 1991: 59). The last year that composite ships were built in Great Britain was probably 1876 (MacGregor 1988: 146).

While Britain, who was always on the forefront of nautical technological innovation, turned to steamships, other nations such as France, the Netherlands, and Scandinavian countries continued to build composite sailing ships for a decade or so longer. Canada tended to follow British shipbuilding traditions and so practiced composite construction early on. American shipwrights, who had abundant timber resources, tended to build wooden hulls even when the use of iron masts, spars, and blocks became commonplace (Stone 1993: 30).

Despite its relatively late construction date, *Vale* more closely resembles an earlier British-built composite ship due to the fact that its iron components are limited to knees, knee riders, and breasthooks. This may be explained by the fact that technological innovations were slower to catch on in countries such as Norway where *Vale* was built.

Iron Knees and Knee Riders

Dozens of iron knee riders were used to reinforce the hull and add support to the decks of Dog Island Shipwreck # 2. Knees are heavy, right angled, elbow-like pieces, of wood or iron, that were primarily used to reinforce the joins of deck beams to the hull, to keep the beams from twisting. Depending on their positioning, they were termed hanging knees (positioned under the beam, with the horizontal leg on top and the vertical leg pointing down), standing knees (on top of a beam, the opposite of a hanging knee), lodging knees (positioned horizontally on either side of a beam), or dagger knees (positioned diagonally). Specialized U-shaped knees were called staple knees, and were jammed between timbers where two wooden lodging knees would have been used.

Wooden riders were used on multi-decked ships and were similar to frames except that they were positioned on top of the ceiling planking. They strengthened the hull by resisting upward pressure in case of grounding. Iron knee riders (or hold riders) replaced wooden riders in the 19th century. These looked similar to the standard hanging knees, except that they had a very long, curved vertical (lower) leg that followed the shape of the inner hull. This lower leg was attached to the upper surface of the ceiling planking, while the upper or horizontal leg was bolted to the underside of a deck beam.

A photograph of Dog Island Shipwreck #2 taken in 1963 (Figure 66) provides insight into the use and position of iron knee riders in the construction of the *Vale*. The photograph shows the iron knees, which are visible protruding from the water's surface, arranged in pairs along each side of the vessel. The individual riders in each pair seem to be separated by about five feet and each pair seems to be spaced about ten feet away from the next.

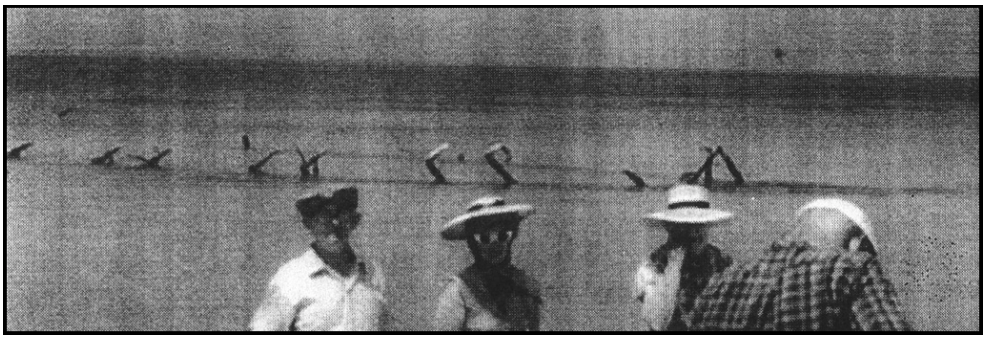

Figure 66. Reproduction of a 1962 or 1963 photograph of Dog Island Shipwreck # 2 (Åsen 1997).

Today, all of these iron knee riders, save one, have deteriorated and collapsed. Their remains, along with disarticulated knees, are scattered across the wreck site. This is likely the result of a common site formation process observed on many composite-built wrecks (cf. Stone 1993: 29; Burns 1999: 59). The stumps of many of the lower legs of knee riders on Dog Island shipwreck #2 are protruding from the sediment along the outer perimeter of the hull. Many of these stumps and disarticulated pieces were recorded, though time constraints precluded the documentation of all exposed segments. A sonar image of the site clearly shows fallen knees or knee rider fragments along with a series of rider stumps which define the outer perimeter of the buried starboard side (Figure 67).

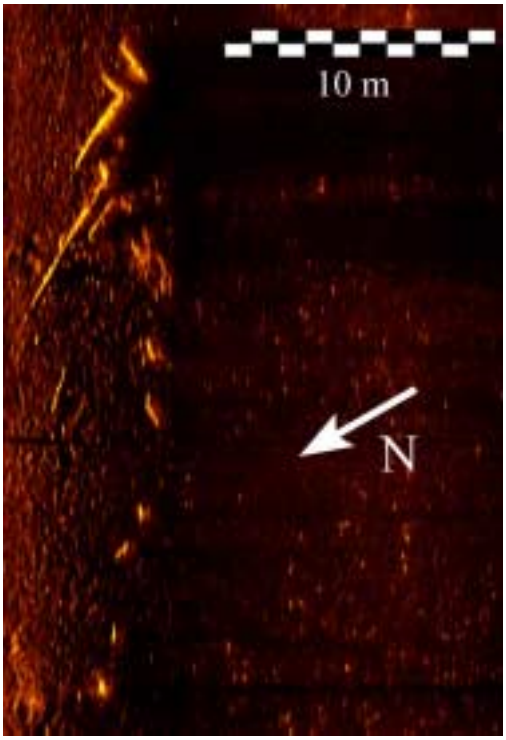

Figure 67. Sonar image of the wreck site. Bow is towards the top of image (file 15jun010.tif).

The single intact rider (in unit 16E, 14N, SE quadrant) was inspected to understand the original morphology of these reinforcement pieces (Figure 68). The dimensions of the lower arm of the rider, measured at the point where it extended from the sediment, were 11 cm sided by 7 cm molded (4 ¼" by 2¾") and at the elbow 9 cm sided by 6 cm molded (3 ½" by 2 ¼"). The upper arm of the rider retained its sided width of 9 cm, but tapered in thickness to a slender 2 cm (¾") at its tip. In comparison, the riders from the wreck *Catherine* were slightly wider and thicker (5" or 12.7cm by 3" or 7.6 cm), though they may have been measured at a lower section of the rider (Burns 1999: 59). The length of the exposed upper arm was about 90 cm (about one yard). As most of the lower leg was buried, its length could not be recorded. The riders on the wreck of *Catharine* were approximately 18 feet or 5.5. m long. Though the exact position of the lower ends of the riders are unknown, they terminate somewhere above the floor wrongheads, unlike *Catherine*'s riders, which were butted into the keelson (Burns 1999: 59).

One fastener, a bolt, is visible in the upper arm of the intact rider. It has fallen through its hole and now hangs from the arm, but it originally would have protruded upwards from the arm into a beam above. Another broken fastener was seen protruding from the outboard surface of the lower leg, with its other half protruding up from the ceiling planking. These fasteners are all copper-alloy in composition. This material would not usually be used in conjunction with iron below the waterline (due to the corrosive effects of electrolysis), so it is not known if its presence is anomalous or intentional. In contrast, the *Catherine*'s riders were fastened with iron spikes (Burns 1999: 59).

Figure 68. FSU Underwater Archaeology Field School student Edward Wiser records the angle of the lone intact iron knee rider. Inset shows the same rider, with a corroded fastener hanging from its upper arm, exposed at low tide. Photo taken by Chuck Meide.

Iron Breasthook

The remains of a long, twisted iron breasthook were encountered in the bow area. The breasthook is exposed during low tides and is no longer attached to the interior of the bow. It seems to retain, for the most part, its original shape. Figure 58 and Figure 66, far right). It is approximately 10 cm thick, and if straightened would measure nearly 6.25 m. The center of the breasthook, which would have been affixed to the interior surface of the apron, was approximately an inch or so thicker than the remainder. A number of bolt-like fasteners were observed in the breasthook, and two in particular were spaced approximately 45 cm (17 ¾") apart.

Fasteners (Written by Edward Wiser)

At least five types of fasteners were identified and recorded during the inspection of Dog Island Shipwreck # 2. These include four types of copper-alloy fasteners (Figure 69) and wooden trunnels. With the exception of keelson drift bolts, at least one sample of each type was recovered for photographs and study in field. In the case of spikes and sheathing nails, intact specimens were recovered and taken back to the laboratory for more testing. It may be significant that despite the use of iron knees, breasthooks, and knee riders in the composite construction of this vessel, very few if any iron fasteners were observed. This is likely due to the fact that the ship was copper-sheathed, a technique that would have necessitated the use of non-ferrous fittings only below the waterline. It is likely that those portions of the hull that may have contained iron fasteners (e.g., everything above the waterline) are no longer extant. As some charred wood fragments were observed during excavation, it might be that some of the hull was burned, most likely to aid in salvage of metal fittings.

A great quantity of copper-alloy spikes or dump bolts were observed throughout the site. The fasteners would have been used to fasten the outer hull planking to the frames. These spikes are square or rose-headed, square shanked, and end in a chisel-point typically. They are approximately 17.3 cm (6 ¾") in length, 0.9 cm (3/8") thick, with the heads usually measuring between 0.2 and 0.5 cm (1/16" and 3/16") in thickness (see Figure 69, C). These spikes are not round-shanked, which is one of the traditional definitions of dumps, (cf. Steffy 1994: 289; De Kerchove 1948: 249; McCarthy 1983: 14-15; Stone 1993: Figure 20), but as their function is to fasten the hull planks to the frames, they will be classified as such for the purposes of this report (cf. Stone 1993: 34).

The dumps from Dog Island Wreck # 2 appear to be made from naval brass, or Muntz metal, which is an alloy made up of about 60% copper and 40% zinc. Naval brass fasteners came into use in the 1840s, in conjunction with Muntz metal sheathing, and remained popular until their gradual replacement with silicon bronze in the 1970s and 1980s. During excavation, one of these spikes was inadvertently broken, allowing the internal composition to be examined. Although the exterior surfaces presented areas of dull, red color, a circular core area retained its original bright golden brassy color. If this site does indeed represent the remains of the *Vale* (which appears to be the case), an analysis of this and other fasteners could provide a reliable indication of the rate at which zinc is leached from naval brass. This leaching makes the metal brittle and greatly reduces tensile strength.

A few loose dumps were observed near the stem of the vessel. One of these (FS 15) was recovered, from unit 2E, 10N. This artifact has since been conserved and is currently stored in the FSU Department of Anthropology collections.

Figure 69. Four types of copper-alloy fasteners observed on the *Vale* wreck.

A. Distal end of a large bolt.
B. Proximal end of a clench bolt, with clench ring or rove in place. Fastened hull and ceiling planking to frames.
C. Dump or boat spike, for attaching hull planks to frames.
D. Sheathing tacks or nails, for fastening copper sheathing to the hull planks.

Photo taken by James McClean.

A bolt is a fastener cut from a rod of wrought iron, steel, or copper-alloy, with the head and tip typically shaped by hammering. Bolts are not usually driven directly into wood (like a spike), but instead are pounded into a pre-augured hole just slightly smaller than the diameter of the bolt. A variety of bolts were observed from Dog Island Shipwreck # 2, all made from a copper alloy (probably naval brass or Muntz metal).

Clench bolts were observed protruding from frames upwards into ceiling planks. A clench bolt is a "through fastening . . . having its end riveted over a washer or clench ring" (Röding 1793: 345). The clench bolts appear to have been driven through ceiling planking, frames, and hull planks. A copper-alloy bolt 1.8 cm in diameter that was observed in a disarticulated hull plank (Figure 61) may represent the outboard end of a clench bolt.

A similar specimen (FS 9) was collected loose in unit 6E, 9N. It consists of the broken end of a clench bolt and the clench ring or rove still in place around the shaft (Figure 69, B and Figure 70). Its surviving length is 18.5, cm and it is fashioned from a 2.2 cm (7/8") round copper-alloy stock. The head has been peened to hold a copper-alloy clench ring. The rove is notable because its edges are beveled. This feature probably means that the rove was machine-turned and not simply stamped by a metal press. Machining requires additional and relatively expensive steps in the manufacturing process, but results in a superior product that fits the head more closely.

During the 1990 FSU survey of Dog Island Shipwreck # 2 a similar fragmentary section of a 1.75 cm (11/16") diameter clench bolt was recovered. It also had a ring, though it was incomplete (Wright 1990: 10).

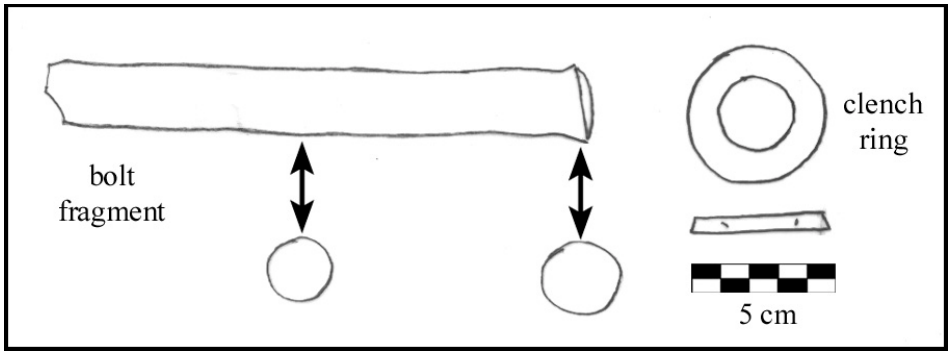

Figure 70. Sketch of FS 9, a broken section of a clench bolt with rove or clench ring. This specimen is also pictured in Figure 69, B. Drawing by Edward Wiser.

Another specimen recovered by the 1999 survey team is FS 12, the distal end of another copper-alloy bolt (Figure 69, A). This bolt, with a diameter of 2.4 cm (15/16”), is slightly larger than the clench bolt described above. Its surviving length is 27.7 cm, and it ends in a distinctive squared diamond point. This type of fastener may properly be termed a drift bolt. This term usually refers to the largest of bolts driven through the keelson at each framing station. It can also refer to substantial pointed bolts that were used in other areas with ample wood and the need for an extra-strong join (Stone 1993: 34-35). This specimen has been subjected to a sheering force of considerable intensity. Moderate distortion of the shank shows that it bent slightly before breaking. This signature is consistent with destruction of fasteners in a medium such as wood, where the surrounding material could be compressed to some degree. The bolt observed in a disarticulated plank (Figure 61) was also sheered off without a noticeable bend in the stock. Another copper fastener affixing a knee rider to the inner hull was broken in half (both pieces were observed *in situ* separated by a small gap in the center of the exposed shaft). All of these fractures were the result of a sudden and dramatic sheering force that suggests a violent wrecking event.

A series of massive drift bolts were found well-embedded along the length of the keelson. These were fashioned from a 3.5 cm (1 3/8”) round bar with heads approximately 4.5 cm (1 ¾”) in diameter. On-site inspection suggests that although the heads were made by peening, no roves were attached. They were driven into the keelson at regular intervals averaging 62 cm (just over 2’). In some locations as much as 10 cm of a bolt protruded from the underlying timber (probably the result of keelson deterioration), while in others the bolt was so well driven that the head was difficult to discern. None of these bolts were recovered. Measurements of keelson drifts cited here were recorded between 21E and 26E.

Remnants of copper sheathing observed on the outboard surface of the hull often had sheathing nails or tacks still *in situ*. A total of eleven sheathing nails were collected as a representative sample, making up FS 6 and FS 11 (Figure 69, D). The specimens recovered were disarticulated, and the bulk of them (FS 11, ten nails) were found in the immediate vicinity of the stempost. Their dull, reddish color shows that they either contained a high copper content initially or the less noble metal component has leached out. The presence of sharply defined edges of the diamond points suggests that they are not pure copper nails, which would be unlikely, given the expense and malleability of copper.

The sheathing tacks or nails examined are approximately 3 cm (1 3/16") in length, cut from round wire 0.4 cm (1/8") thick, with a flat head that flared out to 1 cm (3/8") in diameter (Figure 71). The point is a well-defined diamond that tapers over the last third of the shank. The heads are roughly circular, which is clearly demonstrated in Figure 71. This description is very similar to the standard sheathing nails described by Steffy (1994: 289).

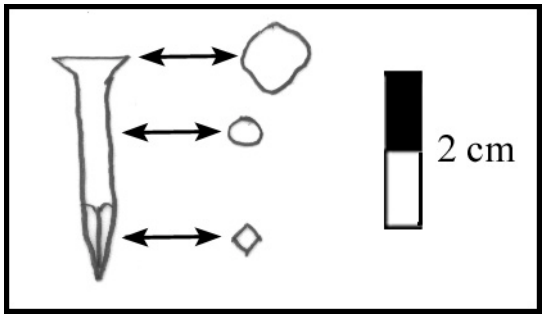

Figure 71. Copper sheathing tack from Dog Island Shipwreck # 2 (FS 11). Drawing by Edward Wiser.

Trunnels, or treenails, were "long cylindrical pins of cleft oak from an inch to an inch and a half in diameter and from one foot to three feet six inches in length used for fastening the inside and outside plank of a ship to the upright members" (Falconer 1970: 579). Trunnels could also be made of locust, fir, or beech, but were generally required to be of as good a quality as the timbers through which they passed (Australian Lloyd's 1864: 21).

The trunnels of Dog Island Shipwreck # 2 appear to have been blunt at both ends. No tapered or flared trunnels were observed, nor were wedges observed. These trunnels were used to fasten both ceiling planking and hull planking to the frames (see Figure 61) and other upright timbers. Additionally, long transverse trunnels (55 cm or 1' 5/8") were used to fasten paired frames together. A longitudinal trunnel was also noted in the deteriorated upper surface of the sternpost.

The Dog Island Shipwreck # 2 trunnels average between 3.2 cm and 3.6 cm (1 2/8" and 1 7/16") in diameter. A split fragment of a trunnel, FS 5, was collected for future wood identification analysis. In addition, a large fragmentary hull plank with the end and part of the shaft of a trunnel was collected as FS17.

Deck Machinery

Two large broken sections of what appears to be an iron boiler lie at the forward end of the wreck, outside the hull on the port side, where they protrude from the water at low tide (Figure 58 and Figure 63). These boilers were certainly not originally located in this position, but probably shifted during storm action sometime after the initial wrecking. Like most of the iron on the wreck site, the boiler sections are heavily concreted. This makes recording measurements such as thickness problematic. The diameter of the two cylindrical sections ranges from 1.13 m to 1.17 m (3.71' to 3.84'). The two segments measure 2.50 m and 1.78 m (8.2' and 5.8') in length, respectively. If the two pieces indeed represent one boiler it was probably approximately 4.28 m (about 14') long.

It is possible that these iron objects represent some other similar object related to steam machinery, such as a closed-feed water heater (Souza 1998: 88-89). The type of boiler, or exact nature of these large artifacts is uncertain without excavation and further inspection. It is likely, however, that this is a marine boiler related to the ship's deck machinery.

Though sailing ships did not use steam engines for propulsion, small steam engines were used in conjunction with a capstan and/or windlass to hoist sails and weigh anchors as early as 1860 (Souza 1998: 53). Called donkey engines, these auxiliary engines were equipped with their own scaled-down boilers, and were often used even on steamships, when it would sometimes be uneconomical to make steam with the main boilers, for a variety of mechanical purposes. By the late 19th century, it was common for most sailing ships to be equipped with steam-driven engines such as these. The use of such engines allowed ships to operate with smaller crews, which was one way owners could make their sailing ships more efficient and cheaper to operate, so that they could more effectively compete with steamships (Souza 1998: 6-7, 106-108).

No other components related to deck machinery were observed (with the possible exception of a single rubber gasket, described below). It is likely that most or all other steam engine components and machinery were salvaged in the months after the wrecking took place.

Other Artifacts

Rigging Components

A sailing ship's rigging encompasses the complicated network of ropes or wires, suspended blocks (pulleys), fairleads, and other fittings and hardware, that attached to the masts, spars, and sails of the vessel. As is often the case, most of these perishable components have deteriorated over time, though a few more durable pieces have survived on the site. However, fragile organic components such as rope fragments can be well preserved in the anaerobic conditions present under the muddy sediments on site. Further excavation would undoubtedly uncover more rigging-related artifacts.

The fragmentary remains of a deadeye were uncovered during the initial 1990 survey. It was collected and identified at that time and is illustrated in the 1990 site report (Wright 1990: 12). The incomplete piece measured approximately 11 cm by 6 cm and contained one hole. The diameter of the hole was approximately 2.5 cm or 1". It was found just outside of the hull, amidships, on the port side. This location suggests it was associated with the mainmast's port shroud. The fact that a deadeye was found, instead of an iron turnbuckle, suggests that the standing rigging may have been composed of hemp instead of wire rope. This is by no means conclusive, however, as deadeyes were sometimes used with wire rope.

Also recovered by the 1990 student archaeologists was a nearly intact belaying pin. These were stored in racks on the bulwarks below the shrouds, in bands around the masts, and elsewhere. They served as convenient and temporary tie-off points for rigging ropes. They are shaped like upside down, skinny bowling pins, with a narrow "handle" at the base. The handle was eroded away from the bottom along with the upper surface of the artifact. Its surviving length, from its upper end to the thick ring marking the start of the handle, was approximately 14 cm or 5 ½". Its widest diameter measured 3.5 cm (1 3/8"). A detailed sketch of the artifact appears in Wright's report, though no specific provenience was noted (1990: 11).

In 1999 a few segments of rope were observed. One of these was observed on the port side of the keelson in unit 25E, 9N, at a depth of approximately 70 cm below the sediment's surface. This section of rope was not recovered, but it was observed to be approximately one meter in length and organic in composition. Most rope used on board ships at this time was made from three to four strands of hemp, sisal, or manila. It did not appear to be tarred. A small fragment of this rope was collected as a sample for possible analysis, and was designated FS 3.

Though it had been become commonplace on ships by the 1860s and 1870s, no wire rope remains were observed. Wire rope has been found on other contemporary wreck sites (such as the *Catherine*), and it may be that the *Vale* used the less technologically advanced and less efficient hemp rope.

Ballast

Ballast is weight added to a ship's hold to lower its center of gravity in order to reduce top-heaviness and make the vessel more stable. Any number of objects could serve as ballast: stones, bricks, pig iron bars, scrap metal, lead ingots, pebbles, and even sand. Most merchant vessels opted for the cheapest and easiest material, stones or river cobbles. Ballast, especially in merchant ships, was adjusted constantly. A vessel without cargo would need a full load of ballast, while one with a heavy cargo such as bricks or lumber might not need any additional weight in the hold.

It is well known that the ships participating in the local lumber trade would sail to Dog Island and dump their ballast, usually in the sheltered waters on the inshore side. With their holds free, they could take on loads of lumber or casks of pine pitch. We also know that the *Vale* had recently discharged its ballast in order to take on a load of timber as the hurricane struck. It is not surprising, therefore, that very little ballast remains were identified on the wrecksite.

Only two stones, one large and one small, were observed during the investigation of Dog Island Shipwreck # 2. These were both collected. FS 7 is an irregularly shaped stone (about 25 cm wide). FS 8 is a smooth stone, smaller than a clenched fist. Both were recovered from unit 1E, 2N, buried under a substantial amount of sediment near the bow. To date, no geological analysis has been conducted on these stones.

In addition, a small piece of slate (FS 14) was recovered from unit 25E, 8N. This could have been part of the ballast, part of a shipboard structure such as the galley, or the remains of a previous cargo.

Rubber Gasket

One of the more unique artifacts located was a circular rubber gasket. Designated FS 4, it was found amidships, deeply buried in sediments by the keelson in unit 23E, 9N. It was originally circular, but is now broken with a more ovoid shape (Figure 72). The gasket is flat, approximately 1 cm thick, and ranges from 2.1 and 2.4 cm in width. Its maximum diameter is approximately 24 cm, though unless a section is missing, its original diameter was probably somewhat smaller. The rubber is soft to the touch and a dull gray color. It has obviously been used, and shows signs of compression or flattening. On one side near one of the broken ends there is a small square impression in the rubber. It appears to be the imprint of a square fastener head. The arrow in Figure 72 points out this feature.

Rubber is an organic compound made from latex or the sap of the rubber tree. Its elasticity and strength are derived from the fiber direction synthesized into it during the refining process. Rubber oxidizes and decomposes over time, though a dark anaerobic environment free from ultraviolet rays and heat seems to preserve rubber better over time than any modern anti-oxidants (Rodgers 1992: 112-113).

Rubber has been used as a waterproofing agent since the late 1700s, however, it became more popular after the vulcanization process was perfected in 1839. It was used in shoes, hoses, gaskets, tarpaulins, and foul weather clothes. Rubber artifacts are not uncommon in 19th century artifact assemblages (Rodgers 1992: 112). This gasket was obviously used in conjunction with making an air- or water-tight seal in some junction of plumbing, probably for a mechanical device. It is possible that it was associated with the steam-driven deck machinery, and may be from a donkey engine. Given its location in the midships area of the ship, adjacent to the keelson, it is more likely that the gasket was part of the bilge pump system. By the mid-19th century, rubber gaskets and diaphragms were common components in ships' bilge pumps (Oertling 1996: 52,75).

Figure 72. Rubber gasket (FS 4) recovered from amidships near the keelson. The arrow points out a square impression, possibly made from a fastener head. Photo taken by James McClean.

Ceramic Artifacts

Very few ceramic artifacts were recovered from the site. FS 1 is a small white sherd from a ceramic container or flatware. It was recovered when digging adjacent to the keelson in unit 25E, 9N. It appears to be whiteware. Whitewares were commonly produced between ca. 1820 and ca. 1890. The sherd is too small to indicate what form of vessel it may have come from.

Figure 73 depicts a large tile fragment found inside the forward area of the ship. It was specifically located in unit 5E, 10N, just centimeters away from the port side terminating end of the breasthook. The tile is a dull reddish color. It is fairly thick (about 1 ½" or 4 cm), and its only intact side measures 23.5 cm (9 ¼") across. It is possible that this artifact is associated with the ship's galley, which would have required fireproofing tiles, and would likely have been

located in the forward area of the ship. An alternative explanation is that the tile may be the remnants of a previous cargo of building supplies.

Figure 73. Tile fragment (FS 13) recovered from the bow area of the shipwreck. Photo taken by James McClean.

Interpretation and Conclusion

It is clear from the analysis of recovered artifacts and documented hull remains that Dog Island Shipwreck # 2 was a large sailing vessel dating to the late 19th century. She was robustly constructed, a sign of a seaworthy, ocean-going vessel, and was probably involved in the international lumber or naval stores trade that was prevalent in this region. But is she the *Vale*? Careful analysis of the extant historical documentation, coupled with the archaeological data gathered by the 1999 investigation, strongly suggests that she is indeed. The main lines of evidence are stated below, roughly in order from the general to the specific:

- The composite hull construction, evidence of steam-powered deck machinery, presence of rubber, presence of Muntz metal sheathing and fasteners, all indicate that Dog Island Shipwreck # 2 was built and wrecked in the mid to late 19th century, as was the *Vale*.
- Dog Island Shipwreck # 2 was a composite-built, ocean-going sailing vessel. It is known from archival evidence that *Vale* also was a composite-built, ocean-going bark-rigged sailing vessel.
- Dog Island Shipwreck # 2 does not have a load of ballast in its hold. The only logical reason a ship near Dog Island in the late 19th century would offload its ballast would be in order to take on a load of lumber or pine pitch. As the 1899 hurricane struck, *Vale* was loading a cargo of lumber, and her ballast had already been discharged.
- Dog Island Shipwreck # 2 was wrecked in a very sudden and violent grounding event, as evidenced by the number of copper-alloy bolts that were broken due to a sudden and intense sheering force. The *Vale* was violently driven ashore by a severe hurricane.
- Dog Island Shipwreck # 2 is situated in the shallows of Shipping Cove, listing to starboard and pointed towards shore. Only one vessel pictured in the series of historic 1899 photographs is in this same position. This particular vessel, a bark, has been identified by several sources as the *Vale*.

- Thorvald Iversen, a sailor on *Vale* when it wrecked on Dog Island, visited the island in either 1962 or 1963 and identified the remains of Dog Island Shipwreck # 2 as those of the *Vale*. The 1960s photographs of Iversen and his shipwreck that have been published in Floridian and Norwegian newspapers clearly portray Dog Island Shipwreck # 2.
- Shipping registries located in Norwegian depositories provide the length, breadth, and depth of hold of the *Vale*. Measurements of Dog Island Shipwreck # 2's overall length, taken at a level even with the top of the keelson, are within 1.5 feet of the overall length provided by these documents (which would have been measured at a slightly different level). Data produced by archaeologists suggest the breadth of Dog Island Shipwreck # 2 is within inches of the dimension listed in the document.

It can thus be stated with a great degree of certainty that the shipwreck known as Dog Island Shipwreck # 2 represents the remains of the Norwegian sailing bark *Vale*. By identifying the shipwreck by name, its usefulness as an archaeological case study is greatly enhanced. Most of the shipwreck remains intact and well preserved in the anaerobic conditions provided by muddy sediments. The limited testing conducted in 1999 suggests that there remains a great quantity of artifacts, along with the bulk of the hull, available for future study.

The potential for archaeological research at this site is profound for a number of reasons. Now that the location of the *Vale* is known for certain, it should be less difficult to relocate at least some of the other vessels wrecked by the 1899 hurricane. The *Jafnhar*, for example, should be off *Vale*'s port bow, within approximately one hundred meters, thus currently under the island. Other identified lumber ships can also be seen in the historic photographs, and their positions in relation to that of *Vale* can be estimated with a reasonable degree of accuracy. Thus *Vale* may serve as a kind of Rosetta Stone for interpreting the location of all three of the remaining lumber shipwrecks.

A group of four shipwrecks involved in the lumber trade from a variety of foreign nations that all wrecked at the same moment in time offers a very unique opportunity for an anthropologically oriented research program. Such a series of comparative time capsules differing in nationality but not in function can provide fascinating data related to north Florida's role in the global sociocultural and economic system of the late 19th and early 20th centuries.

Additional insight into the international lumber trade and 19th century shipping and shipbuilding can be gained through comparative studies with other contemporary lumber vessels, a number of which exist in the archaeological record. Both the *Catharine* (Bratten et al 1998; Burns 1999) and the *Dato* (Anderson 1997; Souter 1997; Steinberg 1997) have already been mentioned in this report. These lumber vessels were both owned by Scandinavian countries operating in distant and exotic locales (Florida and Australia, respectively). Other 19th and early 20th century ships known to have plied the lumber trade that have been archaeologically investigated include *Annabela* (Claesson 1997), *Douglas Mawson* (Tracy 1997), and *Avanti* (Murphy 1997; Souza 1998: 85-90), which for a time carried Floridian lumber for the same man who owned *Catharine*.

The final resting place of the *Vale* is in relatively sheltered waters, and its isolated location helps to protect it from potential looters. With the photographic record of this vessel going back for a full century, this site provides a unique opportunity to study ongoing site formation processes. It is therefore recommended to initiate a periodic monitoring effort to document the condition of the site. Again it should be restated that this shipwreck site has a high research potential. While this does not necessarily mean a full excavation is called for, if the resources become available, and a

well-thought out research design is produced, it could be a very valuable site for further excavation and study.

Figure 74. An unobstructed view of the port stern of the *Vale* shortly after wrecking (Detail from 1899ships_02.jpg or Neg. 12625, Florida Photographic Collection, Florida State Archives).

The 1999 Dog Island Shipwreck Survey:
Report of Historical and Archaeological Investigations

Overview and Conclusion

Chuck Meide

This report has summarized the 1999 historical background and archaeological research that was conducted during the Dog Island Shipwreck Survey. The project's goals were to seek out, investigate, and document historic shipwreck sites and other submerged cultural resources around Dog Island in order to lay an foundation for understanding the maritime history of this area and the role it has played in regional and global seafaring and economic systems. The study is an ongoing one, which we plan to implement on an annual basis for some time to come.

This area deserves such attention: Dog Island has seen generations of prehistoric aboriginal mariners, immediately followed by the first European seafarers to explore North America. When the Spanish struggled to seize control of the continent by populating New Spain, Apalache, and St. Augustine, Dog Island and the other barrier islands were all but forgotten. While always a frontier area, the necessities of winds and currents forced sailors to navigate these waters, if only during the transitional period between the home port and destination. At the same time, those mariners considered deviant or outcast—pirates and smugglers—have sought refuge in the hidden bays and coves among these barrier islands. The 19th century brought legitimacy to the region, and the start of an exponential increase in shipping traffic, in the form of Apalachicola's booming cotton trade. This maritime activity, which linked this region to the rest of the world, would be supplanted first by the lumber and naval stores trade, and then by the fishing industry. Military activities dominated the area in two brief spurts, in the middle of the 19th and then the 20th centuries. And then, after witnessing a pinnacle of maritime activity involving ships from all corners of the globe, the area once again became somewhat of a fringe region. Today the Apalachicola Bay area is a quiet and all but forgotten corner of Florida, a state much better known for its tourist capital to the south. But the remains of all of these centuries of maritime activities still lie beneath the calm waters of the Bay.

Upon perusing this report, the reader will probably notice the depth and breadth of the background information. This is to a certain degree reflective of the abundant and diverse maritime history of the region. In addition to the standard background research, archival research was carried out not only in Florida but abroad, in both Norwegian and British depositories. While the scope of the historical research and background information provided in this report is admittedly exhaustive, it is this fertile context that will act as a foundation for future field efforts.

The other aspect of the 1999 project was the fieldwork itself. The first season of archaeological survey took place from 2 May to 8 August 1999. Florida State University Program in Underwater Archaeology faculty, staff members, and students—along with a number of volunteers and visiting students and scholars from around the state and as far away as Puerto Rico and Scotland—participated in the three month investigation.

The initial strategy in the field was similar in breadth to that governing historical research. There was a broad scope of survey, which included geophysical searches to the west of Dog Island for the *Fox*, to the east of Dog Island for *Le Tigre*, and among the coves on the inshore side for the

1899 lumber ships and other sunken vessels. Future geophysical survey will likely focus on specific, narrowed down areas. But 1999's widespread survey—despite an uncanny and persistent series of equipment failures—succeeded in locating five new sites, which have been added to Florida's inventory at the Master Site Files. These include the sunken ruins of the Dog Island Lighthouse (8FR889), the site of a historic ship grounding named Harry's Ballast Pile (8FR890), a possible shipwreck site or ballast/artifact scatter named the Tile Ballast Scatter (8FR891), the remnants of WWII training activities and tragedies in the form of the Lanark LCM Wreck (8FR892), and an area of magnetic anomalies and artifact/ballast scatter named the Tank Ballast Site (8FR895).

A second primary focus of the 1999 field season was the re-assessment of a number of previously known sites. Three sites were chosen for this purpose, with the emphasis on the sunken vessel known as Dog Island Shipwreck # 2. The first site, the East Pass Wreck (8FR799), is poorly understood. It has never been visited by archaeologists, and may not even be a shipwreck at all. It was not relocated by the survey team. The second of these sites, the wreck known as Dog Island Shipwreck # 1, is believed to be the fishing schooner *Priscilla*. Investigations here were limited mainly to gathering information on its current condition along with some hull recording.

The third site received the bulk of attention, and was subject to a systematic series of test excavations in order to better understand the nature of the site and to confirm its identity. This endeavor, combined with the historical research conducted in both Florida and Norway, was successful. Dog Island Shipwreck # 2 can now be called the *Vale* with confidence. This Norwegian lumber ship was one of an international fleet that plied these waters to exploit the rich timber resources of Dog and St. George Island. It appears relatively undisturbed since its wrecking in the August 1st hurricane of 1899. A survey of the immediate area using evidence from historic photographs, should uncover the remains of at least some of the other vessels that wrecked in this storm, and this virtual database of contemporary shipwrecks can provide a fascinating insight into international shipping and sociopolitcal systems in the late 19th century.

Future seasons of the project should continue this three-fold approach of historical research, survey for new sites, and monitoring of known sites. This is the recommended procedure for preserving and documenting the submerged cultural resources in the area. Future surveys may be more focused with the specific goal of finding the *Fox* or *Tigre*, and when that does happen the strategy of the project may shift towards a large-scale, research-oriented excavation. Other potential long-term objectives may include a shift of attention towards the numerous 19th century remains associated with the seaport of Apalachicola to the west.

At the same time, it must be remembered that the marine heritage in this place belongs to everyone, and that it should be shared with the public. Constant efforts were made towards this objective during the 1999 season. Project staff gave presentations at forums ranging from children's summer camps to classrooms to yacht and Rotary Club meetings. National and international attention was brought to Dog Island's unique historical resources when the team was joined by the film crew of the children's television show *Popular Mechanics for Kids*, and the young host joined the Project Director for a nationally televised dive on a shipwreck. The project was highlighted in an article in a popular children's magazine *Owl* (Siegel 1999). And the project web page, always popular with the public as well as the scientific community, provided regular updates of research activities. One of the best ways to preserve and protect these fragile historic resources is to educate and excite the public, especially the next generation.

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

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Chuck Meide

Appendix A:
Master Artifact Inventory for the 1999 Dog Island Shipwreck Survey

Table 20. Master artifact inventory for the 1999 Dog Island Shipwreck Survey

Date	Site #	PD	FS	Description	Material	Count	East	North	Rec'd by	Comments
7/14/99	8 Fr 814	1	1	small ceramic sherd, white	ceramic	1	25	9	RH/CTM	
7/14/99	8 Fr 814	2	2	oakum sample	fiber	N/A	26	6	RH/CTM	between hull planking
7/14/99	8 Fr 814	1	3	small frag of rope	fiber	N/A	25	9	RH/CTM	loose in unit
7/15/99	8 Fr 814	3	4	rubber gasket (old?)	rubber	1	23	9	EW	deep by keelson
7/15/99	8 Fr 814	3	5	trunnel (?) split in half	wood	1	23	9	EW	deep by keelson
7/15/99	8 Fr 814	4	6	sheathing tack	copper	1	2	10	CTM	pulled from sheet
7/15/99	8 Fr 814	4	7	ballast stone (large)	stone	1	2	10	CTM	deep at shallow end of wreck
7/15/99	8 Fr 814	4	8	ballast stone (small)	stone	1	2	10	CTM	deep at shallow end of wreck
7/16/99	8 Fr 814	5	9	clinch bolt & rove	copper	1	6	9	EW	6.7cm
7/16/99	8 Fr 814	4	10	sheeting	copper	N/A	2	10	CTM	from tip of hull
7/17/99	8 Fr 814	4	11	sheeting tacks	copper	10	2	10	CTM/EW	from tip of bow
7/20/99	8 Fr 814	6	12	copper spike	copper	1	16	14	JR	28 cm long
7/20/99	8 Fr 814	7	13	tile fragment	ceramic	1	5	10	CMA	
7/20/99	8 Fr 814	8	14	slate (?)	stone	1	25	8.5	JR	poss. ballast/ building material
8/1/99	8 Fr 814	4	15	copper spike	copper	1	2	10	EW	dump bolt
8/1/99	8 Fr 814	4	16	iron spike (?) concretion	iron	1	2	10	EW	
8/1/99	8 Fr 814	9	17	wood sample with trunnel	wood	1	7	13	EW	
8/1/99	8 Fr 814	6	18	wood sample	wood	1	16	14	EW	ceiling planking
8/1/99	8 Fr 814	10	19	wood sample	wood	1	16	10	EW	keelson
8/1/99	8 Fr 814	6	20	wood sample	wood	1	16	14	EW	frame
8/1/99	8 Fr 814	6	21	wood sample	wood	1	16	14	EW	plank
5/14/99	8 Fr 813	11	1	outer hull planking	wood	1			CTM	from beach in front of DI Wreck #1 (Pricilla)

Date	Site #	PD	FS	Description	Material	Count	East	North	Rec'd by	Comments
7/24/99	8 Fr 890	12	1	glass fragment (modern?)	glass	1	120cm	80 cm	CTM	34 cm (depth)
7/24/99	8 Fr 890	13	2	intact brick	brick	1	100 cm	50 cm	CTM	minus 1 m (depth), 19.5 cm x 5.5 cm x 9.2 cm
7/26/99	8 Fr 890	14	3	ballast rocks	rock	13			CTM	within excavation unit
7/24/99	8 Fr 889	15	1	intact lighthouse brick	brick	1			CMT	22.8 cm x 6.6 cm x 9.4 cm, surface collection
7/29/99	8 Fr 891	16	1	brick	brick	1			PG	22.6 cm x 11.2 cm x 9.9 cm, surface collection
7/29/99	8 Fr 891	16	2	brick fragment	brick	1			PG	surface collection
7/29/99	8 Fr 891	16	3	porcelain vessel, foot (?)	ceramic	1			CTM	surface collection
7/29/99	8 Fr 891	16	4	flat tiles	ceramic	9				surface collection (2 bags)
7/29/99	8 Fr 891	16	5	corrugated tiles	ceramic	3			CTM, GI	surface collection
7/29/99	8 Fr 891	16	6	rounded tile	ceramic	1			CTM	surface collection
7/29/99	8 Fr 891	16	7	possible dressed stone fragment	stone	1			CTM	surface collection
6/15/99	8FR895	17	1	whiteware sherd	ceramic	1			ML	surface collection, tank ballast scatter
6/15/99	8FR895	17	2	brick fragment	brick	1			EW	surface collection, tank ballast scatter
6/15/99	anomaly	18	1	bone	bone	1			EW	possible pelvis, SC, shrimp boat anomaly
7/28/99	anomaly	19	1	rubber fragments	rubber	3			CTM	DI reef #1, collected from inside metal object

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Appendix B:
Video Edit Log, Dog Island Shipwreck # 2 (8FR814)

A total of 42 minutes of underwater video was recorded documenting the hull and artifacts of the alleged *Vale*, Dog Island Shipwreck # 2. The following table lists a minute-by-minute log of the specific details being recorded for the duration of the footage. All video was recorded on 1 August 1999. Joseph Latvis, who has lent his videographic talent to many archaeological research projects across Florida, recorded all video.

Table 21. Video edit log of footage taken on 01 August 1999, Dog Island Wreck # 2 (alleged *Vale*, 8FR814)

LOCATION ON TAPE (Hour:Min:Sec)	FOOTAGE DESCRIPTION 01 August 1999, Vale shipwreck
0:00:00	COUNTER STARTS (START OF MASTER Hi8 TAPE#1)
0:00:10 – 0:01:34	Footage of protruding dump and bolt, in outer hull plank. Hand-fanning in this area. Exposing seam between one hull plank and another strake. Good footage of oakum between the planks. All of this is in 28E, 7N, SE quad. Port side of vessel. Incorrectly labeled 29E on tape. Camera is facing bow during this shot.
0:01:52 – 0:03:02	Iron knee on starboard side, in 16E, 14N, NW quad. Knee protrudes up, and upper portion is broken off and just forward of lower piece. A copper fastener (bolt) which attached the outboard surface of the knee to the hull (frames) was snapped in two during the wrecking process—camera details this break. Camera faces port (opposite) side during this shot (bow is to right side of image)
0:03:08 – 0:03:46	Detail of frame with two clench bolts. Starboard side of ship, 17E, 14N, NW quad. Clench bolts, with their roves visible, attached frame timber to the ceiling plank (which is visible in the shot. Camera is looking to port, so that the frame (one frame, not two) is at bottom of screen, and ceiling plank runs right-left in center of screen. The aftermost (left) bolt ran through the visible ceiling plank, though the right bolt is higher up and may have run through a now non-existent strake of ceiling.
0:03:47 – 0:04:19	Same feature, different angle – camera facing stern, so that right side of image is port side of vessel. Good close-up shot of bolts protruding from frame into the ceiling plank.
0:04:26 – 0:05:52	Same area: Starboard side of ship, 17E,14N NW quad. Detail of trunnel, which protrudes from frame (next frame forward from the frame with two clench bolts) into the ceiling plank. This shot taken from several angles (ceiling plank is always grid south or inboard side of the frame).
0:06:04 – 0:07:42	Camera, facing to the starboard/grid north, pans from frame with two clench bolts to adjacent frame and another iron knee. This is the only fully intact iron knee on the wreck. Knee protrudes upward from hull in unit 17E,14N NE quad. It rises up, breaking the surface of the water and is angled (deck support) athwartships, with its tip out of the water in unit 17E, 13N NE quad. Camera details the knee, following it to its bend, and out of the water. Several different angles.
0:07:53 – 0:11:25	Area of exposed timbers, port side of hull near bow, from 12E to 4 E. Camera is facing bow (grid west) and pans forward, so that outer hull plank and sheathing is on left, frames are in middle, and ceiling is on right side of image. This shot ends at the boiler (4 – 5 E).

LOCATION ON TAPE (Hour:Min:Sec)	FOOTAGE DESCRIPTION 01 August 1999, Vale shipwreck continued
0:12:37 – 0:13:33	Detail of outer hull plank butt join (two hull planks) with a number of spikes or dump bolts protruding upwards from frame and planks. Port side of hull, 10E, 8N SE quad. Tape incorrectly labels area 11E.
0:13:43 – 0:14:29	Detail of transverse trunnel, driven through two frames (port side of hull, 10E, 8N SE quad).
0:14:37 – 0:16:15	Detail of butt join between two outer hull planks (same as at 0:12:37). Port side of hull, 10E, 8N SE quad. Tape again incorrectly labeled this area as 11E. Edge of Copper sheathing can also be seen in this footage. Butt join is lined up against a frame (for strength. For the most part the camera is facing the starboard side (grid north) of vessel.
0:16:21 – 0:17:08	Copper sheathing seam (where two individual sheets align). Outside of hull, on port side of vessel, in grid unit 10E,7N NE quad. Good detail of two pieces articulated, with nails protruding upwards into now non-existent hull plank.
0:17:15 – 0:18:49	Detail of trunnel driven through frame and ceiling plank. Port side of vessel, in 8E, 8N NW quad.
0:18:55 – 0:21:28	Iron breasthook in the bow. Camera pans across its entire expanse, following it as it twists around in the bow area between 7 E and 5 E.
0:21:35 – 0:27:19	Bow structure. Camera pans over the hull remains of the bow area, starting on port side of vessel, moving forward. 0:24:25 – at tip of bow. Polypro line visible marks the baseline (the 10 N line). For the most part the camera faces forward. At 0:26:34, camera turns around and faces aft, showing the tip of the bow head-on.
0:27:24 – 0:31:50	Stern structure. Camera pans over the hull remains at the opposite end of the vessel. Fully exposed area runs from 44E to 42E. Camera starts at aft end, facing forward, and pans forward. Sternpost and copper sheathing are first objects seen. Longitudinal trunnel is seen through sternpost. Ceiling is joined into sternpost (0:28:27). Relatively little of stern is exposed and thus filmed.
0:32:03 – 0:35:03	Fallen iron knee. Port side of vessel, towards stern. Footage starts at about 35E, 9N NW quad, which is upper part of knee. Pans along knee, forward to the bend (in 34E, 9N SE quad), and back along its exposed 3 meter length (almost all the way to the 38E line).
0:35:11 – 0:38:31	Section of exposed hull remains, port side of vessel just aft of amidships. This area is exposed from 25 E to the 29E line. Pans up and down frames, generally with camera facing grid south (outboard towards top of image). At 37:27, angle changes, for detail of protruding trunnels (from frame centered in 25E,7N and 25E,8N.
0:35:15	Detail of trunnel head, visible in ceiling plank. In 15E, 8N NW quad. Camera facing port side or outboard side of vessel, so right side of image is towards bow or grid west.
0:38:05	Good detail of trunnel in ceiling, may be the same one as above. Good image.
0:38:32 – 0:38:54	Rachel Horlings mapping hull with stringed grid, same area as above (port side of hull). She is mapping a square meter consisting of the northern quads of 27E, 7N and the southern quads of 27E, 8N.
0:39:00 – 0:39:25	Clench bolt and dump bolt protruding from outer hull plank in 28E, 7N NE quad. Stringed grid is in place.
0:39:28 – 0:41:22	Ariana Slemmens mapping hull remains, using stringed mapping grid. She is drawing a meter square area consisting of the northern quads of 28E, 7N and the southern quads of 28E, 8N.
0:41:29 – 0:42:14	Keelson, at 23 E. (Keelson runs directly along 10N line)
0:42:15	End of Tape

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Appendix C:
Historic Maps of Dog Island and Environs

Florida's cartographic history begins with its initial European discovery by Ponce de Leon in 1513. "La Florida," in fact, is the oldest European place name to appear on maps of the New World. The early cartographers misunderstood much of Florida's coastline, often omitting such details as barrier islands, or including them but merely estimating their shape or drawing them as simple ovals. As mariners' knowledge of Florida's coasts became more sophisticated, so did the maps. Studying these maps provides insight, into seafarers' evolving knowledge of Dog Island and nearby islands. Though the inaccuracies invariably presented in early maps must always be kept in mind, comparing changes in maps over time may also reveal details of changing coastal topography, though the inaccuracies invariably presented in early maps must always be kept in mind. This insight will lead to a better understanding of the general patterns of maritime activity in the region.

Archival depositories as well as a number of secondary sources were searched for maps that depicted the barrier islands in the Big Bend region of Florida. The oldest of these dated to the 17th century (1653). A number of relevant 18th century maps were located, along with more accurate 19th century examples.

Figure 75: Chart of *Insvlae Americanae*, 1653
This is the earliest map located in the historical research conducted. This map was created by Jan Jansson and published in Amsterdam in his 1653 *Nuevo Atlas*. Titled "American Islands in the Northern Ocean, with Adjacent Lands" it covers the northern extent of South America, most of Central America, Southern U.S., and the Caribbean islands. The landmasses are not labeled which may mean that the names were unknown to the creator. Jansson includes a single island, relatively long, in the approximate position of St. George Island. Mainland features such as St. Joseph Peninsula and Alligator Point are not discernable.

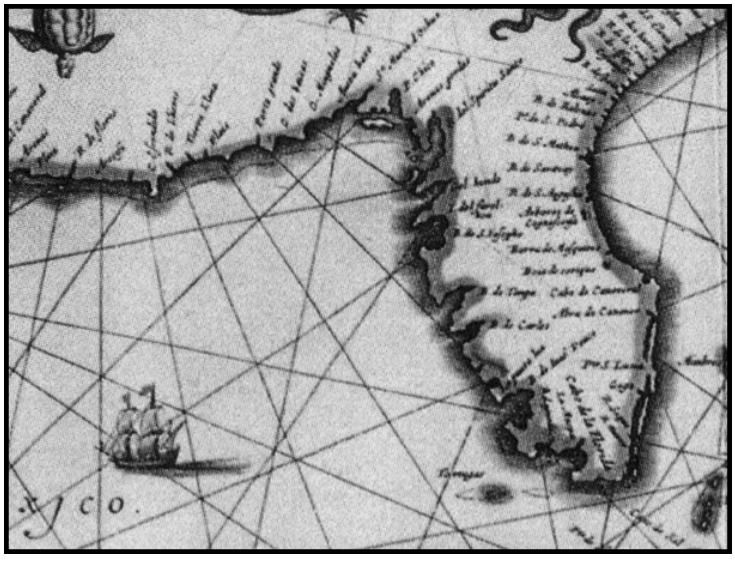

Figure 75. Chart of *Insvlae Americanae*, 1653 (St. Claire 1997:34-35)

Figure 76: *Les Costes aux Environs de la Riviere de Misisipi,* 1701
A Frenchman Nicolas de Fer created this map depicting Florida, Cuba, and the Bahamas in 1701. It was based on data obtained from Iberville's first two voyages as well as Spanish sources, and it is one of the first maps to show the Mississippi Delta in its peninsular form. "Apalachicoly" is labeled (possibly denoting a river, though appearing a bit west). Note the three barrier islands near its mouth.

Figure 76. *Les Costes aux Environs de la Rivier de Misisipi*, 1701 (Weddle 1991:150-151, Figure 8.)

Figure 77: Map of *Regni Mexicani Seu Novae Hispaniae,* ca. early 18th century
This map, by German Johann Baptist Homann, was published in Nuremburg in the early 18th century. The map depicts an area from the southern end of Canada to the Caribbean islands, Central America, and northern South America. It is one of the last maps to include the area of the lower Mississippi under the place-name "Florida"(others were using the new French name Louisiana). Interestingly, the routes of the Spanish treasure *flotas* are included as dotted lines; the Vera Cruz to Havana shipping lane roughly follows the Gulf coast. In the Big Bend region, the map depicts several barrier islands, as well as St. Joseph Peninsula. The islands are labeled, however the names are too small to clearly make out.

Figure 77. Map of *Regni Mexicani Seu Novae Hispaniae,* ca. early 18th century (Ste. Claire 1997: 39-39)

Figure 78: *Partie Meridionale de La Riviere de Missisipi et ses Environs*, 1718
Another map by Nicolas de Fer, this map includes most of the Gulf of Mexico and Florida. Note the cartography is much more sophisticated than his 1701 map. St. Joseph Peninsula is clearly visible ("St Iofeph"). At least two barrier islands are depicted, "I. St George" and "St Catherine." Saint Catherine may have been an early name for Dog Island appearing on some of the later maps in this list. This is the earliest example found of the place name St. George. The islands are rather amorphous and do not appear to resemble the shape of the actual islands as seen today.

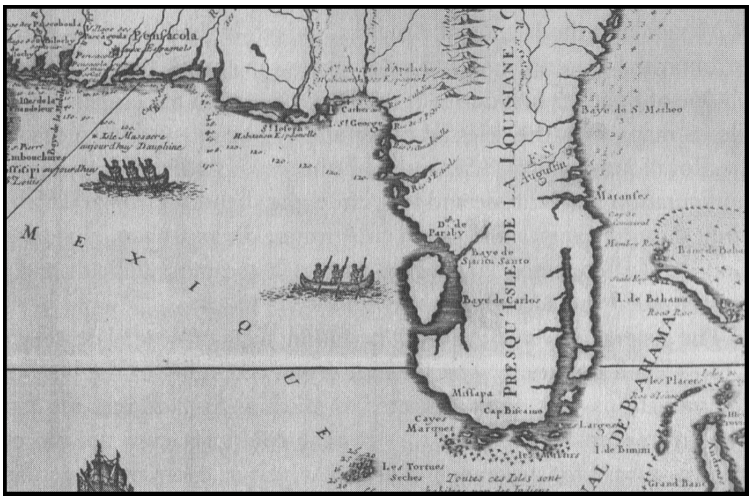

Figure 78. *Partie Meridionale de La Riviere de Missisipi et ses Environ,* 1718 (Weddle 1991:324-325, Figure 22)

Figure 79: French map of Florida Gulf Coast, 1733
Historian John de Bry recently discovered this map in a French depository. Created in 1733, it is one of the earliest maps to use the place-name "Tampa." The exaggerated peninsula of St. Joseph is clearly seen, as are familiar place-names "Baye S. Joseph" and "Cap S. Blaife." There is a barrier island in approximately the correct location labeled "Ifles aux chiens" ("Isle of Dogs"). This is the earliest map yet discovered to use a variant of the modern name "Dog Island." Again, the shape of this island does not seem to resemble that of any of the modern barrier islands.

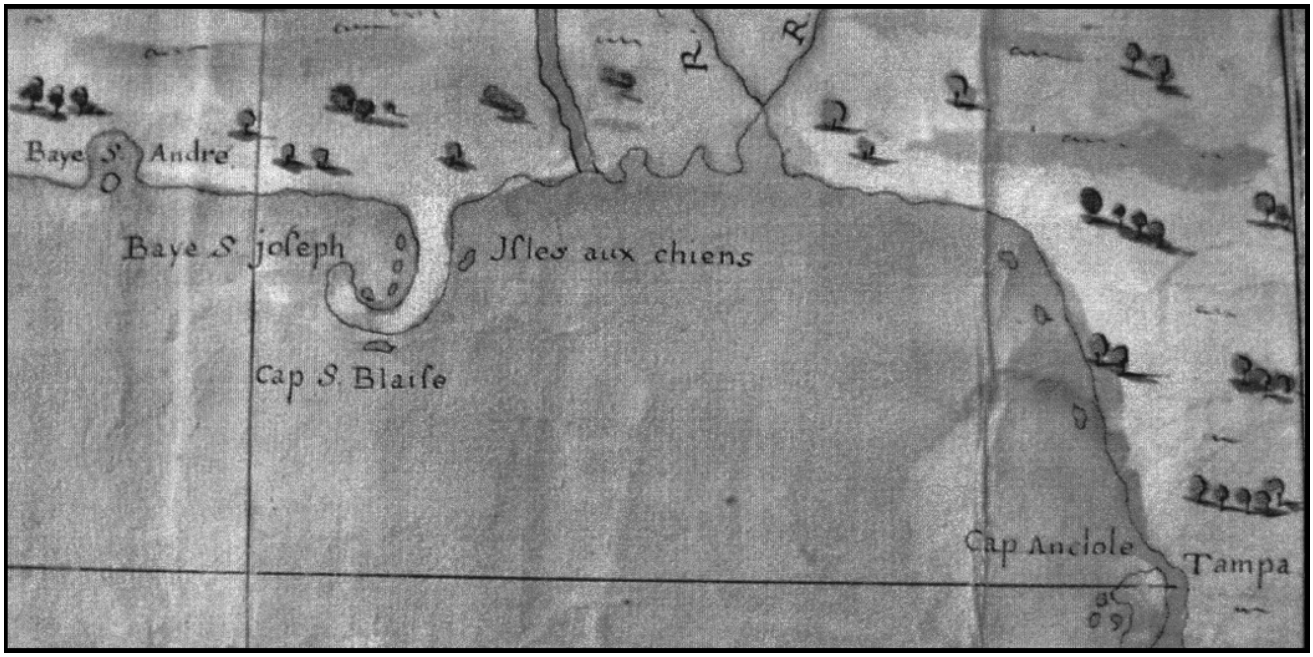

Figure 79. French map of Florida Gulf Coast, 1733 (John de Bry, Center for Historical Archaeology)

Figure 80: Chart for Navigation of the Golfe de Mexique, 1740
This map is one of a number of French maps created by the *Premier Géographe du Roi* (French Royal Geographer) Philippe Bauche. Again, familiar place-names such as "B. S. Joseph" and "C.S. Blais" are used in the proper places near St. Joseph Peninsula. "R. de Apalachicolis" and "Flint River" are labeled in their proper positions as well. Although its shape is hard to make out, the label "I^{s} aux chiens" is appointed to a barrier island. As with the last map, the French seem to have stopped using the name St. George.

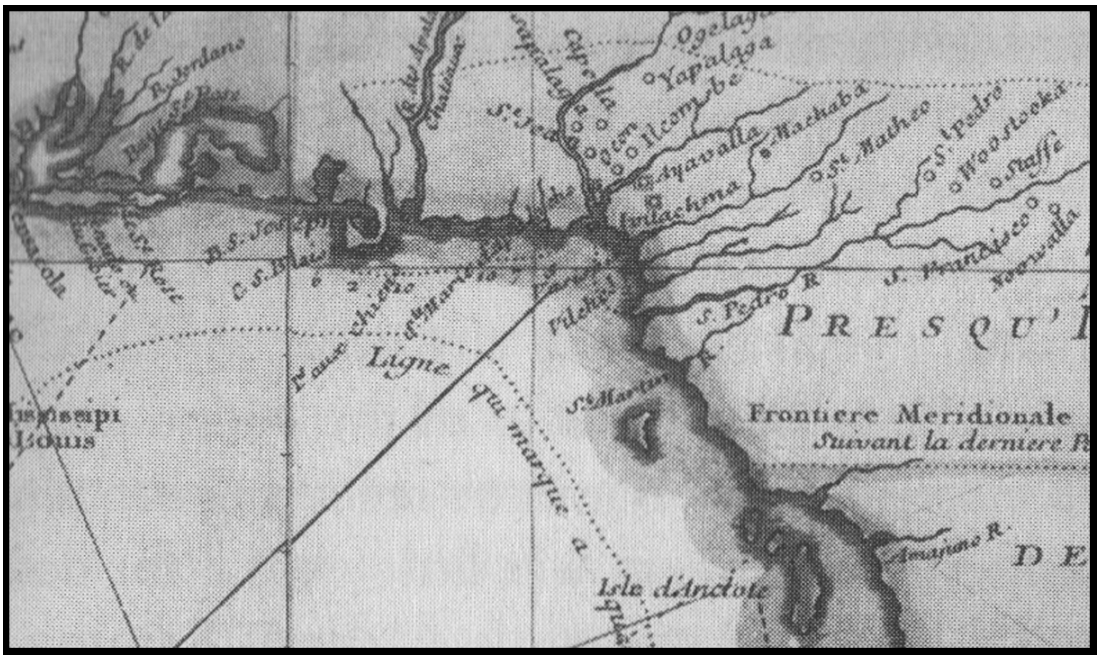

Figure 80. Chart for Navigation of the *Golfe de Mexique*, 1740 (Weddle 1991:330-331)

Figure 81: Partie de la Coste de la Louisiane et de la Floride, 1744
Created by Jacques-Nicolas Bellin, the senior hydrographic engineer in the Dépôt des Cartes et Plans, this 1744 map depicts the Gulf coast from Mobile to the St. Marks River. To the east of St. Joseph Peninsula a series of four barrier islands are drawn. The westernmost is small and somewhat rounded. Moving east the next is long and skinny and labeled "I. des Chiens" (Island of the Dogs). Next to it is another small, elongated island, and to the east of that is an even smaller one. If the large island represents present-day St. George, then the first may represent present-day St. Vincent, and the third, Dog Island. The small island on the east possibly represents shoals or Dog Island Reef which may at one time have been visible on the water's surface. Other features present include Apalachee Bay ("Baye des Apalaches"), the town of St. Marks ("S. Marc" and "le Fort"), the Apalachicola River ("Riviere des Apalachicolis"), Cape San Blas ("Cap S. Blaise"), and St. Joe Bay ("Baye S^{t} Joseph"). The area between the mainland and the "I. des Chiens," today called Apalachicola Bay and St. George Sound, is labeled "Passage pour les Barques" (Passage for the Boats).

Bellin's map illustrates Charlevoix's *Histoire et description générale de la Nouvelle France*, published in 1744. Six of these dated 1743 and 1744 appeared in Charles E. O'Neill's (1977) book *Charlevoix's Louisiana: Selections from the History and the Journal*. In it, Charlevoix describes Dog Island:

> . . . a contrary wind kept us till evening in an island indifferently well wooded, ten or twelve leagues long, and where we killed as many larks and wood-cocks as we could desire: we also saw a great number of rattle-snakes. Our guides called it the Island of Dogs; and from the first part of it we came to, they reckoned ten leagues to St. Mark and fifteen to St. Joseph; but they were certainly deceived with respect to this last article, there being at least twenty, and these very long (O'Neill 1977: 320-321).

Bellin himself described Dog Island: “of which no mention is made on any chart, although it is nine or ten leagues long and has, between it and the mainland, a considerable channel where ships can navigate” (Weddle 1991: 340).

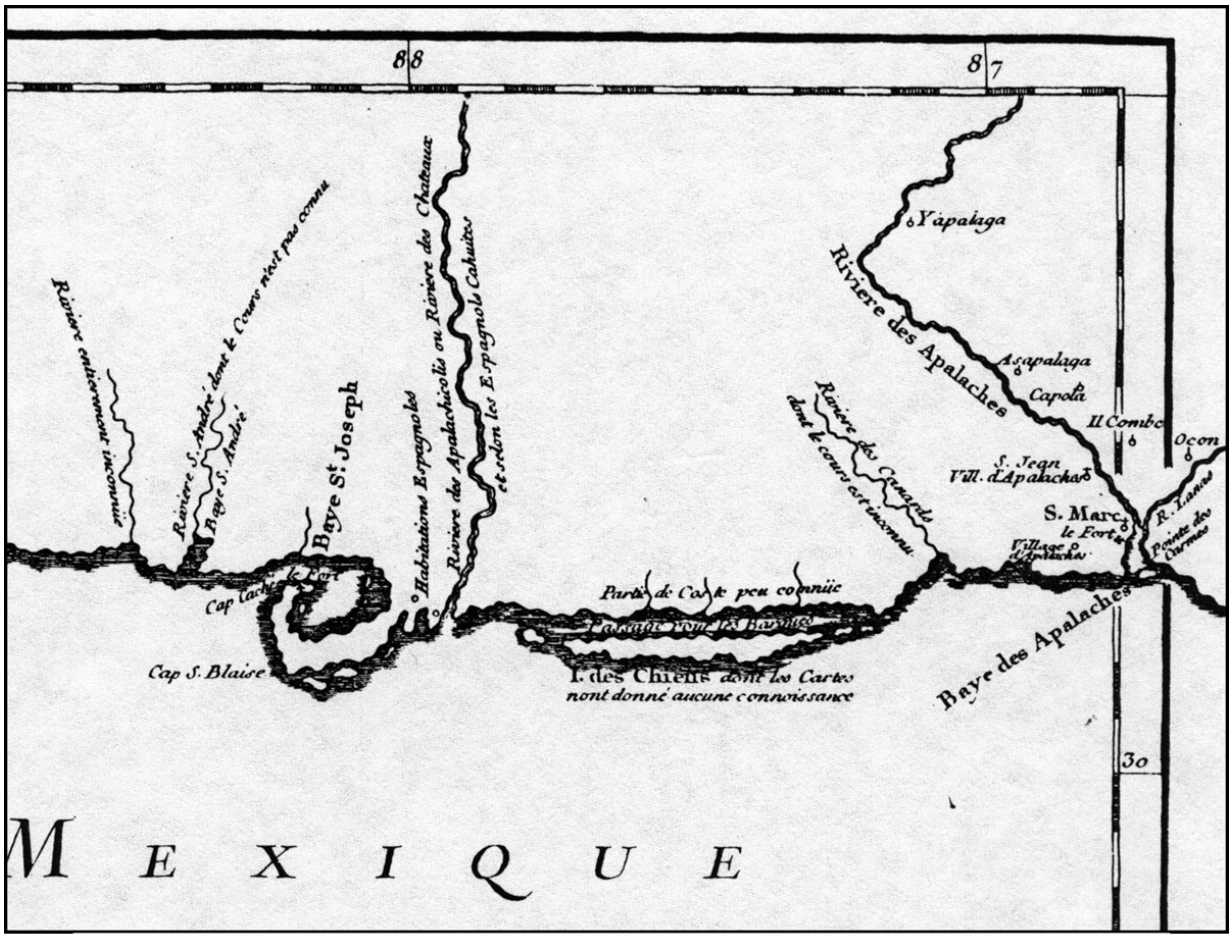

Figure 81. Detail from *Partie de la Coste se la Lousiane et de la Floride*, drafted by Jacques-Nicola Bellin in 1744 (O’Neill 1977 Cartographic History Library, Special Collections Division, University of Texas at Arlington;Weddle 1991).

Figure 82: Map of *Amplissimae Regionis Mississipi,* 1763
This map, by Johann Baptist Homann (from his *Atlas Geographicus Major Norimbergae Homannianis heredibus*) was published in Nuremberg in 1763. It depicts part of Mexico, much of the Gulf, the Bahamas, and the southern extreme of Canada to Florida. Homann, influenced by an earlier (ca. 1718) French map, uses French place-names and reflects political boundaries as shown earlier in the century. At least two barrier islands can be made out. One appears to be labeled "Isles aux Chiens."

Figure 82. Map of *Amplissimae egionis Mississipi,* 1763 (Map collection of the Florida Museum of Arts and Sciences; Ste. Claire 1997: 22,40-41)

Figure 83: Map depicting Cape San Blaise to Apalachee, 1769
Robert Howley, a surveyor of the British Royal Navy, drafted this map three years after the loss of *Le Tigre* and 30 years before the loss of HMS *Fox*. It covers the area west of "Bay of S^{t} Joseph" to the St. Marks River ("Bay of Apalachie"). All of the barriers islands are collectively designated by the name "S^{t}. George's Islands," suggesting English navigators conceived of St. Vincent and Dog Islands as part of a chain. This map marks a turning point in the development of cartography of the region. The coast has been sounded with depths noted in fathoms. The number of soundings marked on the map is useful to the archaeologist attempting to reconstruct the movement of the barrier islands over time.

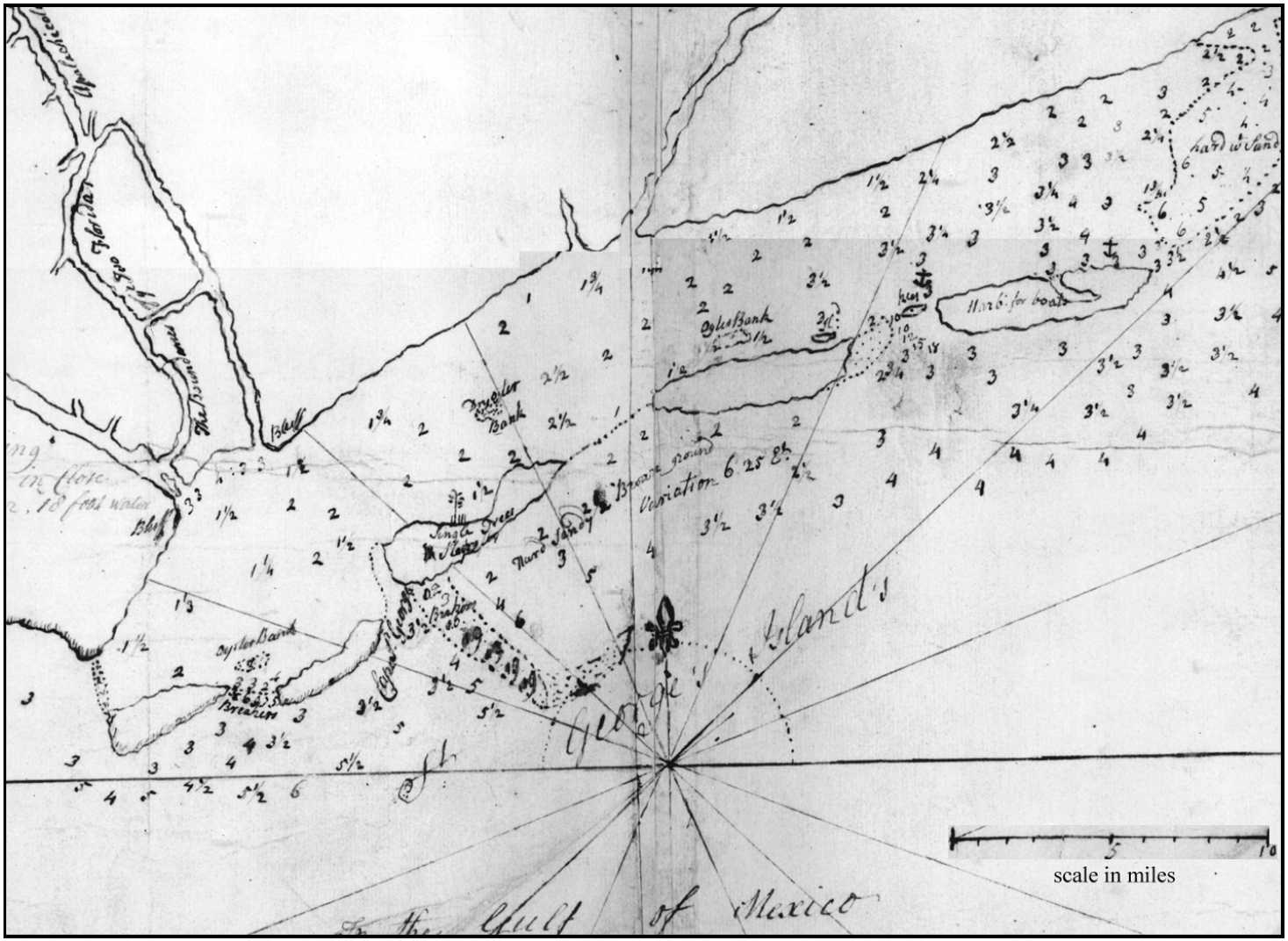

Figure 83. Map depicting Cape San Blaise to Apalachee, 1769 (Map Collection Stozier Library, Florida State University, G3932.C6 1769 .S5).

Figure 84: English Map of West Florida and Georgia, 1773.
This map spans from St. Andrews Bay (present day Panama City, Florida) to just east of Alligator Point. Many recognizable landmarks are clearly marked with their modern names (or close variants), including St. Andrew's Bay, St. Joseph's Bay, Cape St. Blas, and the Apalachicola River. Like other 18th century English maps, it labels all of the barrier islands as "S^{t}. George's Sound & Islands." St. Vincent, St. George, and Dog Islands all are depicted in detail, suggesting the mapmaker has taken care to draw them accurately.

Figure 85: *Carte d'une partie des côtes de la Floride et de la Louisiane*, 1778
This French map was created in 1778 at the order of M. de Sartine, Ministre et Secrétaire d'Etat for the Département de la Marine. It spans from Louisiana east to just past "C. S^{t}. Blaife." Unfortunately, the map cuts off the eastern half of St. George Island, so that Dog Island is excluded. This is the first French map found to use the place name St. George ("I. S^{t}. Georges") in 60 years. An interesting feature to note is the French Fort Crevecaur on the mainland coast facing of St. Joseph Bay.

Figure 86: Robert's New Map of West Florida, 1780
This map was created by Capt. Roberts, of the British Royal Navy. It records the coastline from Mobile Bay to just beyond Alligator Point. St. Vincent Island, St. George Island, and Dog Island are visible and they are collectively labeled in the English tradition as "S^{t}. George's Sound & Islands." Interestingly, the name "Dog Island" is mentioned in the script titled "Observations" but it is clear from this context that the mapmaker is referring to another island of that name in the vicinity of Dauphin Island (within "10 leagues west" of Mobile Bay). The fact that the English used this place name for another island may explain why Dog Island (in present day Florida) does not appear to be labeled as such on English-language maps until the first quarter of the 19th century.

Figure 87: Andrew Ellicott's map of the Florida Gulf Coast, 1799
American surveyor Andrew Ellicott was commissioned to survey the new southern boundary of the United States creating this map. It is therefore the earliest known "American" map of these islands. Ellicott encountered William Augustus Bowles, Lieutenant Wooldridge, and the wreck of the *Fox* noting it on his map. Many geographical features are recognizable. Both St. George Island and Dog Island more or less resemble their modern shapes. It is interesting to note that in his journal (1799) Andrew Ellicott describes the local topography mentioning "St. Georges" Island, "St. Georges" Sound, Cape St. Blass, Apalache Bay, and Apalachicola River, but does not refer to Dog Island with a name. He describes Dog Island thus: "The next island is not laid down in any of our charts: it is about two leagues in length, and two miles east of St. George's Island. The main channel into the sound is near the west end of this third island. From this third island to a fourth, which at low water sometimes joins the main land, the water is too shoal for any other than coasting vessels" (Ellicott 1962[1803]: 236). Five years later, when John Forbes was describing the Spanish Floridas for the King of Spain, he referred to Dog Island as "an unnamed key" (Coker 1979: 25). Apparently, at the turn of the century this island was not yet known to English speakers by its traditional French name (Forbes' reference also suggests the Spanish did not have a specific name for Dog Island).

Figure 84. 1733 English map of Florida Gulf Coast (Map Collection Stozier Library, Florida State University, G3932[1773].S3).

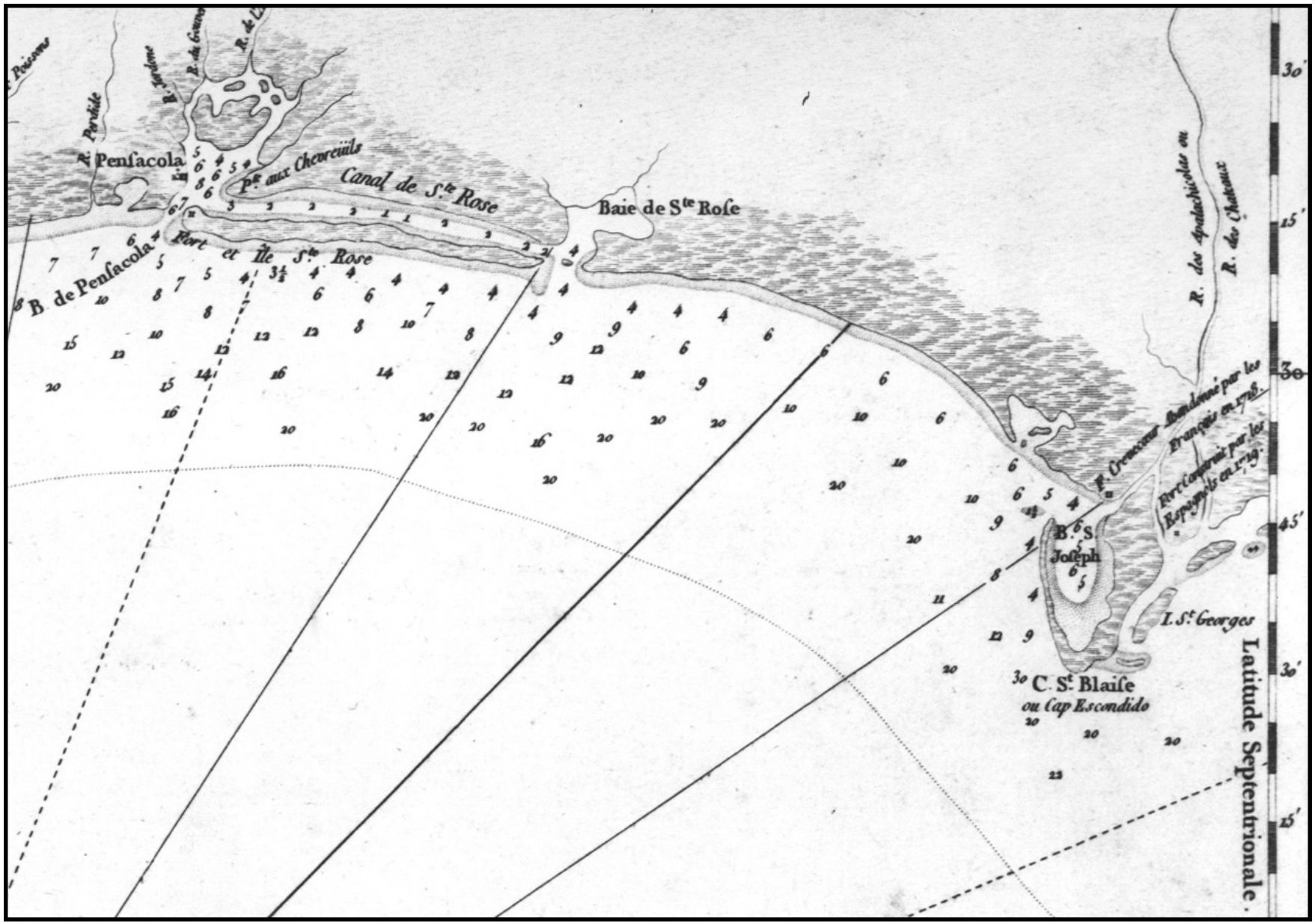

Figure 85. 1778 French Map Carte d'une partie des cotes de la Floride et de la Louisiana (Map collection, Strozier Library, Florida State University G3932 .C6 1778 .F7).

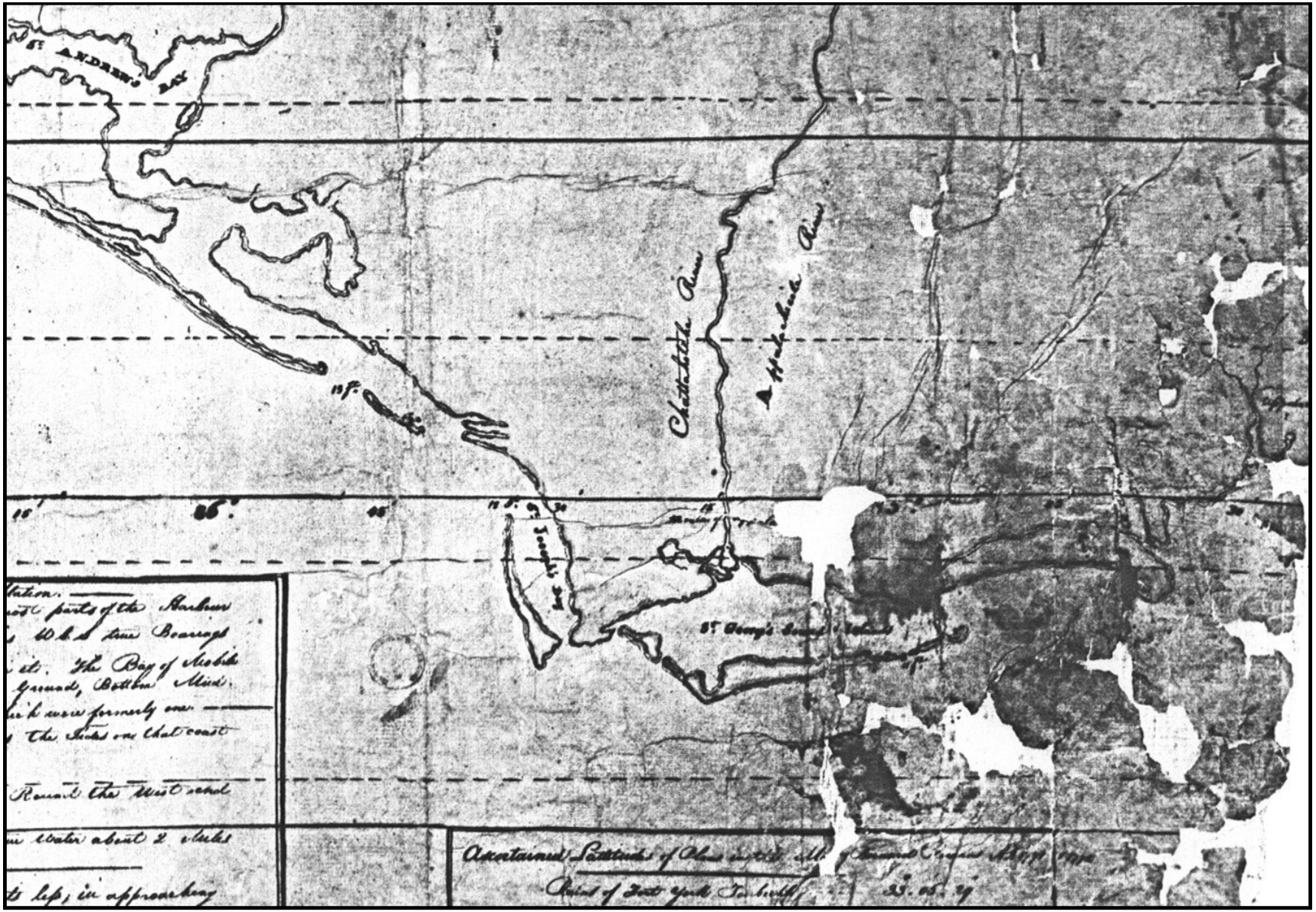

Figure 86. Map of the west Florida Coast drafted by British Royal Navy Captain Roberts, 1780 (Strozier Library, Florida State University, G3932[1780] .N4).

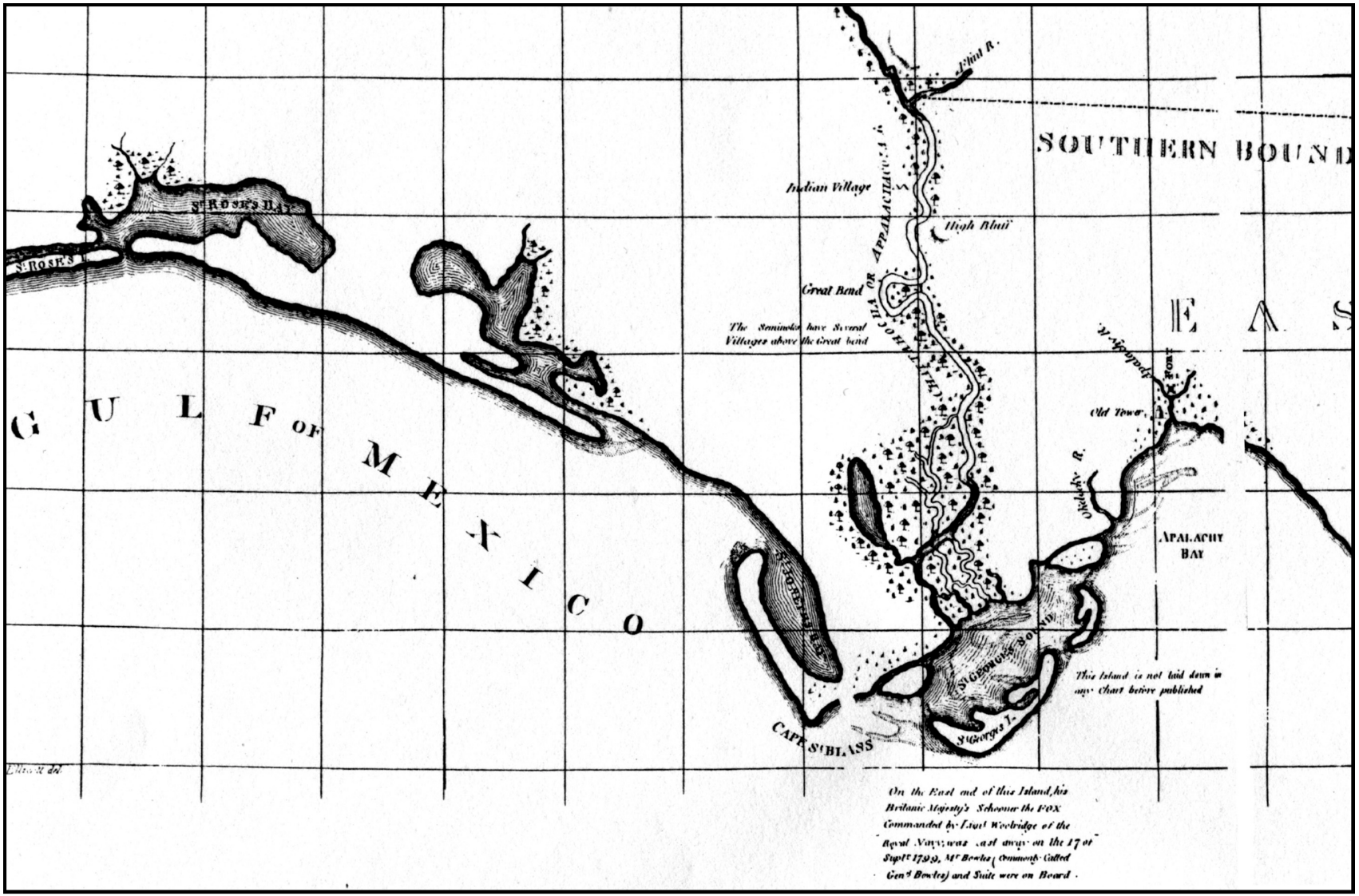

Figure 87. Andrew Ellicott's 1799 map of the Florida Gulf Coast (Ellicott 1962 [1803]).

Figure 88: Map of the Western Part of Florida, 1827
John L. Williams drew this map in 1827 only five years after the establishment of Florida as a U.S. territory. It is the earliest territorial map of Florida found thus far. It depicts all of "Appalachie Bay" and stretches west to Mobile Bay. Insets depict Pensacola Bay and a plan of the town of Pensacola. The depiction of the islands seems to be rather accurate. Apalachicola Bay and St. George Sound are also labeled and depths are marked in feet. This map labels St. James Island (the area of the mainland separated by Crooked River that includes Alligator Point) and may be one of the earliest to do so. This is also the earliest known English-language map to bear the name Dog Island.

Figure 89: Map of Florida, constructed principally from the authentic documents in The Land Office at Tallahassee, 1829
I.G. Searcy and F. Lucas created this map from documents in the Land Office at Tallahassee in 1829. It is one of a number of regional maps discovered dating to 1829. These maps tend to depict Dog Island somewhat crudely, though some of the others bear inserts with detailed large-scale views of the islands and associated passes. This map shows "St. Vincent's", "St. George's"and Dog Island. It includes a wealth of local place names, reflecting the increasing population of American settlers in this area.

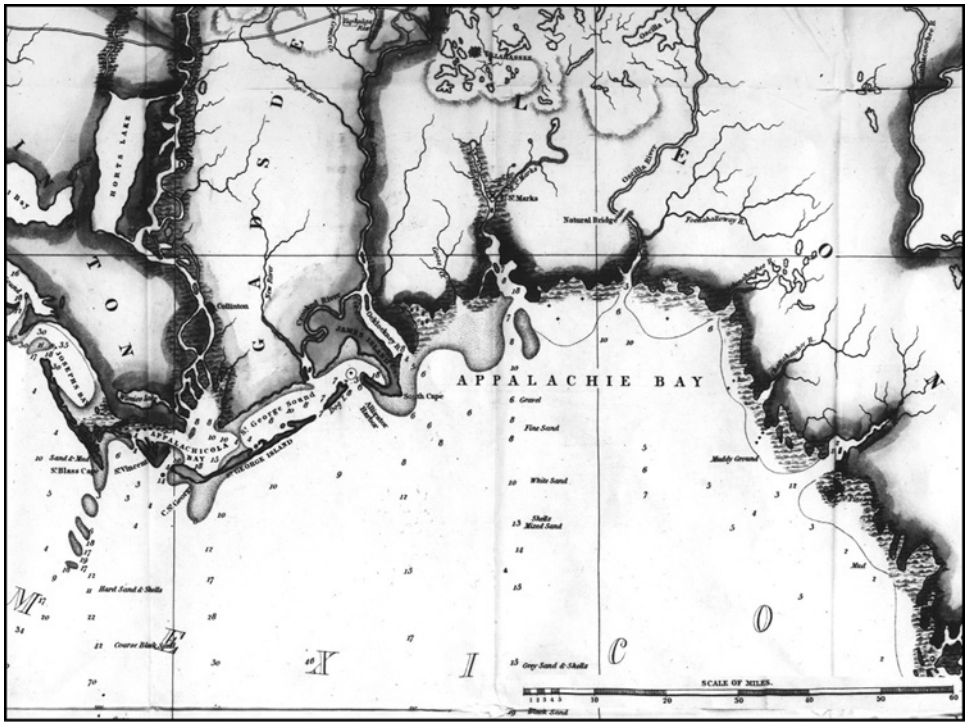

Figure 88. Detail of John L. William's 1827 Map of the Western Part of Florida (Map Collection, Strozier Library, Florida State University: G3932 [1827] .W4).

Figure 89. 1829 map of Florida (Brewer and Paul 1980).

Figure 90 and 91: Details from Swift's Map of the Territory of Florida, 1829
Lieutenant Swift, a topographical engineer for the U.S. Army, drew this map in 1829. The portion depicted in figure 90 is an enlargement of St. George and Dog Island, while figure 91 is the inset showing a more detailed view of the pass between the two barrier islands. In figure 90 soundings are marked in feet, and other navigational features, such as oyster bars, are included. Interestingly, Fox Point is noted on this map as being at the easternmost tip of St. George Island. This is the only known reference to this place name on any map of the island. This map suggests that, at least for the first three decades of the 19th century, the place name was known to locals and cartographers. It does not appear on any later maps, however and is no longer used by modern geographers. Figure 91 shows details of the pass with depths marked in feet. The entire West End (west of Cannonball Acres) is depicted as not much more than a narrow spit of sand. Likewise, the eastern extent of St. George Island is also a narrow strip of sand. The bathymetric features noted on the map show a shallow area or sand bar jutting south from Dog Island's West End, and another extending eastward from the tip of St. George Island. These large shallow areas (six feet or less) are positioned so that the navigable pass is located off center, or east of the mid-point between the two islands.

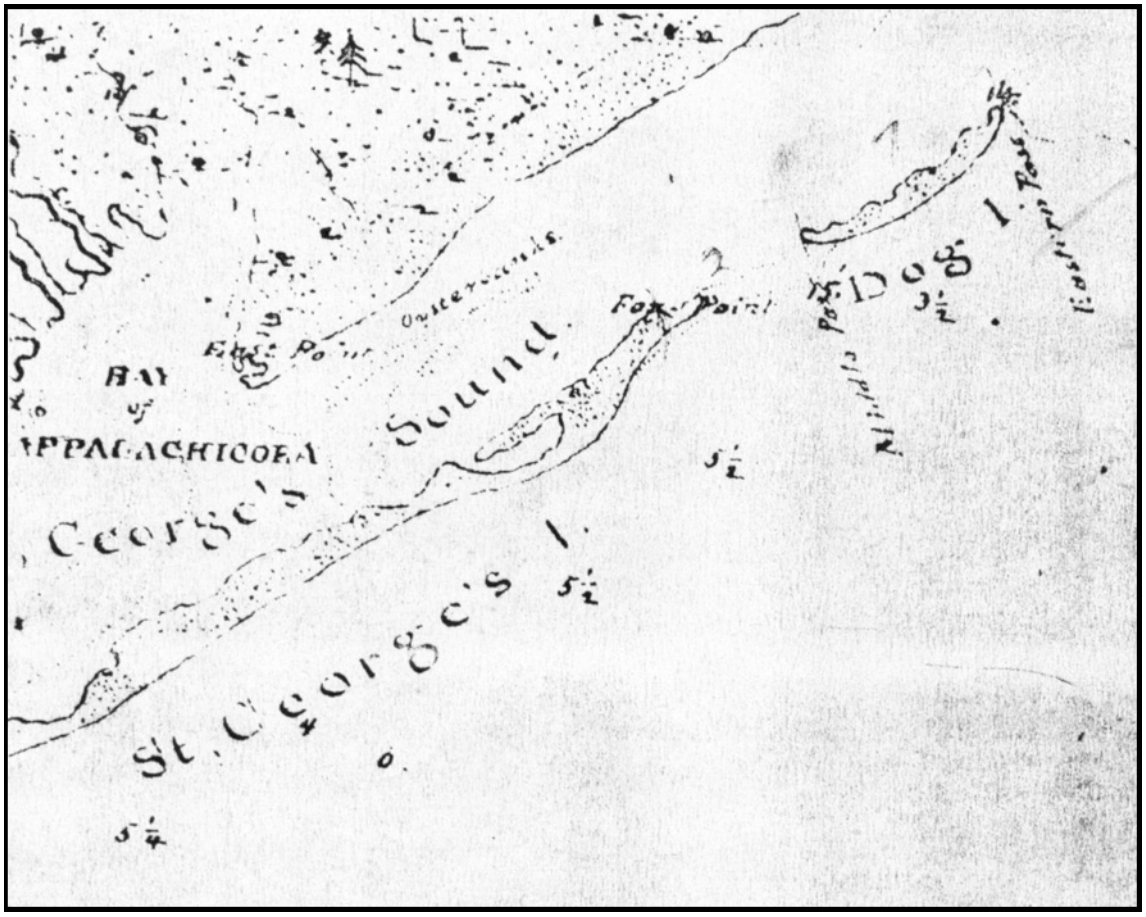

Figure 90. Detail of an 1829 map of the Territory of Florida (Brewer and Paul:1980)

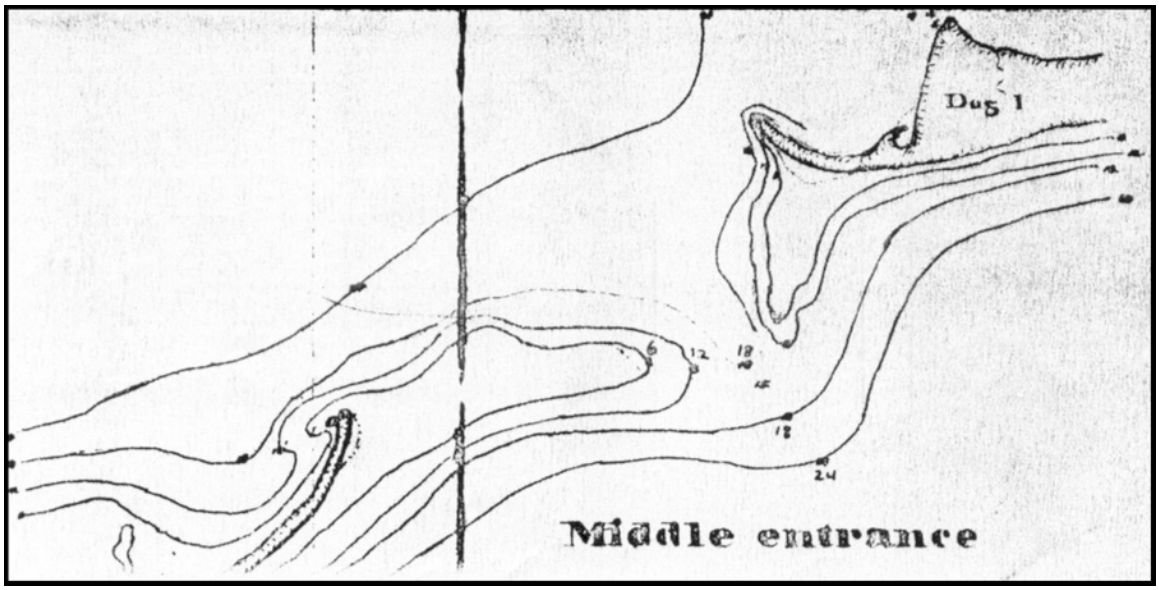

Figure 91. Inset from Swift's 1829 map (Brewer and Paul 1980)

Figures 92-94: Map of the Territory of Florida, 1829
Figure 92 covers an area from west of the mouth of the Mississippi to the Atlantic coast of Florida. The detail in Figure 92 is a detail from the main map depicting the area of Cape San Blas, Apalachicola Bay and St. George Sound, and the western portion of Apalachee Bay. All islands are labeled with their modern names. Figure 93 is an insert from the main map, which shows the eastern entrance to St. George Sound. Unfortunately, the depth soundings are too small to make out. Figure 94 is another insert: the middle entrance to St. George Sound (or East Pass). It is so similar to the insert from Swift's 1829 map that it is probably reasonable to assume that it is based on Swift's surveying.

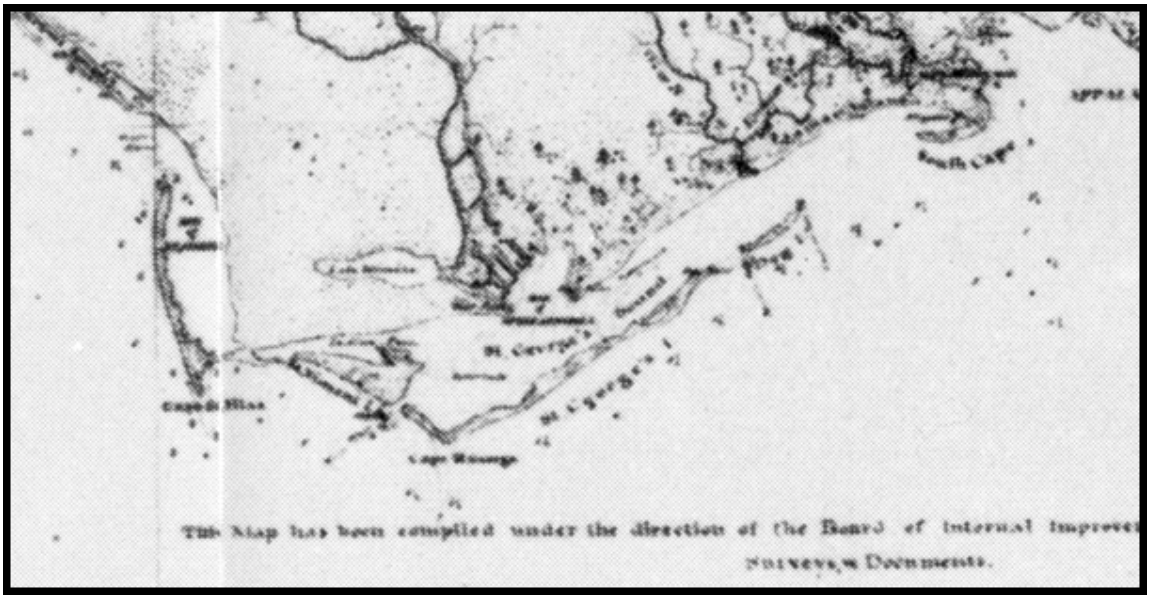

Figure 92. Detail of Apalachicola Bay area from a territorial map of Florida, 1829 (Carter 1958)

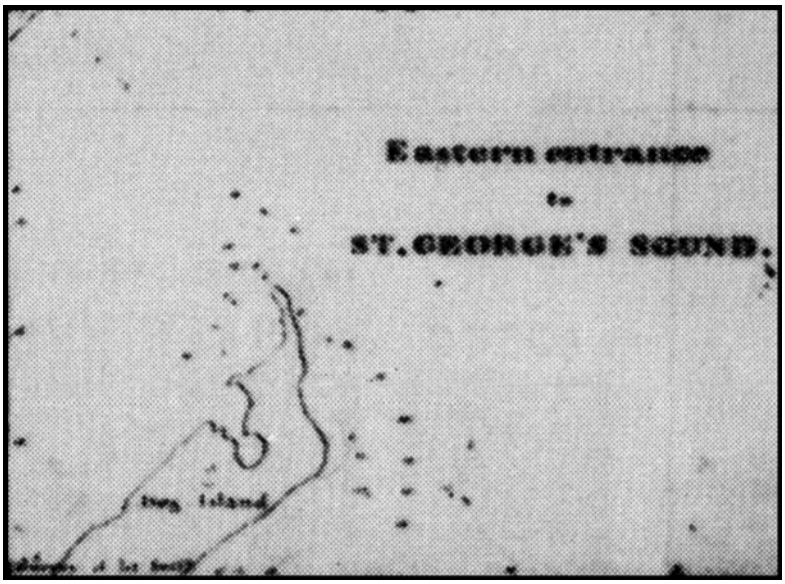

Figure 93. Detail from an 1829 territorial map of Florida, showing the eastern portion of Dog Island and the easternmost entrance into St. George Sound and Apalachicola Bay (Carter 1958)

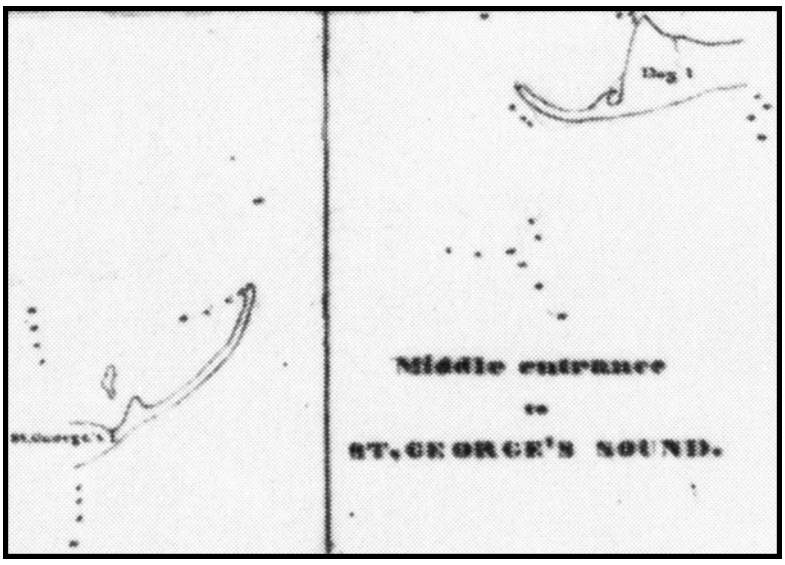

Figure 94. Detail from the 1829 map, showing the middle entrance into St. George Sound and Apalachicola Bay (Carter 1958)

Figure 95: Preliminary Reconnaissance of the Middle or Main, and West Entrances to St. George's Sound, 1853.
This map is the first of a series of U.S. Coast Guard nautical charts surveyed and produced with accuracy comparable to modern nautical charts. It depicts the pass between St. George Sound and Apalachicola Bay. It can be compared with Figures 90 and 93, both 1829 depictions of the same area. The chart clearly marks the path of this pass, a kind of zigzag line skirting the sandbars. Small anchor symbols, which may represent the location of shipwrecks or other

hazards to navigation are marked northwest of the tip of St. George Island and in two locations in Shipping Cove. A number of features on Dog Island are labeled. Shipping Cove's place name is noted as "The Cove, or Pilots' Harbor." Another archaic place name present is "Cove Point," which is used to denote what is now marked as "Cannonball Point" on Dog Island. The Dog Island lighthouse's position is marked on the chart, as well as St. James Island located shore, being correctly labeled for the first time. The map does show a gap or break in the narrowest part of Dog Island between West End and Cannonball Acres. This is explained on the map by a small note reading "Opening caused by the hurricane 9th Oct. 1852." This gap re-consolidated sometime before the next Coast Guard chart was be published in 1859. A similar gap was created in St. George Island by an 1852 hurricane.

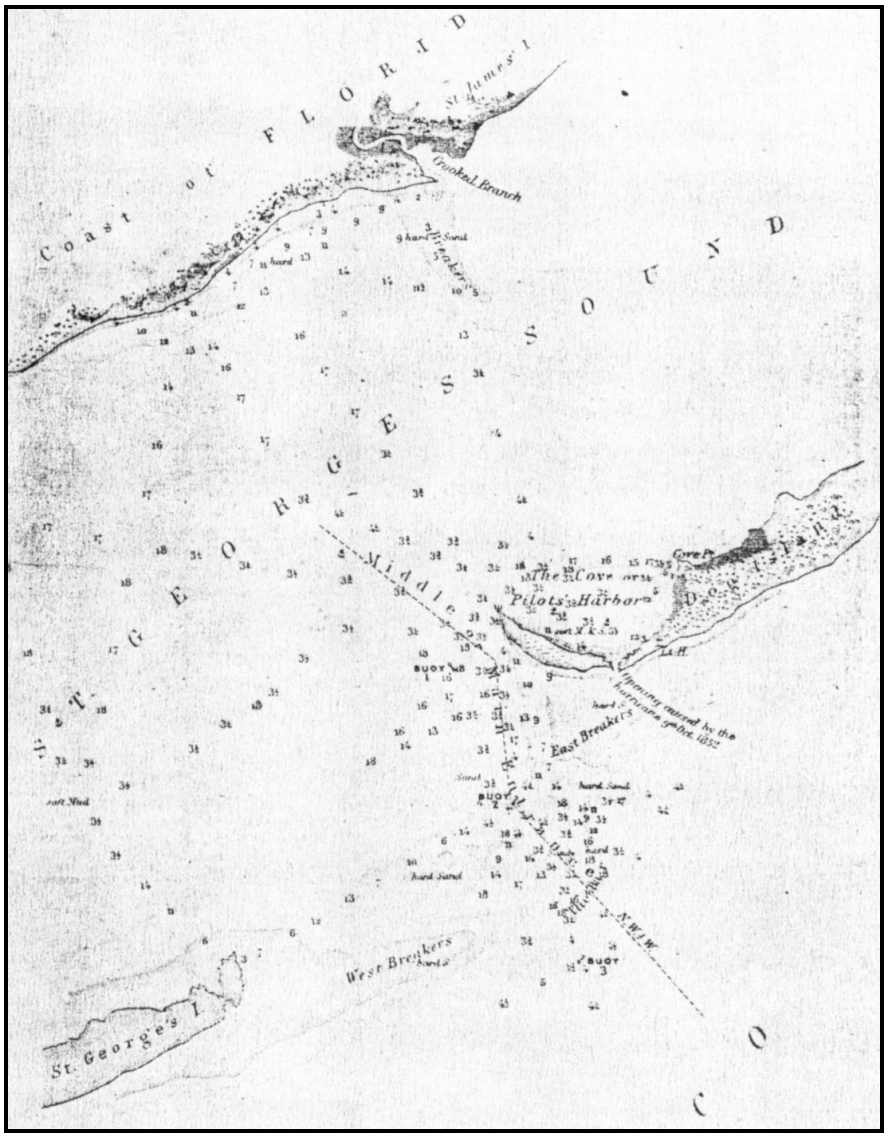

Figure 95. Detail of the Middle or Main into St. George's Sound, 1853 (Brewer and Paul 1980)

Figure 96: Eastern Part of St. George's Sound, 1859
This U.S. Coast Guard nautical chart is among the first maps accurately surveyed. It is marked "Aids to Navigation corrected to 1879," which explains the anachronistic notation in the location of the Dog Island Lighthouse: "Lt. Ho. (Destroyed Sept 19th 1873)". The entire nautical chart covers an area including the eastern half of Apalachicola Bay, the eastern half of St. George Island, Dog Island, most of Lanark Shoal, and most of St. George Sound. Figure 96 is a detail of eastern St. George Island, East Pass, and western Dog Island. The map portrays enough detail on St. George Island's topography to suggest how this barrier island has accreted sediment over the past 140 years. According to this map, the east end of St. George Island was approximately 1.25 km to the east of Marsh Island. The distance between those two features today is approximately 3.4 km, suggesting that the eastern end of St. George Island has grown some 2.15 km in the past 140 years. This indicates an average growth rate of 15.36 meters a year. If this rate of accretion is consistent, then the island should have been about 3.07 km shorter in 1799 (when *Fox* wrecked) than its present length.

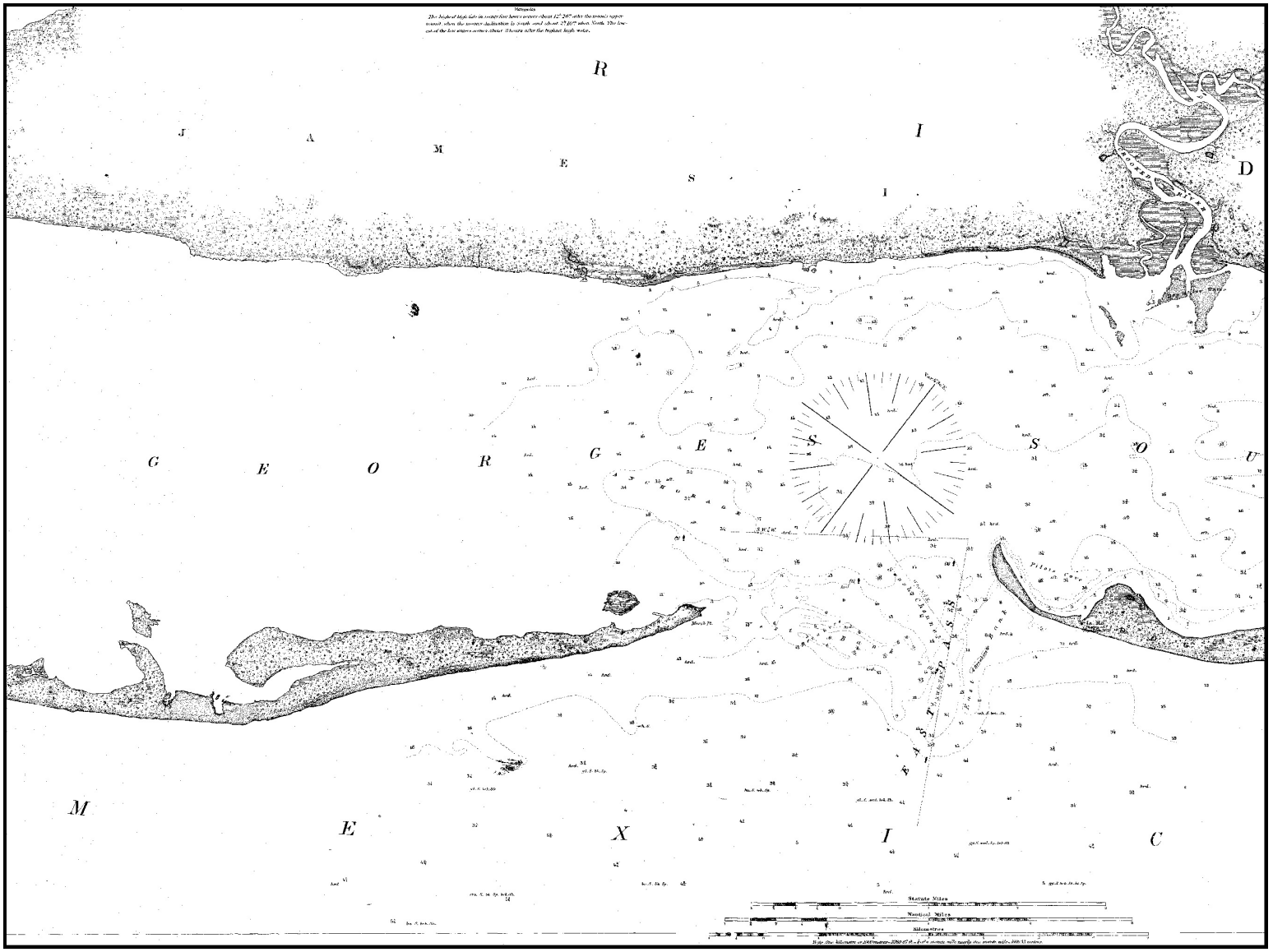

Figure 96. U.S. Coast Guard nautical chart “Eastern Part of St. George’s Sound” 1859 (National Oceanic and Atmospheric Administration Historical Map and Chart Collection, State of Florida).

Figure 97: 1860 Preliminary Chart of Western Part of St George's Sound
This nautical chart depicts the western half of St. George Island, St. Vincent Island, and the surrounding portion of Apalachicola Bay. The western half of St. George Island is divided into three sections: "Sand Island" to the west, Cape St. George, and the main section of St. George to the east.

Figure 98: 1863 Nautical Chart of the Gulf Coast from Florida to Louisiana
This is another Coast Guard chart including the entire Gulf coastline from the Mississippi delta in Louisiana to Key West in Florida. It is accurately surveyed and with numerous depth soundings, but at a much larger scale than the other nautical charts. All 123 of the shipwrecks listed in Appendix D are depicted in Figure 98.

Figures 99 and 100: Nautical Chart of Apalachee Bay and St George Sound, 1900
This Coast Guard Chart is the updated version of the 1859 chart depicted in Figures 96. As in the 1859 map, features present on St. George Island lend themselves to an estimate of island growth over the last 99 years. For example, the distance between Marsh Island and the tip of St. George Island is approximately 1.35 km (compared with 1.25 km on the 1859 chart, and 3.4 km on a modern chart). This suggests a growth of about 50 meters in 41 years, a rate of only 1.22 m a year. According to the modern chart, the distance between Marsh Island and the tip of St. George Island has grown some 2.05 km since 1900. This suggests a growth rate of 20.71 m a year, a figure closer to that calculated using the 1859 chart (which was 15.36 m a year). While the growth over long periods of time averages between 15 and 20 meters a year, the rate of accretion is not constant. Clearly the island was not growing as rapidly between 1859 and 1900 as it would later during the period between 1900 and 1999.

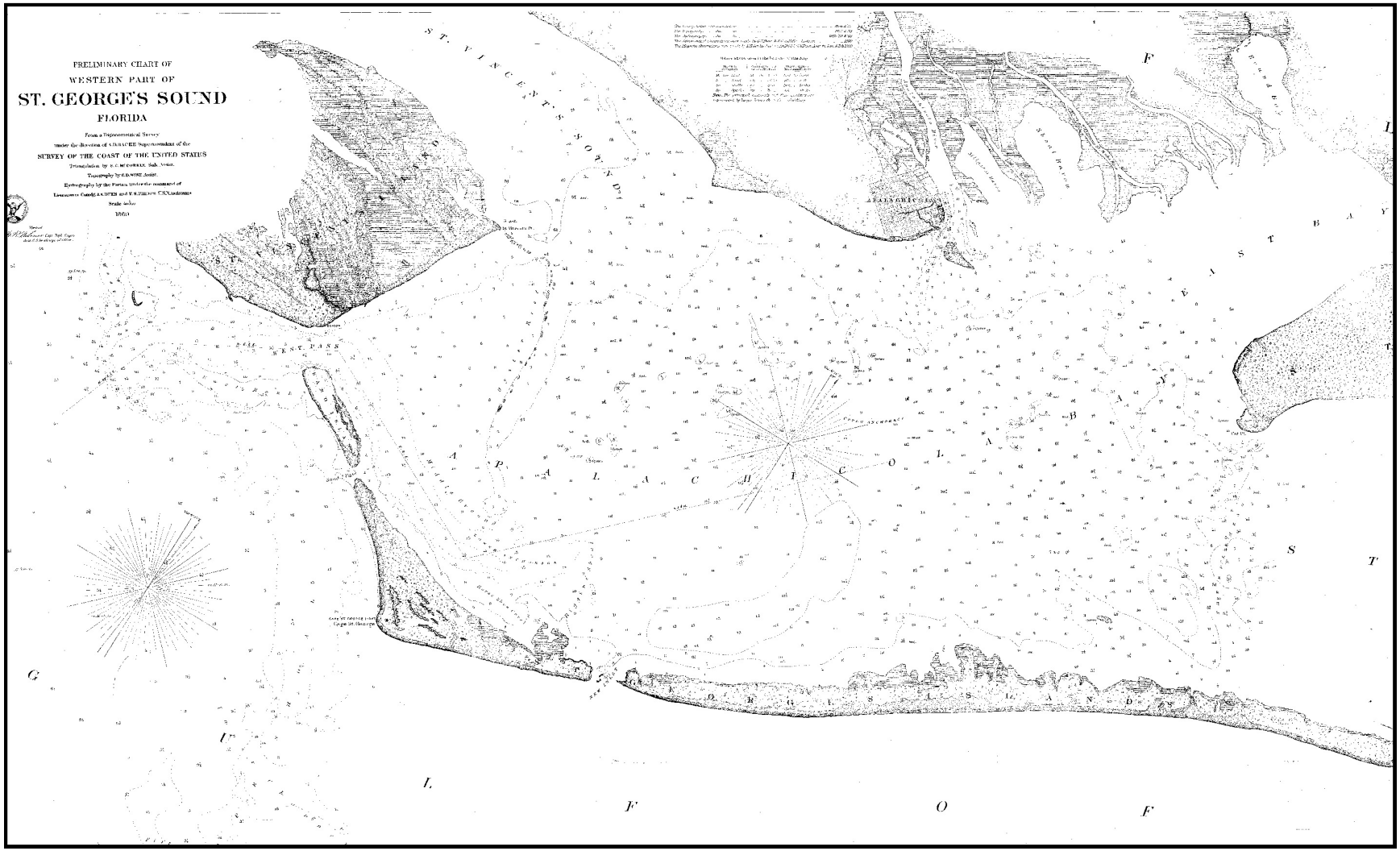

Figure 97. 1860 U.S. Coast Guard chart “Preliminary Chart of the Western Part of St. Georges’s Sound” (National Oceanic and Atmospheric Administration).

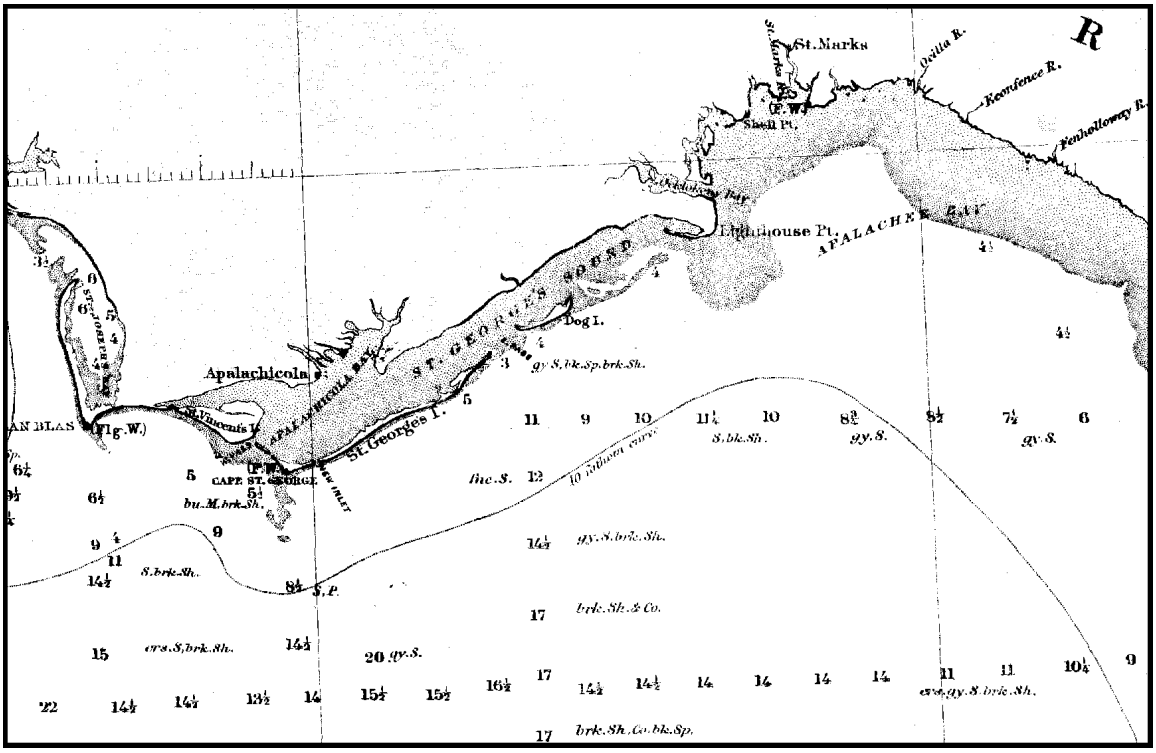

Figure 98. Detail from an 1863 U.S. Coast Guard nautical chart of the Gulf coast from Florida to Louisiana (National Oceanic and Atmospheric Administration)

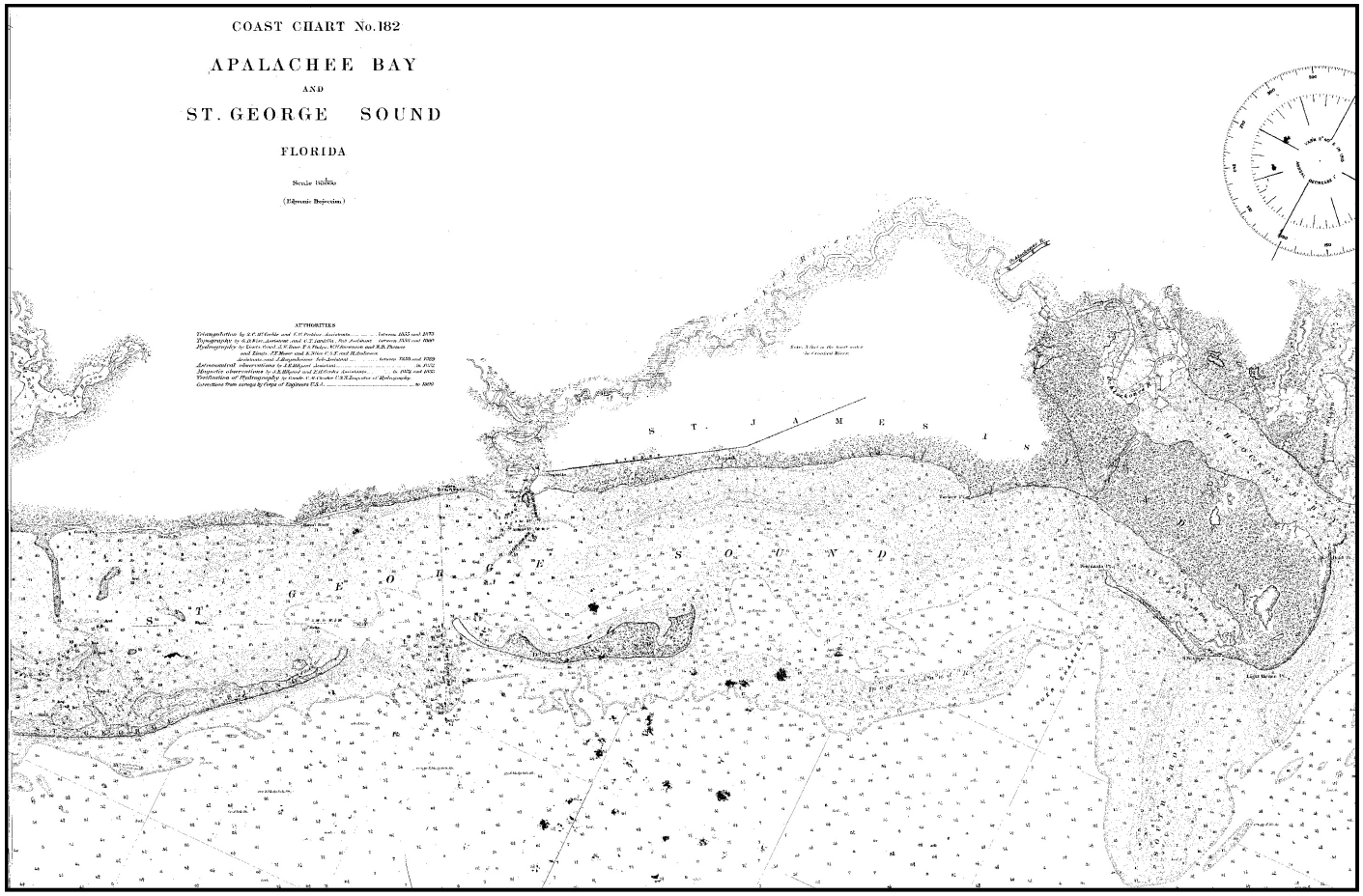

Figure 99. Nautical Chart of St. George Sound and Apalachee Bay, 1900 (National Oceanic and Atmospheric Administration).

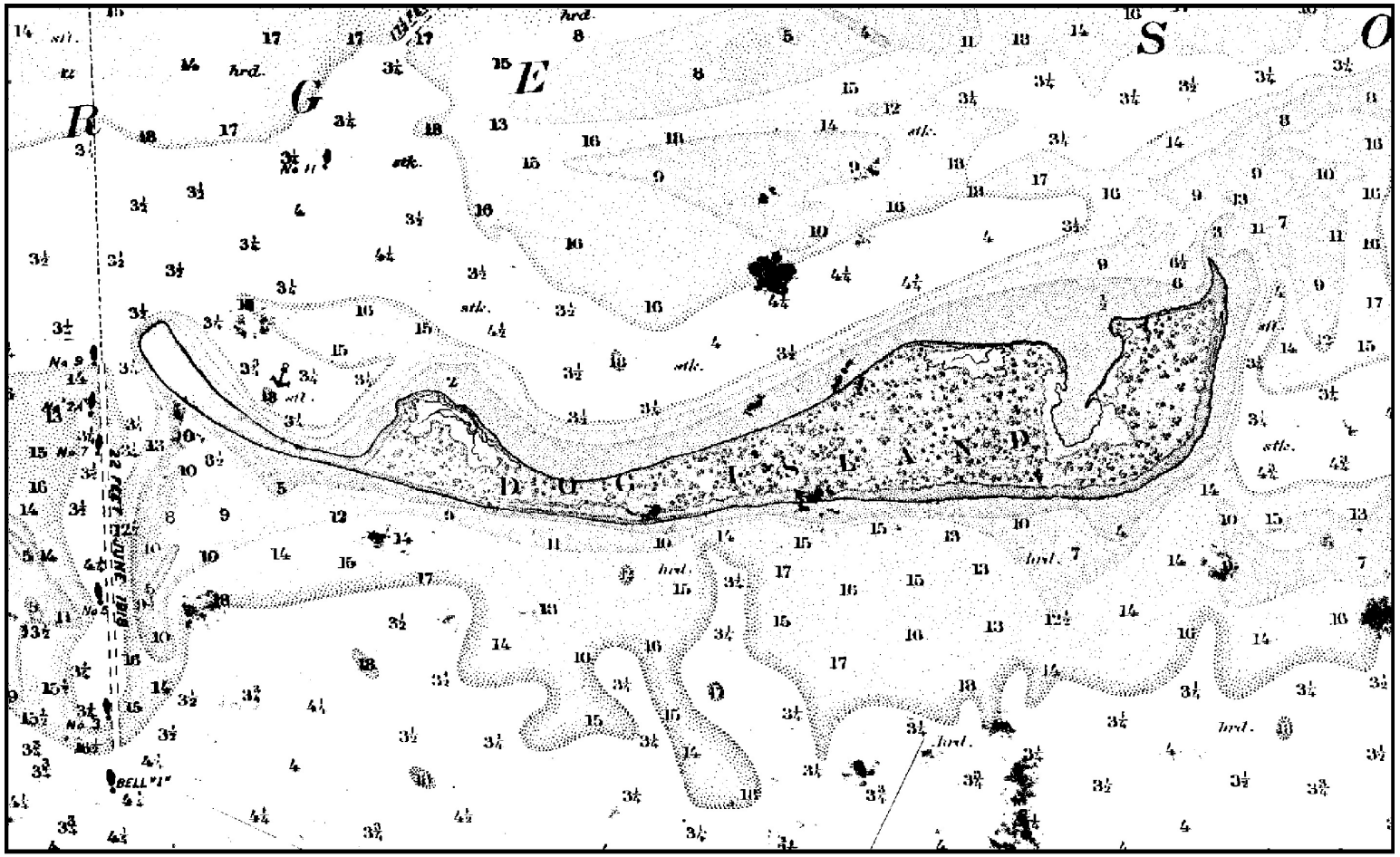

Figure 100. Detail of Dog Island, from the 1900 Nautical Chart (National Oceanic and Atmospheric Administration)

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Appendix D:
Table of Shipping Losses Recorded in Dog Island Area

Table 22. Table of shipping losses recorded in Dog Island area

Name of Ship	Date	Comments	Source
Santa Ana Maria Juncal	June 2, 1611	Spanish merchant vessel owned by Benardo de Torres and commanded by Captain General Marguis de Cadereyta. Part of the 1611 New Spain floata, it was carrying several million pesos in silver bullion. Lost somewhere off the *Cabo de Apalachi*, somewhere in the region. The Spanish attempted some salvage, but activities were discontinued when the ship broke up.	*Archivo General de los Indios*, Contracion, 600; Marx 1985: 74
Le Tigre	Feb 16, 1766	French merchant brigantine en route from present day Haiti to New Orleans. It was blown off course during a storm where it ran aground.	Fabel 1990; Fabel 1990 [1768]
Jason	July 28, 1767	A ship of unknown registry was badly damaged in a storm off the Florida Keys. It wrecked on the coast of "Apalachi" probably somewhere between Dog Island and The Aucilla River.	Marx 1985:96
HMS *Pallas*	March 24, 1783	A British 38-gun fifth rate warship, 728 tons, commanded by Captain Christopher Parker. Built in Wells, Deptford, launched on August 30, 1757, the ship measured 128' 6" by 36'. Run ashore on St. George Island as unserviceable.	Colledge 1969:406
HMS *Fox*	Sept 17, 1799	A 150-ton 14 or 16-gun schooner. Ran aground near the east end of St. George Island.	Colledge 1969:220 Wright 1967: 114-115
East Pass Wreck 8FR799	Possible 18th-19th century	Possible late 18th to mid 19th century shipwreck, located in East Pass between Dog Island and St. George Island.	Florida State Master Files, Tallahassee; James Dunbar, personal comm.
Cape St. George Shipwreck 8FR857	Possible 19th century	Wooden-hulled, copper sheathed vessel wrecked at Cape St. George. British or American cargo carrier, over 100' long. Hurricane Opal uncovered site in October 1995.	Florida State Master Files, Tallahassee; Roger C. Smith, personal comm.
American	1834	A steamer, loaded with cotton, en route to New York from Apalachicola. It caught fire and was run ashore near the bar at Apalachicola, where it burned to the water's edge.	Rogers 1986:39-40; Singer 1992:24
Stranger	Dec 1835	A pilot boat that ran ashore on St. Vincent Island during a gale in early December.	Singer 1992:24; *The Charleston Courier* January 4, 1836

Name of Ship	Date	Comments	Source
Versailles	April 1836	Sidewheel steamer built in Cincinnati in 1836. In April 1836, it was en route to St. Joseph from Apalachicola with a load of cotton when it struck a snag and wrecked passing the Bayou of Apalachicola.	Singer 1992:24; *The Charleston Courier* May 9, 1836
Edwin Forrest	Aug 31, 1837	27-ton steamer built in Old Agency, Georgia on the Flint River in 1836. Measured 93' by 17' by 2'. Washed ashore into the flooded streets of Apalachicola during the hurricane of August 30-31, 1837.	Roger 1986; Kilgo 1999:81
Henry Crowell	Aug 31, 1837	Steamboat that wrecked in the August 30-31, 1837 hurricane. Washed ashore into the flooded streets of Apalachicola.	Rogers 1986
Augusta	April 15, 1847	A 132-ton sidewheel steamer built in 1840 in Pittsburgh, Penn. It collided with the *Eufala* and wrecked in the vicinity of Apalachicola.	Singer 1992:25
Ashlania	Nov 1847	A 135-ton schooner en route from New Orleans to Apalachicola. It wrecked somewhere near Apalachicola.	Singer 1992:25
Mary (?) or *Mary Paul*	May 1848	A 198-ton bark, en route to Apalachicola from New Orleans. It wrecked somewhere near Apalachicola.	Singer 1992:25
Emily	May 1849	A 144-ton sidewheel steamer built in Elizabethtown, Penn in 1845. Engine boilers exploded while in Apalachicola (seven lives were lost).	Singer 1992:25
Falcon	August 1851	A 185-ton sidewheel steamer built in Cincinnati in 1850. It was stranded at Apalachicola during a hurricane.	Singer 1992:25
Ferdinand VII	Summer 1852	A Spanish brig, ran aground at Cape San Blas in the summer of 1852.	Singer 1992:25
Albany	Oct 9, 1852	A 168-ton sidewheel steamer built in Albany Georgia. It was stranded offshore Apalachicola during a hurricane.	Singer 1992:25
Palmetto	Oct 9, 1852	A 136-ton sidewheel steamer built at Brownsville, Penn. It was stranded offshore Apalachicola during a hurricane.	Singer 1992:25

Name of Ship	Date	Comments	Source
Swan	1856	A bark found at sea with seven feet of water in hold and sinking. Crew was transferred to the bark Cora where they were ferried to New Orleans. Approx location is 50 miles southeast of Dog Island.	Singer 1992:25; *New York Daily Times*, April 23, 1856
Arabella	1857	A ship-rigged vessel en route to Liverpool from Apalachicola. It was struck by lightning.	Singer 1992:26; *New York Daily Times*, April 14, 1857
Sara Judkins	April 2, 1858	A 546-ton ship, of Bath, Maine, built in Hallowell, Maine in 1856. Measured 139' 8" by 29' 2" by 14' 7". Sank at Apalachicola were it subsequently caught fire.	Singer 1992:26; *New York Daily Times*, April 3, 1858
South Carolina	Jan 12, 1860	A 173-ton sidewheel steamer built in Brownsville, Penn. It burned at Apalachicola.	Singer 1992:26
Gleaner	Jan 24, 1860	A large bark consigned to take a load of cotton from Apalachicola to Amsterdam. Caught fire while loaded and sank in 18 feet of water.	Singer 1992:26; *New York Times Daily*, January 26, 1860
Fanny Holmes	April 3, 1860	A 673-ton bark built by W.H. Webb of Apalachicola. It was loaded with cotton en route to Antwerp when it caught fire and burned to the water line.	Singer 1992:26; *New York Daily Times*, April 6, 1860
Switzerland	April or May 1860	A ship-rigged vessel of New York, commanded by Captain Trask. It caught fire accidentally and burned to the water line.	Singer 1992:26; *New York Daily Times*, May 7, 1860
Finland	August 26, 1861	A large sailing vessel taken without resistance by Union blockaders. Union troops burned the vessel to prevent her re-capture by the Confederates.	Rogers 1986:57; *Official Records of the Union and Confederate Navies in the War of Rebellion*, Ser.1, 16:547,677
Four unnamed schooners	Feb 7, 1862	Two large and two small schooners that were hauled up for repairs in a shipyard were destroyed by Union blockaders.	Itkin 1962:46
Cignet *Mary Oliver* (or *Mary Olive*)	April 3,1862	Two pilot boats burned in Apalachicola harbor by Union forces.	Itken 1962:46-47; Cushman 1962:45-46; Singer 1992:236

Name of Ship	Date	Comments	Source
New Island *Floyd*	April 3, 1862	Two vessels burned in Apalachicola harbor by Union forces.	Itken 1962:46-47; Cushman 1962:45-46; Singer 1992:236
Unnamed Union patrol boat	1862	A small Union boat that capsized in a storm patrolling the area between East and West Pass.	Rogers 1986:75; *Official Records of the Union and Confederate Navies in the War of Rebellion* , Ser.1, 17:358
Chattahoochee	May 25, 1863	A Confederate gunboat built in Saffold. It was ship-rigged with steam engines and over 130 feet long. Its boilers exploded approx 28 miles south of Chattahoochee on the Apalachicola River where it was hauled to the right bank of the river and salvaged for parts.	Rogers 1986:71-722,77; *Official Records of the Union and Confederate Navies in the War of Rebellion* Ser.1, 17:870-871
Andrew Manderson	May 27, 1863	A Union blockade coal bark wrecked by a hurricane at Sand Island near West Pass.	Rogers 1986:78
G.L. Brockenboro or *Brokenborough*	May, 27, 1863	A Union 4th-rate sloop, armed with a single howitzer. Originally a blockade runner, it had been scuttled in the Apalachicola River in 1862. It was pumped out and re-floated by Union forces when it was hit by a hurricane and suffered severe damage. The ship's captain ran it ashore in St. George Sound.	Rogers 1986:73,78; *Official Records of the Union and Confederate Navies in the War of Rebellion* , Ser. 1, 17:321-322
Amanda	May 27, 1863	A 368-ton bark armed with six 32-pounder smooth bore cannon, one 20-pounder rifled gun, and one 12-pounder howitzer. Built in 1858 in New York, it measured 117' 6" by 27' 9" by 12' 6". Commanded by Acting Volunteer Lieutenant George E. Welch it was driven aground on Dog Island somewhere near East Pass. It was subsequently burned.	Rogers 1986: 78; *Official Records of the Union and Confederate Navies in the War of Rebellion* , Ser.1, 17:451-457
Carolina Gertrude	Dec 28, 1863	A Confederate schooner commanded by Captain Meeker. Caught aground at the bar near the mouth of the Ochlocknee River, it was captured and destroyed by the USS *Stars and Stripes* .	Singer 1992:237

Name of Ship	Date	Comments	Source
Hattie	1866	Formerly the *Sophia* , this 286-ton iron hulled steamer was built in 1855 in Willmington. It sank in Apalachicola Bay in 1866, loaded with cotton.	Singer 1992:27; *New York Daily Times* , November 4, 1866
New Munnerlyn	May 1, 1867	A 193-ton sternwheel steamer built in Columbus, Georgia in 1867. It was lost off Apalachicola.	Singer 1992:27
Barnett	Dec 1, 1871	A 311-ton sternwheel steamer built in Pittsburgh in 1865. Collided with a survey schooner and sank.	Singer 1992:27
George P. Arnay	Dec 28, 1872	A sloop en route to Apalachicola from St. Marks. Wrecked on the north bank of St. George Island.	Singer 1992:27
Kele B	March 1875	A 738-ton schooner commanded by Captain Miller drifted and wrecked at Cape San Blas during a storm.	Singer 1992:28
Minnie Gray	June 1875	This ship-rigged vessel was listed as a partial loss near Rock Island in Apalachee Bay.	Singer 1992:28
J.A. Farley	June 1876	A 606-ton steamer, commanded by Captain Thomas, en route to Pensacola from Apalachicola sprung a leak and was forced to run ashore at Cape San Blas.	Singer 1992:28
Besluida	Jan 31, 1877	A 127-ton schooner built in 1870 en route to Apalachicola from Pensacola was wrecked outside the beach at Cape San Blas.	Singer 1992:28
Rebecca	October 1877	A schooner stranded somewhere on St. Vincent Island.	Singer 1992:25
George Gilshrist	Oct 3, 1877	A 438-ton brig of New York, was built in 1863. Commanded by Captain Urcumm it was sailing from Pensacola to Greytown, Nicaragua with a load of yellow and pitch pine when it sprang a leak in a storm and sank some 60 miles south of Cape St. George Lighthouse.	Singer 1992:28
Three Sisters	Dec 28, 1877	A 154-ton schooner, built in 1875, was traveling from Pensacola to Apalachicola when it sank during a storm.	Singer 1992:28

Name of Ship	Date	Comments	Source
Judge	August 12, 1880	A 6-ton schooner that wrecked on Ochlocknee Bar.	Singer 1992:29
Mobile American	Sept 9,1882	A 262-ton river steamboat out of Mobile, Alabama was being held in quarantine in Apalachicola when it blew ashore a half mile from the west end of James Island in Dog Island Harbor.	Singer 1992:30
C. Ervin	June 30, 1886	A 79-ton steam tug built in 1883 and commanded by Captain Hill when it sank in East Pass between Dog Island and St. George Island, somewhere near "Cat Point". The tug was towing two lumber barges which were both grounded.	Singer 1992:30
Birgitte	June 30, 1886	A 584-ton Norwegian lumber bark, built in 1871, out of Chrisiana, Norway, commanded by Captain Torgessen. It was blown ashore opposite Dog Island.	Singer 1992:30; Florida BAR Shipwreck Database
California	June 30, 1886	A 15-ton schooner, built in 1872, was lost in "Dog Island Cove" during a hurricane.	Singer 1992:30
Samuel MacManemy	March 10, 1887	A schooner lost off Apalachicola.	Singer 1992:30
Henrietta	July 16, 1888	A 34-ton schooner, built in 1883, was bound for Key West with a load of lumber when it wrecked somewhere on St. George Island.	Singer 1992:31
Carl D. Lathrop	Oct 21, 1889 Nov 21, 1889?	A 278-ton schooner, built in 1873, whose homeport was Newport, Rhode Island. En route to Cuba from Mobile with a load of lumber, it capsized about 10 miles south-southwest of the St George Lighthouse.	Singer 1992:32; Florida BAR Shipwreck Database
Sussie	Feb 22, 1890	A 5-ton steamer, built in 1886, it was burned at Devil's Elbow, Apalachicola.	Singer 1992:32
Eurcliue	July 5, 1890	A 6-ton schooner, built in 1869, registered in Apalachicola, it was blown aground on the outside beach of Dog Island during a gale.	Florida BAR Shipwreck Database
Aurecus or *Amicus*	April 2, 1891	A 516-ton British Bark, built in 1855, it was sailing in ballast from Barbados to Apalachicola when it ran aground near Flug Island Shoals near West Pass.	Singer 1992:32

Name of Ship	Date	Comments	Source
Dexter Clark	Dec 29, 1891	A 131-ton schooner out of Portland, Maine, built in 1873, was commanded by Captain Young. En route to Apalachicola from Martinique it struck bottom and sank at Flug Island Shoals near West Pass.	Singer 1992:32-33
J.A. Bishop	Feb 19, 1893	A steam tug, built in 1883, caught fire at Timber Wharf.	Singer 1992:33
Mary Me	Oct 7, 1897	A 17-ton schooner, built in 1878, whose homeport was Pensacola. It left Apalachicola bound for St. George Island when it was caught in a gale and ran aground near the west end of the island.	Singer 1992:32; Florida BAR Shipwreck Database
Warren Adams	August 1, 1899	An American three-masted coastal schooner, wrecked on St. George Island in a storm. It was re-floated. There are two photographs in existence of this wrecked vessel, though it is uncertain if they both depict the actual vessel or one of two other schooners stranded on the island.	Parker 1978; Negative 17088NN and Negative 12630, Florida Photo-graphic Collection, Florida State Archives, Tallahassee
Emma L. Cottingham	August 1, 1899	An American three-masted schooner that was stranded on St. George Island by a storm. It was eventually re-floated and repaired.	Parker 1978; Negative 17089NN Florida Photo-graphic Collection, Florida State Archives, Tallahassee
Benjamin C. Cromwell	August 1, 1899	An American three-masted schooner that was stranded on St. George Island by a storm. It was eventually re-floated and repaired.	Parker 1978; Negative 17089NN Florida Photo-graphic Collection, Florida State Archives, Tallahassee
Hindoo (*Hinda*) (*Hindu*) (*Hindos*)	August 1, 1899	A Norwegian lumber bark out of Mandal, Norway, built in 1877 in Apenrade Germany, it measured 141.1' by 31.5' by 17.5' and was 622 tons burthen and 541 net tons. While loaded with lumber waiting to sail out a hurricane hit wrecking the vessel ashore on St. George Island. It was eventually re-floated and repaired.	Iversen 1964; Parker 1978; Neg 17089NN and Neg 12628, Florida Photographic Collection Florida State Archives, Tallahassee; Norsk Sjofartsmuseums

Name of Ship	Date	Comments	Source
James A. Garfield	August 1, 1899	An American shallow-drafted, three-masted coastal schooner out of Bangor, Maine. Ran aground stern first on the inshore side of Dog Island in Shipping Cove during a storm. It was eventually re-floated.	Parker 1978; Neg 4263 and Neg 12626, Florida Photographic Collection Florida State Archives, Tallahassee
Mary E. Morse	August 1, 1899	An American three-masted schooner whose homeport was Bath, Maine. It was thrown ashore on Dog Island south of *James A. Garfield* during a storm. It was floated and repaired.	Parker 1978; Neg 12627 and Neg 4263, Florida Photographic Collection, Florida State Archives, Tallahassee
Vidette	August 1, 1899	An American barkentine that was grounded at Dog Island on the outside of the island opposite the *James A. Garfield* . It was salvaged and repaired.	Parker 1978; Neg 12627, Florida Photographic Collection, Florida State Archives, Tallahassee
Vale	August 1, 1899	A Norwegian lumber bark built and registered in Kragero, Norway in 1878. It measured 536 net tons and 554 burthen tons, 139' by 30' by 17'. It was blown ashore bow first on Dog Island in Shipping Cove during a hurricane.	Iversen 1964; Parker 1978; Zamanillo 1990; Florida Master Files, Tallahassee; Neg 12625 and Neg 12627, Florida Photographic Collection, Florida State Archives, Tallahassee; Norsk Sjofartsmuseums Bibliotek, Olso, Norway
Jafnhar	August 1, 1899	A 476-ton Norwegian bark built in 1877 in Porsgrunn, Norway. It measured 130' by 29.3' by 16'. Captain at time of wrecking was M. Thygesen. It was blown ashore on Dog Island in Shipping Cove during a hurricane.	Parker 1978; Neg 12625 and Neg 12627, Florida Photographic Collection, Florida State Archives, Tallahassee; Norsk Sjofartsmuseums Bibliotek, Oslo, Norway

Name of Ship	Date	Comments	Source
Latava	August 1, 1899	A Russian bark that was Blown ashore on Dog Island in Shipping Cove during a hurricane.	Parker 1978; Neg 12627 Florida Photographic Collection, Florida State Archives, Tallahassee
Cortesia	August 1, 1899	An Italian bark that was wrecked during a hurricane. One source claims it wrecked somewhere near Apalachicola, while another claims it wrecked on Dog Island.	Parker 1978; Neg 12629 Florida Photographic Collection, Florida State Archives, Tallahassee
Unnamed U.S. schooner	August 1, 1899	A shallow-drafted coastal three-masted schooner that ran aground on a shoal outside Dog Island. It is not known if this vessel was abandoned or re-floated.	Iversen 1964
Unnamed Finnish schooner and Spanish Bark	August 1, 1899	Two vessels, a Finnish schooner and a Spanish Bark, were mentioned by Iversen in an eyewitness account of the hurricane of August 1899. They are reported to have wrecked in the vicinity of Dog Island.	Iversen 1964
Elsbeth (ex-*Eliza S. Willigan*)	August 1, 1899	A Norwegian bark built in 1874 in Rothesay, New Brunswick, it measured 168.5' by 34.9' by 19.7', 883 burthen tons and 802 net tons. It was re-floated and named *Helen Buck* .	Norsk Sjofartsmuseums Bibliotek, Oslo, Norway
Ranvola	August 1899	A British bark built in Newcastle in 1861 out of Kragero, Norway, it measured 121.2' by 27.1' by 17', 396 ton burthen and 374 net ton. Wrecked off Apalachicola while loading pitch pine.	Norsk Sjofartsmuseums Bibliotek, Oslo, Norway
Albert Halsey or *Haley*	August 1, 1899	A fishing schooner out of Pensacola, built in 1846 in Stonington, Connecticut, it measured 61.1' by 17.1 by 8'. Commanded by Captain Limmick it was blown ashore in Carrabelle Harbor.	Singer 1992:35
Raymond H.	mid-October 1907	A 55-ton steamer built in 1905 and registered at Apalachicola. It burned at James Landing, Apalachicola loaded with cotton, cottonseed, and turpentine.	Singer 1992:38
Allen H. Jones	Dec 19, 1907	A 47-ton schooner built in Essex, Massachusetts in 1877, out of Tampa. It measured 69.1' by 19.8' by 6.6 and was commanded by Captain Walker. En route to Tarpon Springs from Apalachicola it foundered in Apalachicola Bay after being towed over a bar.	Singer 1992:38
Sun	Feb 2, 1909	An 84-ton sidewheel steamer built in 1898 at Hockingport, Ohio. It measured 121' by 21.2' by 4.3' and was stranded off Apalachicola.	Singer 1992:38

Name of Ship	Date	Comments	Source
Hjalmar	Dec 18, 1918	A 57-ton schooner built in 1891 in East Bay, Florida, out of Pensacola. It measured 75.4' by 22.2' by 7' and foundered somewhere offshore near Carrabelle.	Singer 1992:39
Herman Oelrichs	Dec 22, 1910	A schooner built in 1894 in Essex, Massachusetts, it measured 78' by 22' by 9.4'. It was stranded on Cape San Blas Shoals.	Singer 1992:39
Orona	March 11, 1911	A 97-ton sidewheel steamer built in 1900 in Carrabelle, it measured 100' by 26.8' by 6'. It accidentally burned in Apalachicola.	Singer 1992:39
Freddie Hencken	Sep 12, 1912	A 500-ton three-masted schooner of New York, built in 1892 in Bath, Maine. It measured 146.2' by 36' by 12.4'. Stranded on Cape San Blas Shoals.	Singer 1992:39
Priscilla Dog Island Shipwreck #1	Sep 24, 1914	A 48-ton fishing schooner built in 1893 as Boothbay, Maine, it measured 69.3' by 19.8' by 8.9'. Records indicate that this ship was stranded on "Carrabelle Bar", however, it is believed that this ship is Dog Island Shipwreck #1 on the south side of Dog Island.	Singer 1992:40; Florida Master Site Files, Tallahassee;Baumer: 1987-88;Haiduven:1987; White et al.1995: 26
Donna Christina	April 9, 1915	A 174-ton schooner out of Pensacola, built in 1883 at Tampa, Florida. It measured 115' by 29.3' by 8.6', it was stranded on "Carrabelle Bar".	Singer 1992:40
John G. Whilldin	Sep 15, 1915	A 51-ton schooner built in 1839 in Philadelphia, it measured 78.3' by 18.8' by 6.9'. Foundering near Cape San Blas, nine aboard drowned.	Singer 1992:40
Juno	April 28, 1938	A 68-ton motor vessel built in 1929, it wrecked about ten miles south of the St. George Island lighthouse. (A second source lists this ship as having been lost off St. Andrews, Panama City)	Singer 1992:45
Empire Mica	June 29, 1942	A 8,032-ton British Tanker, it was torpedoed by a German U-boat and sank 110ft approximately 20 nautical miles south of Cape San Blas.	Singer 1992:252; DeLoach 1997:165; Rinehart 1998:54-54
Gilmore or *Gelmer*	1943	A WWII dredge that wrecked during a storm approximately 16.8 miles out from Sikes Cut Jetties on St. George Island.	Singer 1992:253; Rinehart 1998:104-105
Unnamed LCM	WWII	An unnamed Landing Craft, Mechanized (LCM) vessel lost somewhere offshore Lanark Village possibly during a storm in early March 1943.	Coles 1994:14; Philip Fountain, personal comm., July 8, 1999

Name of Ship	Date	Comments	Source
OV *Jolly Roger*	June 17, 1956	A 37-ton vessel built in 1953, it was stranded somewhere in Apalachicola Bay.	Singer 1992:45
OV *Eureka*	May 1957	A 27-ton vessel built in 1939, it foundered somewhere offshore Apalachicola.	Singer 1992:45
OV *Ralph E. Havens*	Dec 9, 1957	A 48-ton vessel built in 1905, it foundered approximately 15 miles south-southeast of Carrabelle.	Singer 1992:45
OV *Supertest*	April 2, 1958	A 51-ton vessel built in 1942, it was stranded on St, George Island.	Singer 1992:46
OV *Cracker Boys*	April 30, 1960	A 33-ton vessel built in 1950, it wrecked in a storm off Apalachicola.	Singer 1992:46
TV *Robert P. Doherty*	Nov 17, 1965	This vessel was built in 1943 in Houston, measuring 63.7' by 18.2' by 7'. It foundered at South Shores Light off St. Marks, in Apalachee Bay.	Singer 1992:46
OV *PMJ*	Oct 10, 1971	A 47-ton vessel built in 1953, it foundered off Cape San Blas.	Singer 1992:46
OV *Captain Bill*	June 17, 1972	An 85-ton vessel built in 1968, foundered at Cape St. George Lighthouse.	Singer 1992:46
Enjoy	before 1978	A 40ft long vessel that sank approximately 65 miles southeast of Apalachicola.	Singer 1992:47
FV *Karma*	1980	A shrimping or fishing vessel that sank at 29 degrees 54 minutes 18 seconds latitude, 84 degrees 25 minutes 42 seconds longitude.	Singer 1992:47
FV *Little Tots*	1981	A shrimping or fishing vessel that sank at 29 degrees 42 minutes 20 seconds latitude, 84 degrees 58 minutes 14 seconds longitude.	Singer 1992:47

Name of Ship	Date	Comments	Source
FV *Sandy*	1981	A shrimping or fishing vessel that sank at 29 degrees 49 minutes 00 seconds latitude, 84 degrees 37 minutes 30 seconds longitude.	Singer 1992:47
FV *Shorty's Boy*	1982	A wooden hull shrimping vessel that sank near St. George Island at 29 degrees 37 minutes 24 seconds latitude, 84 degrees 54 minutes 06 seconds longitude.	Singer 1992:48; Rinehart 1988:100
FV *Miss Aline*	1982	A shrimping or fishing vessel that sank at 29 degrees 39 minutes 02 seconds latitude, 84 degrees 04 minutes 15 seconds longitude.	Singer 1992:48
FV *Miss Tammy*	1982	A shrimping or fishing vessel that sank at 29 degrees 49 minutes 06 seconds latitude, 84 degrees 24 minutes 18 seconds longitude.	Singer 1992:48
FV *Drifter*	1982	A shrimping or fishing vessel that sank at 29 degrees 24 minutes 12 seconds latitude, 83 degrees 59 minutes 42 seconds longitude.	Singer 1992:48
FV *Viking IV*	1983	A shrimping or fishing vessel that sank at 29 degrees 24 minutes 12 seconds latitude, 85 degrees 01 minutes 00 seconds.	Singer 1992:48
FV *Davy's Navy*	1984	A shrimping or fishing vessel that sank at 29 degrees 23 minutes 42 seconds latitude, 84 degrees 57 minutes 30 seconds.	Singer 1992:48
Miss Gem	1984	A steel hull shrimp boat purposely sunk in 1984 as an artificial reef approximately 15.4 miles from the west end of Dog Island at a heading of 169 degrees. 29 degrees 32.00 minutes N, 84 degrees 37.20 minutes W.	DeLoach 1997:169; Rinehart 1998:102
FV *Dolphin*	1984	A shrimping vessel that sank at 29 degrees 23.04 minutes N, 84 degrees 45.81 W.	Rinehart 1998:100
One More Time	Spring 1992	A 75ft steel hull shrimper was sunk as an artificial reef approximately 5.5 miles from the west end of Dog Island at a heading of 153 degrees.	DeLoach 1997:169; Rinehart 1998:107
Yamaha Barge	1993	A 195ft steel hopper barge was sunk as an artificial reef approximately 14.5 miles from the west end of Dog Island at a heading of 152 degrees.	DeLoach 1997:169; Meide and Faught 1998:9-13

Name of Ship	Date	Comments	Source
Unknown shrimper	before April 1999	A shrimping vessel that sank of he west end of Dog Island in East Pass. This wreck is located so shallow that it can be seen awash at the surface.	Steve Wilson, personal comm., July 21, 1999
Unknown barge	Unknown	A steel hull barge that sank near the channel at approximately 29 degrees 50.50 minutes N, 84 degrees 09.28 W.	Rinehart 1998:102
Unknown shrimper	Unknown	A steel hull shrimper that sank approximately a half a mile east of the Cape St. George buoy at 29 degrees 24.21 minutes N, 85 degrees 01.73 minutes W.	Steve Wilson, personal comm., 1999
Tripod Pass Wreck	Unknown	A vessel wrecked at the entrance of West Pass approximately 29 degrees 19.75 minutes N, 84 degrees 55.08 W.	Rinehart 1998:105

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Appendix E:
Table of Storms Affecting the Dog Island Area

Table 23. Table of storms affecting the Dog Island area

Storm	Date	Destruction and Vessel Losses	Source
Unnamed hurricane	Sep 14, 1841	This storm struck Apalachicola and blew the slate roofs off a number of brick buildings, demolished the market house, and swamped all of the small craft in Apalachicola harbor. No ship losses were uncovered in the records.	Ludlum 1963:147
Unnamed hurricane	Oct 4, 1842	This storm began in the Gulf of Campeche and passed directly over Dog Island striking the mainland from Apalachicola to St. Marks. The brunt of the storm descended upon Apalachicola at 4pm on the 5th and ripping roofs from houses. On Dog Island the tides rose higher than anyone could remember. The Dog Island Lighthouse was destroyed when its upper 20 to 30 feet blew away. The lighthouse keeper's house was also swept off the island drowning his wife in the process. No ship losses were recovered in the records other than the lighthouse keeper's sailboat.	*Apalachicola Journal* November 14, 1842; Redfield 1846:1
"Perfect Hurricane"	Sep 8, 1844	This hurricane struck the Apalachicola Bay area from the northeast. It destroyed several houses and buildings, however, no lives were lost. It is not known how many ships were damaged or lost in the storm.	Taylor 1995:226; *Commercial Adverstiser* , Sept 9, 1844
Unnamed hurricane	Oct 12, 1846	This storm was part of the backlash that destroyed the Key West and Sand Key Lighthouses. It struck the Apalachicola Bay region just east of St. Marks. According to records, the easterly winds blew the water out of Ochlocknee Bay (east of Dog Island) with such ferocity that sand flats for miles were laid bare and covered with dying fish. No ship losses were uncovered in the records.	*Tallahassee Sentinel* Oct 20,1846
"Extraordinary Storm"	Aug 23, 1850	This hurricane was "not as remarkable for the force of wind as for the great height to which the tide rose…[the] extrodinary influx of the tide…[resulted in] several shanties…occupied by industrious and poor fisherman [being] washed away. No ship losses were uncovered in the records.	*Commercial Advertiser* Sep 12, 1850
"The Great Middle Florida Hurrican"	Aug 23, 1851	This hurricane hit the area exactly one year after the previous hurricane, flooding all of Apalachicola for over 20 hours. All three lighthouses in the Apalachicola District - Cape San Blas, St. George Island, and Dog Island - were blown or washed away. Five lives were lost at Dog Island. At least one vessel, *Falcon* , was recorded lost.	Taylor 1995:227; Ludlum 1963:157; *Tallahassee Sentinel* Sep 2, 1851
Unnamed hurricane	Oct 9, 1852	This hurricane washed away a section of Dog Island at its narrow point between West End and Cannonball Acres and caused a similar gap in St. George Island west of Cape St. George. At least two vessels were lost during the storm, *Albany and Palmetto* .	Singer 1992:25

Storm	Date	Destruction and Vessel Losses	Source
Unnamed hurricane	Sep 18-19, 1873	This was a destructive hurricane that damaged many homes, stores, and warehouses in Apalachicola. In addition, it destroyed the Dog Island Lighthouse, toppling it into the sea. No ship losses were uncovered in the records.	Cipra 1976
Unnamed hurricane	Jun 30, 1886	This hurricane hit the area claiming three vessels - *C.Ervin* , *Birgette* , and *California* - and four lives.	Singer 1992:30
Unnamed hurricane	Aug 1, 1899	This hurricane devestated all of the coastal towns in the region, however, the greatest destruction took place in Carrabelle, where five people were killed. Small boats were blown ashore or sank, most of the wharf and a large quantity of naval stores were blown away, and the train was blown from its tracks. There are at least seventeen named shipwrecks, four of which were stranded on St. George Island, and seven more wrecked on Dog Island. These vessels include:*Warren Adams* , *Emma L. Cottingham* , *Benjamin C. Cromwell* , *Hindoo* , *James A. Garfield* , *Mary E. Morse* , *Vidette* , *Vale* , *Jafnhar* , *Latava* , *Cortesia* , two unnamed schooners, a Spanish bark, *Elsbeth* , *Ranavola* , and *Albert Halsey* .	*Florida Times-Union and Citizen* , Aug 4, 1899; Rogers 1986:142; Iverson 1964
Unnamed storm	March 1943	This storm hit the Apalachicola Bay region during the final amphibious landing training excersise of the 28th Division. Many landing draft were caught in the storm and blown ashore. One vessel ran aground a sand bar, resulting in fourteen soldiers deaths. The dredge *Gilmore* and an unidentified LCM wrecked during this storm.	Coles 1944:13-14; *Amphibian* 1943; *Apalachicola Times* 1943

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Appendix F:
Historical Research Conducted on the Origin and Loss of HMS Fox

This Appendix details the historical research conducted on the origins and loss of the HMS Fox. It includes both primary and secondary resources collected by researchers associated with Florida State University from 1980 to 1999 in archives located in both Florida and England.

Secondary Source Research

Three standard reference sources for information on Royal Naval vessels and shipwrecks are Colledge's *Ships of the Royal Navy* (1969), Lyon's *Sailing Naval List* (1993), and Hepper's *British Warship Losses in the Age of Sail* (1994). All three of these publications list and describe the *Fox*. Details of the ship are for the most part consistent and are presented in the table below.

Table 24. Descriptions of the Royal Navy's HM Schooner *Fox*, compiled by researchers from various primary sources.

Description of Vessel and Shipwreck	Source
FOX Schooner 14 [guns], 150 bm [tons, Builders Old Measurement]. Ex-French prize purchased 1799. Wrecked 28.9.1799 in the Gulf of Mexico.	Colledge 1969: 220
Fox 1799-1799 schooner, 18/14 [guns]. 150 tons [bm]. Origins uncertain (taken 1799? Or 1797?); 28.9.1799 lost in the Gulf of Mexico on a sandbank near the Island of Providence.	Lyon 1993: 262
28 September 1799, FOX Schooner, 14 guns, 150 tons, Prize, 1799 [year acquired], Lieut. James Wooldridge [commanding officer]. Sailed from Jamaica on 5 September to land General Bowles, a chief of the Creek Indians, in the Gulf of Mexico, attempts to procure a pilot in the islands having failed. As she was maneuvering in St. George's Sound, she found herself being carried down close to the shore. An attempt was made to tack, but a flaw of wind struck her, taking her aback. She struck a reef of coral, which pierced the bottom and she rapidly filled with water and fell over onto her larboard side. The crew all managed to go ashore onto the reef, the schooner going to pieces. The crew remained there for thirty-two days, until taken off by the Providence privateer.	Hepper 1994: 92

While all three references agree that the date of the sinking was 28 September 1799, it is believed that this date is incorrect. Unfortunately, this mistake is prevalent in a variety of Admiralty documents. This date is based on a letter written by the *Fox*'s captain Wooldridge on 22 September 1799, in which he states that "his Britannic Majesty's schooner 'Fox' . . . which was unfortunately wrecked five days since [17 September]" (Ellicot 1962[1803]: 172).

Another secondary source providing details on the Fox and its wrecking is James Leitch Wright's 1967 *William Augustus Bowles: Director General of the Creek Nation*. Wright describes the voyage of the *Fox* from Nassau to St. George Island (1967: 114-116). He mentions that Bowles' retainers consisted of four men: Ferguson, Neuville, and two carpenters, however, his account goes into little detail concerning the ship's cargo or compliment, only briefly describing the shipwreck (1967:114). According to Wright, *Fox* ran into a furious storm in the immediate

vicinity of Dog Island (while still on the offshore side). Wright relied heavily on Andrew Ellicot's journal for descriptions of Bowles, Lt. Comm. Wooldridge, and the shipwreck:

> . . . and all hands were busy at the pumps, reducing sail, or helping at the wheel; still the *Fox* took on water and was blown perilously close to shore. In this crisis Bowles and the Captain bickered about how to save the ship. Wooldridge had his way and, as later charged by Bowles, through incompetence ran the *Fox* aground on the eastern end of St. Georges Island ineptly trying to reach the sanctuary of St. Georges Sound. In a last-ditch attempt to save the ship Wooldridge ordered stores and baggage heaved overboard. With dismay Bowles saw that part of his belongings were the first to go, and this did not further endear him to the Captain. The storm raged unabated, covering the island with up to two feet of water, but finally Bowles, working furiously along with the passengers and crew, helped transfer everyone and part of the cargo safely ashore. Bad weather continued for two more days, and the *Fox* broke up and sank off the tip of St. Georges Island, now christened Fox Point. The Director General's triumphant return to the Creeks had fizzled (Wright 1967: 115).

Primary Source Research

Journal of Andrew Ellicott, 1803

Major Andrew Ellicott was an American surveyor who was commissioned to map the 31st parallel boundary between the United States and Spanish Florida. During his travels, Ellicott encountered the survivors shortly after the shipwreck of the *Fox*. Ellicott recorded the entire incident in his journal, which was eventually published in 1803. A later edition, used in this research, was published in 1962. In addition to this journal, the 1908 publication titled *Andrew Ellicott, His Life and Letters* by Catharine Van Cortlandt Mathew was also consulted. Crewmember Lara Proctor compiled much of the following documents.

The wreck of HMS Fox was first brought to Ellicott's attention through two letters: one from Fox's captain and one from Bowles. Below are the letters transcribed by Ellicott in his journal (Ellicott 1962[1803]: 226-227)

> *FOX POINT, September 22d, 1799*
>
> *SIR,*
>
> *I beg leave to make known to you, that I am at present on a small island on this coast, which is well known to the bearers [of this letter], with the crew of his Britainic Majesty's schooner 'Fox,' late under my command, but which was unfortunately wrecked five days since, on this coast. As there is no possibility of saving the schooner, I trust sir, your humanity will induce you to stop here, and devise with me, some means of removing those unfortunate men, who have nothing more than some provisions saved from the wreck to exist on, the island producing nothing; on the contrary, for two days, during the late gale, the sea made a breach over it, so that for those two days, we were with nearly two feet of water on the ground.*
>
> *Understanding that you have been driven by the Indians from the country where you were employed, I beg leave to inform you, that General Bowles, the Chief of the Creek nation is with me, he expresses his wishes to see you much, as he thinks your unfortunate differences may be settled: he has no force here, therefore you may be assured no treachery can be intended, as I shall consider*

you under my protection, and use the force under my command to the utmost for your security, which is not inconsiderable, as I have been enabled to save my arms, ammunition, &c.

With the most anxious wishes of seeing you soon,
I am your most humble servant,
JAMES WOOLDRIDGE [signed]
Lieutenant in the Royal Navy

FOX POINT, September 22d, 1799

SIR,

I am now at the mouth of this river on my return from Spain by the way of London, and the West Indies, in order once again to rejoin my nation the Creeks. The vessel that brought me here, was four days since unfortunately run on shore at the entrance of the bay, but having saved l my effects, with my boat, should have proceeded into the country, until hearing of your being near, I determined to stay, and wish much to see you. Although we may differ in politics, yet as gentlemen we may associate, and be friends, at least we may be civil to each other; I pledge my honour to be so to you and rely on yours.

I have the honour to be,
Your obedient servant,
WM. A. BOWLES [signed]

Ellicott saw the arrival of Bowles as something of pressing importance, and he immediately sent out several dispatches including one to U.S. Colonel Benjamin Hawkins, "principal agent of Indian affairs for the southern department". This letter is reproduced below in its entirety (Ellicott 1962[1803]:228-233)

Apalachy, October 9th, 1799.

DEAR SIR,

On the 23d of last month, at the mouth of the Chattahocha, where my people were repairing the rigging of [Ellicott's] vessel, which had been cut to pieces by the Indians on the morning of the 18th preceding, the enclosed letters Nos. 1 and 2, were put into my hands by my sailors, who had come on from Apalachy in an open boat to meet me . . . On their passage, they were brought to at the east end of St. George's island, by some people in distress. Upon going ashore, they were critically examined b one of the gentlemen respecting the employ they were in, and where they were bound; to which they gave satisfactory answers. They were then informed that the people they saw there, were the officers and crew of his Britannic Majesty's armed schooner the Fox, which had been wrecked at that place five days before, and that Gen. Bowles, an his suit were among them, and requested the sailors to be the bearers of some letters to me, to which they consented. On receiving those letters, . . . I did not decide in what manner I should act until some time in the afternoon, when I concluded to go on in the open boat to those unfortunate people. . . . we arrived at the east end of the island about ten o'clock, A.M. [on 25 September] where I met with the

unfortunate crew, and after receiving an account of their misfortunes from the commanding officer, he was informed that their situation had been taken into consideration, and that my mind was made up upon it. That the country which I had the honour to serve [U.S.A.], . . . had early resolved to observe a strict neutrality between the present belligerent powers in Europe. . . . That the officers and crew were certainly in their enemies country, and came into it with hostile views, an attempt therefore on my part to extricate them, might be viewed by the Spanish government, as a deviation from that line of conduct we had determined to observe. . . . [t]hey were not to expect any other aid from me, than what was immediately connected with humanity . . . and if I could be of any service to them in a negotiation with the officers of his Catholic Majesty, they might rely upon my interest and exertions in their favour. Their officer, (Lieut. Wooldridge,) who appears to be a man of liberality, and good understanding, made no objection; it was tehrefore concluded that he admitted the justness of the principle. The next day the commissary arrived, and delivered to the Lieutenant 15 cwt. of flour, and 3 bags of rice; the crew were then on half allowance, great part of their provision being lost when they were wrecked.

I shall now proceed to take some notice of Mr. Bowles, (commonly called Gen. Bowles,) who, with his suit, came in the vessel under the command of Lieut. Wooldridge. I had many conversations with Mr. Bowles, both of us being detained together eight days on the east end of St. George's Island, by a violent gale of wind. He is certainly a man of enterprise and address, added to considerable talents. He declared to me, that he was not taken by the Spaniards some years ago at Apalachy in the manner reported; but for political reasons it was necessary to give it that appearance. . . . [Bowles] had also demanded in the name of his nation [Muskogee] an immediate evacuation of the post of St. Mark's, which if not done immediately, he should fall upon measures to compel a compliance, and had he arrived in time, he should have arrested the Spanish commissioner, and his party. He likewise intends to seize Mr. Panton's property at Apalachy. . . . He speaks in the style of a King; "my nation," and "my people," are his common expressions . . . . Certain it is, that on his arrival last spring at Barbadoes, he was treated with singular attention, bot hby the Governor and the British admiral on that station. . . .

I cannot close this letter without observing in justice to Mr. Bowles, that he behaved on all occasions whilst with me in a polite and friendly manner, and generously furnished me with the necessary charts and directions, for sailing round Cape Florida, a matter of great importance to me, as I shall have to navigate our vessel myself.

Mr. Panton and Governor Folch, have been written to on the subject of Mr. Bowles's arrival in the nation, a copy of my letter to the latter, you will find inclosed.

I am my dear Sir,
Your sincere friend
ANDREW ELLICOT

Ellicott also mentioned his encounter with Bowles to his wife in a letter dated 12 October 1799 (Mathew 1908: 176)

. . . . On my way to this place [Fort San Marcos, present-day St. Marks] I fell in with M^r^. Bowles. . . . His return is a subject of surprize to the Spaniards. . . . They dread his influence with the Indians, what part he will act I cannot pretend to day, but rather suppose he will let the U.S. alone, and attack the Spaniard—He

> *behaved to me with great politeness and furnished me with the necessary Charts, and directions to sail round Florida Point— . . . .*
>
> *The arrival of M^r^. Bowles is a matter of such importance that I have already sent expresses to Pensacola, S^t^. Augustine, to Col. Hawkins, and to the Secretary of State— . . .*

Major Ellicott mentioned Bowles' arrival in his journal, noting the Spanish's lack of action and subsequent consequences (Ellicott 1962[1803]: 239)

> *Immediately on my arrival at St. Marks, I communicated Mr. Bowles design of taking that place to the Commandant, and two or three days after forwarded despatches to Governors White, and Folch, with copies of the foregoing letter to Col. Hawkins, in order that they might be on their guard, and that the officers of the United States might not be accused of improper conduct, or duplicity. But the caution had no effect: Mr. Bowles remained unmolested, until he had in part regained his former influence with the Indians, and then besieged and took the Fort of St. Marks, which was defended by about one hundred infantry, and more than one dozen pieces of good artillery.*

Ellicott, in the text of his journal, also noted the exact location of the *Fox's* demise (Ellicott 1962: 236)

> *[t]he latitude of the east end of St. George's Island where the schooner Fox, (already mentioned,) was cast away, is 29° xx' xx" N. and the longitude, (by taking the result of a lunar observation made at the mouth of the Chattahocha as a correct point,) 5^h^ xx' xx" west from Greenwich.[1] The sound is so full of oyster banks, and shoals, that it is difficult to navigate it, without a pilot.*

In addition, Ellicott produced a map of the area which he included in his journal. On this map Ellicott noted that (Ellicott 1962: 236)

> *On the East end of this Island [St. George], his Britanic Majesty's Schooner the FOX Commanded by Lieut. Woolridge [should be spelled 'Wooldridge'] of the Royal Navy was cast away on the 17 of Sept^r^ 1799, M^r^ Bowles (commonly Called Gen. Bowles) and Suite were on Board.*

The final journal entry of interest described Ellicott's recollection of his second encounter with Wooldridge and the crew of the *Fox* on 8 November 1799. By this time, Ellicott was in the middle of a circumnavigation voyage around Florida and was anchored in the Florida Keys (at Matecumbe Key). In his journal he recalled events while still in St. George Sound (Mathew 1908: 183-184)

> *I expected to have been overtaken at St. Marks, by a vessel laden with a quantity of provisions from New Orleans. . . . Supposing this vessel would pass through St. Georges Sound, and if so, be liable to be captured by Lieut. Wooldridge, and his men, . . . I mentioned the circumstance of this vessel and provision, to the*

[1] As each hour of difference between local time and Greenwich Mean Time equals 15°, Ellicott's position of the wreck is rendered 84° xx.xxx', 29° xx.xxx' in modern terms. This reading is somewhat inaccurate, located x.xx km or about x miles due east of St. George Island, though at the time that distance would have been considered negligible.

> *Lieutenant, . . . and to Mr. Bowles, . . .and requested from them to furnish her with a passport to follow me round Cape Florida, to St. Mary's. . . . They were informed that no objection would be made to their taking such a supply of provision as their immediate necessities required. . . . They returned me many thanks and . . . assured me the vessel should not be detained . . . but forwarded immediately.*

On the 8th of November, the schooner *Shark*, laden with provisions, arrived at Matecumbe. Wooldridge and the crew of the *Fox* had captured it. Upon encountering Ellicot's schooner at Matecumbe Key, which by this time was perilously low on provisions, Wooldridge refused to share even a barrel of pork (despite Ellicott's former charity on Fox Point) and instead "crowded all sail, and stood over the reef." In his journal Ellicott bemoaned, "Thus, were we requited for our favors!" Adding to the indignation, Ellicott eventually learned via a letter from the merchant Panton that the *Shark* was indeed the supply vessel intended for Ellicott's expedition, and the one Wooldridge had promised to grant safe passage. "It [the *Shark*] was," wrote Panton, "unfortunately captured somewhere on the coast!" Thus, according to Ellicott, Wooldridge not only broke his promise, but also actually stole his benefactor's ship and sailed off with his cargo (Mathew 1908: 184). This account is in direct conflict with that of Hepper who stated the crew of the *Fox* was rescued by the (presumably British) privateer Providence, some 32 days after the wreck (Hepper1994: 92).

Cruzat Papers, Special Collections, University of South Florida

In 1980, FSU underwater archaeology graduate students David M. Brewer and Henry L. Paul conducted an extensive archival search for documents related to William Augustus Bowles and the schooner *Fox*. They uncovered a number of relevant letters from the Cruzat Papers collection, held in the Special Collections of the Tampa Campus Library, at the University of South Florida (USF). All six of these correspondences were photocopied and included as appendices to the 1980 report (Brewer and Paul 1980: Appendices B, C, F, G, H, and I), so not all are reproduced in the present volume. The six letters are summarized below:

John Leslie to William Panton, 7 February 1799
Includes transcriptions of two articles from London newspapers: *The Public Ledger*, 21 February 1799, and *The True Briton*, 7 February 1799. Leslie discusses Bowles' personal history, his current activities in London (attempting to raise support for his Indian state in West Florida), and his departure for the Bahamas. The *True Briton* article describes Bowles' escape from the Spanish (in the Philippines) and his intentions to "resume his station among a people whose welfare and prosperity depend upon the exertion, good sense, and activity of this extraordinary man." The brief notation from the *Public Ledger* reads: "Mr. Bowles, the Indian Chief, who sometimes since made his escape from a Spanish Prison, is said to have concocted a powerful invasion of the Spanish settlement in South America. The Creek Indians, to which he belongs, are of themselves to bring 20,000 well appointed warriors to the field."

Thomas Forbes to person(s) unknown, appended with Governor Dowdeswell's letter to Forbes, 22 June 1799
Forbes' letter describes Bowles as a "tool of Lord Dunmore," and Dunmore's intent is to "destroy the house of Panton-Leslie, and to erect some kind of trade with the Indians." Lord Dunmore, the Governor of the Bahamas, was a primary supporter of Miller, Bonnamy and Company of Nassau (Bahamas), which was a rival to the Panton-Leslie firm, and Dunmore indeed supported Bowles incursion in the region. Governor Dowdeswell's reply to Forbes includes the promise that if Bowles should "come here, no encouragement will be given him by me."

Thomas Forbes to William Panton, 25 August 1799
Written in Nassau, Bahamas, to inform Panton of the current whereabouts and activity of Bowles. "Bowles is now here on his way to his own country as I am told he gives out, and to take possession of a huge tract of land ceded him by the Red men on the Appalachicola and Ocklagany River— In Jamaica he talked of greater things, such as driving out all the English from his country The Creeks. Of being revenged of the Spaniards by seizing Mexico with Twenty Thousand Creek Warriors . . . of this Palace on the banks of a famous river . . . some hints occasionally about a house of Scotch men who had long imposed upon his countrymen . . . He has a good deal of baggage with him and is to be put on shore with it by an armed vessel . . ." (emphasis is Forbes') (Thomas Forbes was the older brother of the more famous John Forbes, who would eventually take over the Panton-Leslie firm.)

Col. Benjamin Hawkins to William Panton, 9 October 1799
Colonel Benjamin Hawkins, the principal agent of Indian affairs for the southern department of the United States, wrote this letter to William Panton of Panton-Leslie Company. Hawkins relates that Bowles is in Florida, and that Hawkins has in his possession a "copy of a paper under cover to one signed by W. Bowles which I received on the evening of the 6th." Hawkins notes that a group of "Indians" are expecting to procure "the powder he [Bowles] has promised them . . . 3,300 lb ." He also relates that "[t]he Seminoles have given him [Bowles] some land down on the river," and describes a Spanish attack on Bowles' camp: "The ring leader of the banditte from Talesa have been punished in an exemplary manner."

Edward Forrester to William Panton, 6 October 1799
A short letter written in Apalachy. Forrester describes the arrival of "the gentleman Mr. Bowles . . . at the mouth of the Chatahootchy river in a vefsel of 16 guns & from 75 to 100 white troops of different nations, though the vefsel is lost—guns—he has saved a good deal of powder and ball . . . " Forrester mentions that Ellicott "was in company with the said B[owles] 5 or 6 days" and that he (Forrester) would be sending Panton a more thorough account as soon as possible.

Edward Forrester to William Panton, Apalachy, October 1799
This is another letter written by Forrester to Panton sometime in October (it is not clear whether this one pre- or post-dates the 6 October letter. Roman numerals scrawled above the "Oct. 1799" may indicate that the date was 29 October. Regardless, this letter does not contain any information significantly different from the previous one: "[Bowles] is here with a Vefsel of 16 guns & from 75-100 White men & dos Expect a Nother Vefsel Imediately and his first Intentions is to take this garrison . . ." It is believed that, despite these two letters, Bowles did not bring a personal army of white soldiers with him. It is likely that Forrester believed that the 60-man crew of the *Fox* were under Bowles' command.

The Bahama Gazette, 1799-1800

In addition to the documents uncovered in USF's Cruzat Papers, Brewer and Paul also discovered a number of relevant articles and notices in the *The Bahama Gazette*, published in Nassau (1980: Appendices D-E, J-K). These publications are concerned with the arrival of the *Fox* from Jamaica, its stay in the Bahama Station, the announcement of the *Fox*'s loss, and a paid advertisement by Bowles declaring Muskogee's sovereignty and attempting to entice white settlers to that country. Brewer and Paul do not state in which depository they found the *Bahama Gazette* articles. The articles are summarized below.

The Bahama Gazette, 23 August 1799
This is an account of up-to-date news stories from Nassau, as reported "[by] His Majefty's Sc. r Fox, Lieut. Wooldridge, from Jamaica, Kingfton. Papers to the 8th inftant are received. The lateft London News given in thefe Papers, is dated the 12th of June." After relating news of the wars in mainland Europe and fleet operations in the Mediterranean, the paper again mentions the *Fox*: "General Bowles is arrived here in the Fox Schooner from Jamaica. In the Fox arrived a detachment of Royal Dutch Artillery under the command of Lieut. Grevenbreck." It is not known if the Dutch artillery mentioned in the article was offloaded in Nassau, or if it was intended for another destination (in which case the guns would have been aboard during the shipwreck).

The Bahama Gazette, 30 August 1799
This is an advertisement taken out by the *Fox*'s commander James Wooldridge, offering a reward for the capture of William Edwards, a sailor pressed into service in Jamaica and who deserted while moored in Nassau. The complete text reads:

D E S E R T E D

From His Majefty's Schooner FOX, commanded by the Subfcriber, and now lying in the Harbour of Naffau,
WILLIAM EDWARDS, aged about twenty one Years, of a florid Complexion, dark brown hair, tied, about five Feet fix Inches high, was dreffed in a White Frock, with French or Clofe Sleeves, White Canvas Trowfers, a new Black Silk Handkerchief, and a new Straw Hat with a Black Ribband.
A Reward of Ten Pounds, over and above the Allowance of Government for apprehending Deferters, will be paid to whoever will have this Deferter fecured in Gaol, or delivered on board the Fox.

J. WOOLDRIDGE

Naffau, Auguft 30, 1799

The Bahama Gazette, 19 November 1799
Another news update, this article states, "We are concerned to the ftate of the lofs of His Majefty's Schooner Fox, Lieut. Wooldridge. She was driven afhore on St. George's ifland, Bay of 'palachie, in a gale of wind, on the 18th of September laft. Mr. Dale, the Surgeon, and part of the crew, have arrived in a Prize Veffel." This prize vessel is almost certainly the schooner *Shark*, owned by Panton, Leslie, and Company, which was captured in St. George Sound by Wooldridge and later encountered Andrew Ellicott on 8 November 1799 at Matecumbe Key.

The Bahama Gazette, 7 February 1800
This advertisement takes the form of three separate proclamations issued by "William A. Bowles, Director General of Mufkugee." Bowles declares the sovereignty of the Muskogee state, establishing free ports, import duties, and promising 100 acres of free land to any new citizens (white British settlers from the Bahamas or elsewhere) of Muskogee.

Archival Research at the National Maritime Museum in Greenwich and the Admiralty Library in London

The National Maritime Museum holds extensive collections of Admiralty draughts (ships' lines), ship models, books, paintings, prints, drawings, and manuscripts dealing with most aspects of the Royal Navy. Its most significant collection is that of the Admiralty plans (for both military and merchant vessels), unrivalled by any other such depository anywhere in the world. These draughts were recorded for each ship in the Royal Navy. Vessels captured or purchased outside

of England, which appears to have been the case for the *Fox*, would typically have been re-fitted and had their "lines taken" upon their initial return to Britain. Unfortunately, no plans of the schooner *Fox* were located in the Museum's collection.

One set of draughts was discovered that are of peripheral relevance. These lines and profile plan (No. 4536) depict *Ant*, an ex-French schooner purchased by the Royal Navy for use as an armed tender (Figure 101). This vessel may be similar in form to the *Fox*, which was also an ex-French schooner. *Ant* was armed with four 12-pounders, its length on deck was 62'3", length along the keel was 44'2 3/8", extreme breadth was 18' 10 ¼", depth of hold was 8' 7", and it measured 86 37/94 tons burthen. This tonnage makes it quite a bit smaller than the *Fox* (150 tons), though their hull shapes and rigging may have been similar. *Ant*, certainly a contemporary of *Fox*, had been taken in June 1797, had her lines taken off in March 1803, and was sold in 1815 (Lyon 1993: 260-261).

National Maritime Museum staff suggested a second source of enquiry at the Admiralty Library in London. An initial search provided some basic information on the *Fox*: that it was a schooner out of Jamaica, with a crew of 250 men, with 14 guns, 150 tons (Builders Old Measurement), Captained by Lieutenant Commander Wooldridge, having been purchased in either 1797 or 1799, and had carried General Bowles (and possibly "retainers") before she wrecked in Florida (the date provided for her wrecking is 28 September 1799). It was also noted that all hands survived the ship's loss. Staff at the Admiralty Library in London suggested that the most appropriate place to locate archived information on *Fox* would be at the Public Record Office.

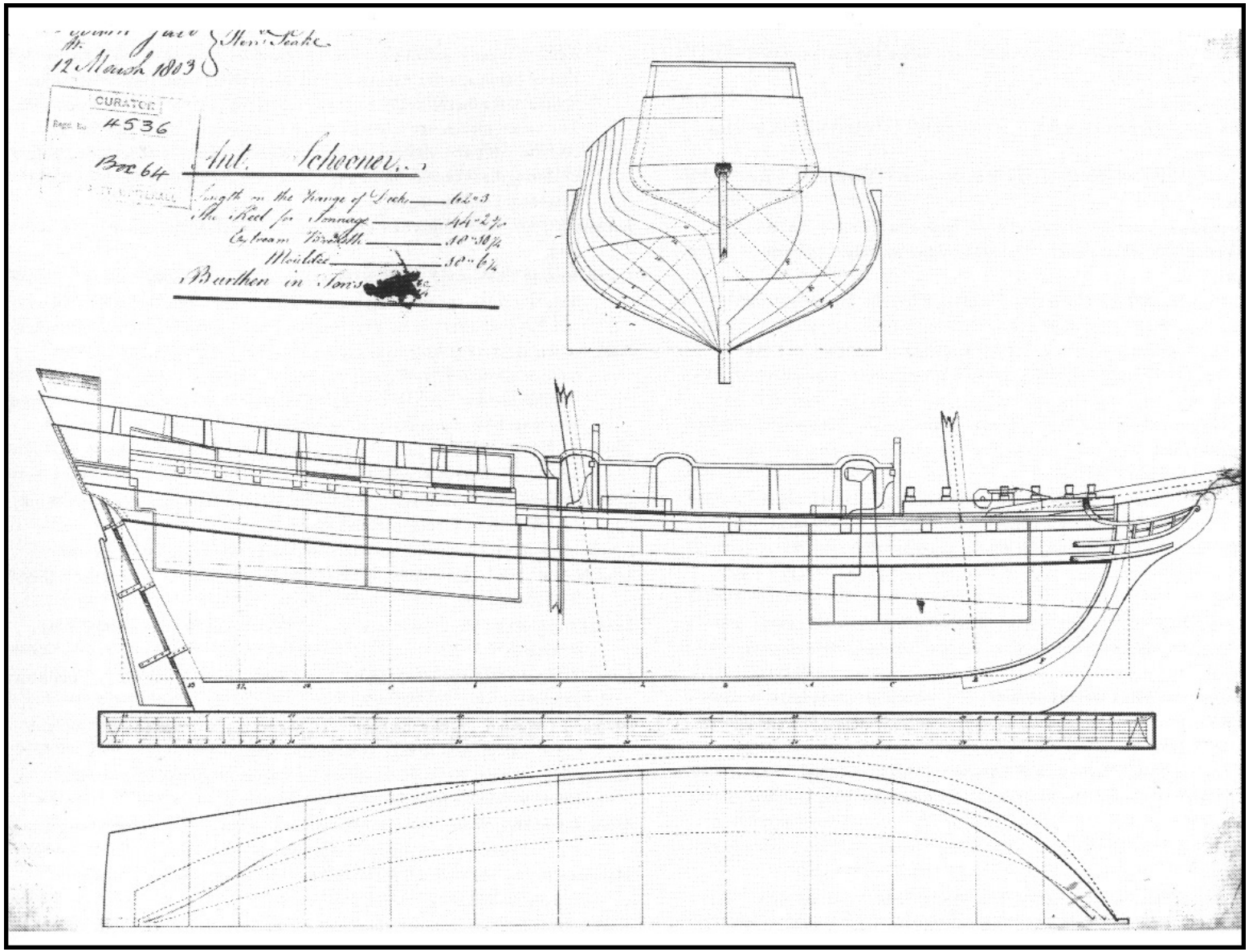


Figure 101 . Lines of the ex-French schooner HMS Ant, taken by the Royal Navy in 1797 (Lyon 1993:261).

Primary Source Archival Research at the Public Record Office, Kew (London)

The Public Record Office (PRO) is a public service run by the UK government. Its collections contain millions of individual documents. These documents are available along with catalogues describing them for easy of research. The PRO holds most of the Admiralty records including: official logs of warships; correspondences of captains, admirals, and other officers; court-martial records; ships' musters; ships' pay books; and personnel and service records of the Royal Navy and Royal Marines through at least 1892.

An initial document search located hundreds of manuscripts including at least 26 vessels named *Fox*. Two of these documents proved to be significant, while a number of others that seemed potentially useful were identified, but were not viewed due to time constraints.

Searching under the keyword "Fox," among Admiralty records produced a total of 365 documents. This list was narrowed down even further, to those containing records dating between 1797-1800 and is represented in Table 25.

Table 25. Summary of documents related to naval vessels named *Fox* dating to the years 1797-1800 in the Admiralty records.

Document No.	Subject	Date	Document Type
ADM 35/649	Fox (tender)	1799 56 May – 1799 Dec	Ship's Pay Book
ADM 36/14241	Fox (Type: SC)	1799 May – June	Ship's Muster
ADM 36/15073	Fox	1796 January – 1797 April	Ship's Muster
ADM 36/15074	Fox	1797 May – 1798 June	Ship's Muster
ADM 36/15075	Fox	1798 June – 1799 October	Ship's Muster
ADM 36/15076	Fox	1799 Nov – 1800 Dec	Ship's Muster
ADM 41/6	Fox (1, 2, 3) (hired vessels)	1799 – 1802	Hired Armed Vessels' Musters
ADM 51/1324	Fox	1798 June 18 – 1799 June 30	Captain's Log
ADM 51/1211	Fox	1796 Nov 15 – 1797 Nov 14	Captain's Log
ADM 51/1348	Fox	1799 July 1 – 1800 June 30	Captain's Log
ADM 51/1257	Fox	1797 Nov 15 – 1798 June 17	Captain's Log
ADM 51/4016	Fox (hired vessel)	1798 Aug 19 – 1799 May 21	Captain's Log
ADM 51/4016	Fox (hired) (2nd)	1798 Nov 19 – 1799 Oct 25	Captain's Log
ADM 51/4016	Fox (hired) (2nd)	1800 March 21 – 1801 Oct 26	Captain's Log
ADM 51/4016	Fox (hired) (3rd)	1798 May 8 – 1799 June 15	Captain's Log
ADM 51/4016	Fox (hired) (3rd)	1799 Aug 1 – 1800 July 31	Captain's Log
ADM 51/4450	Fox	1800 July 1 – 1801 June 30	Captain's Log
ADM 52/4109	Fox	1798 June 16 – 1801 Oct 6	Master's Log
ADM 52/2910	Fox	1795 June 27 – 1797 June 27	Master's Log
ADM 52/3029	Fox	1797 June 26 – 1798 June 15	Master's Log

There is no doubt that most of the records mentioned in this table refer to other ships named *Fox*. The name "Fox" seems to have been exceedingly popular between the years of 1797 and 1800, and there are no less than nine vessels named *Fox* serving in the Royal Navy during this time (see Table 26).

Table 26. Ships named *Fox* serving in the British Navy anytime between 1797 and 1800.

Years of Service	Description	Source
1780-1816	5th rate, 12-pdr frigate, 690 tons, troopship in 1812	Lyon 1993: 84
1793/4 - 1797	Cutter (hired vessel), 10-12 guns, 124 or 184 tons	Lyon 1993: 264
1794-1801	Cutter (hired vessel), 10 guns, 94 tons, 45 men	Lyon 1993: 264
1790s	Smack (hired vessel)	Lyon 1993: 264
1794-1797	Cutter (purchased), 10 guns, 104 tons, sunk 1797	Colledge 1969:220
1795-1803	Cutter (customs vessel), 6 guns, ca. 50 tons	Lyon 1993: 332
1796-1801	Cutter (hired vessel), 12 guns, 47 men	Lyon 1993: 264
1796-1802	Cutter (hired vessel), 10 guns, 104 tons, 40 men	Lyon 1993: 264
1799-1799	Schooner, 150 tons, 14 or 18 guns, wrecked in Gulf of Mexico, commanded by Wooldridge	Lyon 1993: 262

Another way to search for naval documents in the PRO is to use the contemporary Index and Digest volumes that make up ADM 12. These large, handwritten ledger-type volumes serve as an index to the Admiralty and Secretariat Papers (incoming letters and reports) that make up the record class, ADM 1. The full period covered by the Index and Digest is 1793 to 1938.

The Index is a list of naval officers, warrant officers, marine officers, other "persons of distinction," and of ships (including naval and merchant vessels of Britain and other nations). Individuals' names in the Index are not only those authoring letters to the Admiralty, but people referred to in the content of these letters and reports as well.

The Digest volumes are arranged by subject in accordance with the *Table of Heads and Sections*. Copies of this Table exist for the years 1800, 1843, and 1909 (the codes for subjects—such as "Smuggling," "Desertion," or "Courts Martial"—would often change over time, so the 1800 Table is the most appropriate to use in this case). The subjects of the various incoming correspondences documented in ADM 1 are arranged in alphabetical sequence in the Digests. These Digests, then, can be used as a subject index, or by reference from the Index (the Index lists the relevant subject codes for each entry). The Digest often contains the precise contents of an ADM 1 letter or report under the subject head relevant to that correspondence. As a considerable amount of the original ADM 1 documents have been destroyed or lost, these summaries in the Digest are sometimes all that is left for study.

Due to time constraints, the only search conducted was for the ship's name "Fox" in the Index. Two volumes were consulted, ADM 12/80 (1799, A – L) and ADM 12/84 (1800, A-L). Volume 84, references a *Fox*, though this does not appear to be the vessel in question. Three references to ADM 1 incoming letters or reports were found listed in volume 80 of the Index (1799, A-L). These three entries (as seen in Table 27) use letter abbreviations to denote the nature or type of each document, and numerical codes to denote the subject matter of said records. Table 28 lists the subject codes and abbreviations, with their meanings.

Table 27. Entries listed under "HM Schooner *Fox*" in the Admiralty Index, 1799, A-L (ADM 12/80)

Date of the Letter from or concerning the Party		How and where to be found	Subject
Dec	6	Cts Ml[2]	28.3 x 31.1
May "	19 "	P16 "	23.1 x 62 x 67.1 37.1 x 45.5
Dec	8	" 59	31.1 x 50.8

Table 28. Relevant subject codes taken from the 1800 Tables of Heads and Sections, and locational letter/number abbreviations taken from the Table of Abbreviations

Code/Abbrev.	Meaning
Nature of Document (from the Table of Abbreviations)	
Cap W	Captain's letter, last name W
Cts Ml	Records of evidence and minutes of courts martial
P	Correspondence of the Commander-in-Chief, Jamaica
Subject of Document (from Tables of Heads & Sections, 1800 edition [Digest Cuts 1800])	
28.3	Courts Martial: Trials held the preceding or following year (alphabetical)
31.1	Damage and Loss sustained at Sea: general Information: Ships totally lost.
23.1	Complaints (General Information)
62	Leaving Stations without orders
67.1	Mutiny: General Information: in particular ships.
37	Disease in the Fleet - Measures for the prevention thereof: General Regulations
45.5	Enemy's movements at sea: West Indies
50.8	Foreign Stations: State and condition of squadron, Jamaica

The three ADM 1 documents concerned with the schooner *Fox* dated to the year 1799 include two letters from the Commander-in-Chief of the Jamaica squadron. Dated May 19 and December 8, 1799, these letters are either from a "W" captain or a court-martial record (this latter depends on the interpretation of the handwriting for the first entry, which may read either "Cap W" or "Cts Ml"). Table 29 summarizes these individual records, which may or may not survive in the ADM 1 archives.

[2] This lettering, due to almost illegible handwriting, was originally interpreted to read "Cap W," suggesting a captain's (whose last name begins with "W") letter which would be in ADM 1/2688 or /2689. When re-checked by PRO staff, however, it was believed to read Cts Ml, which suggests this reference may be a court-martial record in ADM 1/5351.

Table 29. Summary of the three ADM 1 documents related to the *Fox*.

Record Location	Record Type	Date (1799)	Subject
ADM 1/2688 or /2689	Captain's Letter, last name "W"	6 Dec	Court-martial trial; Total loss of the Fox
ADM 1/5351	Court-martial record		
ADM 1/249	Letter, Commander-in-Chief, Jamaica Squadron	19 May	Complaints; Leaving stations w/o orders; Mutiny; Disease in the fleet; enemy fleet movement
ADM 1/249	Letter, Commander-in-Chief, Jamaica Squadron	8 Dec	Total loss of the Fox; state and condition of the Jamaica Squadron

Results: Documents Identified in the PRO

This section describes the individual documents identified after conducting searches via the online computer database and with the ADM 12 Index. Some items were found to be unrelated to the vessel in question. Only documents deemed significant are included in this description.

Record: ADM 1/5351
Title: unknown
Type: Court-martial records (?), 6 December 1799
Status: Not located.
Method of Discovery: Reference under "*Fox*" in Admiralty Index (ADM 12/80).
Results: As described above, this document is possibly the first reference listed under "*Fox*" in the 1799 A-L volume of the Admiralty Index (ADM 12/80) which was originally misinterpreted to be a "W" last name Captain's letter. This document could prove to be the original minutes of evidence and verdict in the Wooldridge court-martial.

Record: ADM 1/249
Title: [no title] Letter from Admiral Sir Hyde Parker to Admiralty Board, 19 May 1799
Type: Incoming correspondence, Commander-in-Chief, Jamaica Squadron
Method of Discovery: Reference under "*Fox*" in Admiralty Index (ADM 12/80). One of two references to letters contained in ADM 1/249
Results: ADM 1/249 is a bound volume of letters, all from the Commander-in-Chief, Jamaica Station, written in 1799. The first of two letters indicated by the Admiralty Index was located within this volume. Due to time constraints, the entire letter could not be photo-reproduced or read in its entirety, though the relevant passage was identified and hand-copied. This letter is from Admiral Sir Hyde Parker, the Assistant Commander-in-Chief of the Jamaica Station, and appears to be a standard report to the Admiralty Board on the current state and condition of the Jamaica Station. Parker's letter was written on board HMS "*Queen*, in Port Royal Harbour, Jamaica, 19th May 1799" and sent to Britain via HMS *Rénommée*. The main body of the letter relates complaints and issues such as leaving stations without orders, mutiny, and enemy fleet movement. Near the end of the letter is a brief passage concerned with the purchase and deployment of the schooner *Fox*:

> *You will be pleased to communicate to their Lordships my Intentions of sending to England the Regulus and Squirrel with the next Convoy, and that, agreeable to*

their Lordships' directions, I have caused to be purchased two Schooners and named them the Musquito & Fox, one of which I mean for the Bahamas Station. . . . . I am sorry to add that the Scurvy is making rapid progrefs, among the Ships of the Line particularly.

I have the honor to be,
Sir,
Your most Obedient
humble Servant

HParker [signature]

The schooner Parker intended "for the Bahamas Station" is undoubtedly the *Fox*, as that was its destination once it was mustered in Port Royal, Jamaica. This document finally makes clear exactly how the Royal Navy acquired this vessel. The vessel, which would be named *Fox*, was purchased, not taken, in 1799. Unfortunately Parker's letter does not provide any information on the original nationality of the vessel, so Colledge's (1969:220) assertion that she was an ex-French prize remains unsubstantiated.

Parker's statement of the prevalence of scurvy in the Jamaica squadron is also of some interest. About half of the crew mustered for the *Fox* came from other ships in the fleet (see ADM 36/14241 below), and it is likely that many of Wooldridge's crew, then, suffered from this disease.

Record: ADM 1/249
Title: [no title] Letter from unknown Jamaican Commander-in-Chief to Admiralty Board, 8 December 1799
Type: Incoming correspondence, Commander-in-Chief, Jamaica Squadron
Status: Not located.
Method of Discovery: Reference under "*Fox*" in Admiralty Index (ADM 12/80). One of two references to letters contained in ADM 1/249
Results: This document, another letter from the Commander-in-Chief of Jamaica, is also located in the bound volume that makes up ADM 1/249. Due to limited time, this document was not located. According to the subject codes in the Index, this record is likely a standard letter relating the current state and condition of the Jamaica Squadron, which mentions the total loss of HMS *Fox*.

Record: ADM 36/14241
Title: MUSTER-TABLE of His Majefty's Schooner *Fox* between the 8th May 1799 and the 30th of June 1799.
Type: Ships' Musters, Series I
Status: Located, reviewed, and photo-reproduced (Figure 102).
Method of Discovery: Reference under "*Fox*" in Admiralty Index (ADM 12/80). One of two references to letters contained in ADM 1/249
Results: Once located, it quickly became apparent that this was indeed the original muster book maintained for HMS *Fox*, as such it contains a wealth of data about the officers and crew of this vessel (Figure 102). This document is made up of ten ledger-type pages, included with other ships' muster rolls within the single leather-bound volume of ADM 36/14241. The ship's muster book was usually kept jointly by the ship's captain and purser, and the details of every man—name ("Mens Names"), age ("at time of Entry of this Ship"), "Place and Country where Born,"

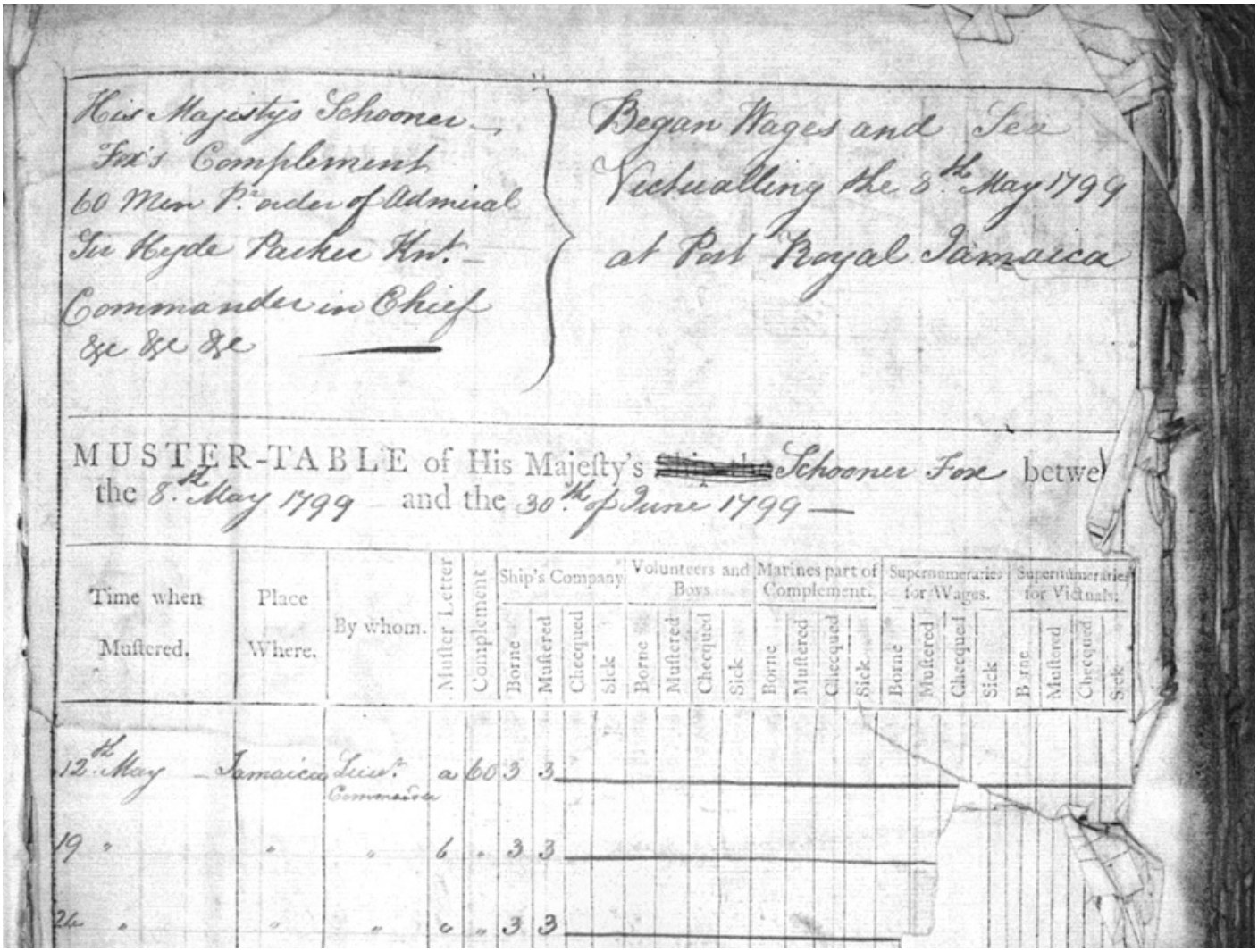
rank ("Qualities"), and whether a volunteer or pressed—were kept in this ledger. The captain was required to muster (e.g., stage a roll call) the men once a week, and every two months two copies of the muster book were sent to the Navy Board. This was a vital function, for while the Admiralty appointed commissioned officers and the Navy Board warrant officers, the muster books were the only record of individual seamen and petty officers for any particular ship in the Royal Navy (Pope 1981: 81).

The muster book also noted if a seaman permanently left the ship, in one of the only three ways possible: "D," or discharged (usually to another ship or a hospital), "D.D." or discharged dead, or "R" which meant run, the Naval term for desertion. The *Fox*'s muster book indicated two runaways, nine discharges and no deaths.

The *Fox* was purchased sometime before 8 May 1799. During the period between May 8th and June 30th Lieutenant Wooldridge oversaw the mustering of the ship in Port Royal, Jamaica. The vessel's first muster book was completed as men volunteered their service, were pressed, or transferred from other ships during that time.

According to the Muster-table, the regular complement for this schooner was 60. This figure is common for a schooner of this size. The list totals, however, only 53, eleven of which had either deserted or been discharged before the ship left port, thus the *Fox* was somewhat undermanned.

The first name on the list is that of its captain, Lieutenant James Wooldridge. He is listed as "Lieut & Commander" as he commanded the ship, even though his rank was that of Lieutenant. Lieutenants were the most junior of commissioned officers and there was generally at least one on every warship in the navy. Wooldridge was the only commissioned officer on the *Fox*.



His Majesty's Schooner
Fox's Complement
60 Men P. order of Admiral
Sir Hyde Parker Knt.
Commander in Chief
&c &c &c

Began Wages and Sea
Victualling the 8th May 1799
at Port Royal Jamaica

MUSTER-TABLE of His Majesty's ~~Ship~~ Schooner Fox betwe
the 8th May 1799 and the 30th of June 1799

Time when Mustered.	Place Where.	By whom.	Muster Letter	Complement	Ship's Company				Volunteers and Boys				Marines part of Complement.				Supernumeraries for Wages.				Supernumeraries for Victuals.			
					Borne	Mustered	Checqued	Sick	Borne	Mustered	Checqued	Sick	Borne	Mustered	Checqued	Sick	Borne	Mustered	Checqued	Sick	Borne	Mustered	Checqued	Sick
12th May	Jamaica	Lieut. Commdg.	a	60	3	3																		
19 "	"	"	b	"	3	3																		
26 "	"	"	c	"	3	3																		

Figure 102. Title page of the muster roll for HMS *Fox*, 8 May to 30 June 1799.

Next in the chain of command were the warrant officers who held a warrant from the Navy Board (rather than a commission from the Admiralty) to exercise a general authority on board ship. The foremost authority below Wooldridge was the Master, Thomas Johnson (listed in the muster as both "Second Master" and "Master"). Johnson received his warrant and joined the crew only three days after Wooldridge, on 11 May 1799. The Master's chief responsibility was navigation. He plotted the ship's position using his own personal instruments and charts and piloted the ship when in confined waters. Masters were the most senior of the warrant officers, and Johnson's pay probably would have equaled that of Wooldridge (Rodger 1986: 20).

The two remaining officers on board *Fox*, the Boat's Mate and Gunner's Mate, were of a class loosely termed petty officers. Petty or inferior officers were distinguished from sea officers (commissioned and warrant officers) though they did hold an officer-like position that distinguished them from regular sailors. Petty officers generally supervised the sailors' work on board ship often times sharing the work. For the statistical analysis of the crew in this study, the clerk/steward, normally considered an "idler" or specialist non-seaman, is also classified as a

petty officer (indeed, on a ship this small, this individual probably took on many of the duties normally handled by other warrant or petty officers).

Typically the Boat's and Gunner's Mates were subservient to the standing officer positions of Boatswain and Gunner, respectively, however on a small vessel such as this one, these two individuals could fulfil those duties themselves. Thus eventually being promoted to the standing offices of Boatswain and Gunner. Thomas Atkinson, who had transferred from HM sloop *Serpent* on 15 June 1799, was listed as the Boat's Mate. He was therefore responsible for sails, ground tackle, rigging, and the ship's boats. This job required Atkinson most likely to be literate, as he would have been responsible for keeping written accounts and reported to the Navy Board concerning these stores.

The gunner was very similar in status to the boatswain. James Smith, as the gunner (or in this case, the gunner's mate) was in charge of the *Fox*'s ordnance, gunpowder, and ammunition. This job entailed a high degree of responsibility, as carelessness in the powder magazine could destroy the entire ship. Smith had been discharged from HMS *Abergavenny* in order to join the crew of HMS *Fox* on 20 June. *Abergavenny*, a ship of the line with 54 18- and 32-pounder cannons, would certainly have had a gunner, who would have been assisted by Smith and other gunner's mates.

John Franks served as the captain's clerk and steward. In this position he probably acted as Wooldridge's personal assistant and to a certain degree the "business manager" of the ship. Franks probably served as a kind of unofficial officer, especially on a ship of this size (Franks is classed as a petty officer for the purposes of this study, though technically he would have been characterized as an "idler" or specialized non-seaman). As there was no purser assigned for a ship this size, Franks probably took on much of the traditional duties of this position. This meant he could have assisted Wooldridge with the muster book and played an important role in the victualling of the ship. Typically on vessels with less than eight guns or 80 men, the commander had to take on the duties of the purser. In turn, this job was generally passed along to another experienced or competent individual in exchange for the profits that would accrue (Rodger 1986: 87). It is also known that clerks were often promoted to the office of purser (Rodger 1986: 286, 297). Thus, it is possible that Franks not only served as the captain's secretary and steward, but also kept track of and issued food, drink, and other necessary commodities such as firewood, coal, lamp oil, tobacco, slops (men's clothes), bedding, and hammocks. He was one of the few "idlers" on board *Fox*, which meant he did not have to stand watch and could work by day and sleep by night. Franks was the first crewman to transfer from HMS *Abergavenny*, on 16 June 1799.

The bulk of the crewmen on board *Fox* were regular seamen. Seamen were divided into able-bodied (or simply able) seamen, ordinary seamen, and landmen. Wooldridge (or Francis) dutifully noted in the muster book the status of each sailor using the abbreviations "ab," "Ordy," and "Lm." This classification system was based solely on experience. An individual who had worked at sea for more than two years was an able-bodied seaman, one who had worked for more than one year but less than two was an ordinary seaman, while a sailor who had less than a year's time at sea was reckoned a landman. In times of peace, most of the ships in the Royal Navy were comprised primarily of able-bodied seamen. But in wartime, shortages obliged captains to recruit as best they could. A ratio of 1/3 able-bodied, 1/3 ordinary, and 1/3 landmen was considered the minimum proportions to safely operate a ship (Rodger 1986: 26-27). Figure 103 shows the breakdown of able seamen, ordinary seamen, and landmen on the *Fox*. Out of a total number of 40 seamen (not including eight of those discharged, whose status was not recorded), 33 (82%) were able, five (13%) were ordinary, and only two (5%) were considered landmen. The high

proportion of experienced sailors is somewhat surprising for a ship commissioned in a foreign station during wartime.

Figure 104 shows the breakdown of the ship's company's origins. This total includes all hands except for the captain and master, who were assigned specifically to the *Fox*. Also included are the sailors who would be discharged before *Fox*'s maiden voyage. Of this total, only five (10%) were volunteers. Nineteen seamen (37%) were pressed into service in Port Royal against their will. The bulk of the crew, 27 men or 53% of the company, were "turned over" or transferred from two other naval vessels. These figures are very different from those produced by a study of the crew origins for five Royal Navy warships conducted by N.A.M. (Rodger1986: 353). Over half of the individuals on those vessels had volunteered their service (55.6%) while only 15% had been pressed, and only 25.9% had been turned over from other ships. This discrepancy may be the result of wartime vs. peacetime conditions or foreign station vs. domestic mustering, or it could be due to the fact that marines are included in Rodger's survey of muster books, while the *Fox*'s muster book lists none.

Regardless, the high turnover rate making up *Fox*'s crew is intriguing. Often when a captain or admiral changed ships a number (or sometimes even all) of the ship's compliment would make the switch as well (Rodger 1986: 121). It may be that Wooldridge and Johnson had served on one of the two ships in question, the sloop *Serpent* or the 4th rate *Abergavenny*.

Six of the turnover had been discharged from the sloop *Serpent* to join the crew of *Fox* on 15 June 1799. The only sloop named *Serpent* in the Royal Navy at this time was the *Hound*-class ex-*Porcupine*, built at Plymouth Dockyard in 1788-1789. *Serpent* was about twice as large as the *Fox* at 320 tons, manned by 125 sailors and carried 16 guns in addition to six carronades on the quarterdeck and two on the forecastle. In September 1806 *Serpent* mysteriously disappear (presumed to have foundered) while still serving at the Jamaica station (Lyon 1993: 129; Hepper 1994: 115). The rest of the turnover (21 individuals) had been discharged from HMS *Abergavenny* to join the *Fox* on 16 and 20 June 1799. The only ship by this name ever in the Royal Navy, had originally been an East Indiaman built in 1795. Purchased that year by the Navy, it was classified as a fourth rate ship of the line, with 56 guns. Much larger than *Fox*, *Abergavenny* registered 1,182 tons and was manned by a crew of 324. It was eventually sold by the Navy in 1807 (Lyon 1993: 241).

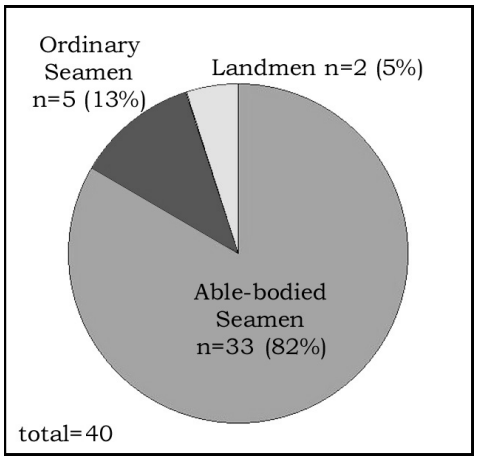


Figure 103. Breakdown of sailors (able-bodied seamen, ordinary seamen, and landmen) on HMS *Fox*.

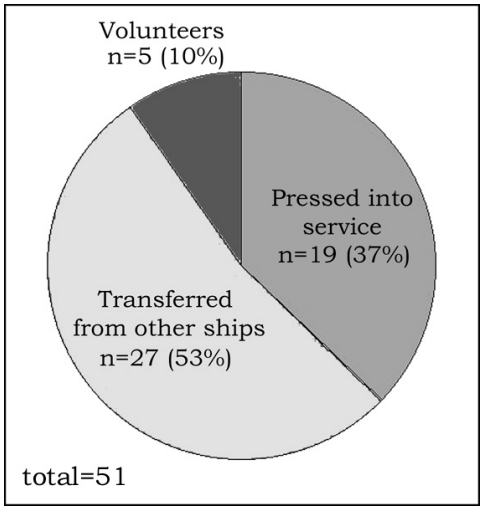


Figure 104. Origins of the crew of the *Fox* (excluding captain and master).

Figure 105 is a graph representing the breakdown of the entire ship's compliment by rank or rating (this does not include the eight men subsequently discharged from the *Fox* whose rank was not recorded). Only two officers, one commissioned and one warrant were assigned to this schooner. Together, they represent only 4% of the crew, but with the three petty officers (the gunner's mate, boat's mate, and in this case the clerk/steward) the crew breakdown is 11% officers (five individuals) and 89% seamen (40 individuals). The petty officers alone make up 7% of the entire crew. Three quarters of the entire crew are able seamen (74%, or 33 individuals), a tenth of the crew are ordinary seamen (11% or five individuals) and only 4% or 2 individuals are inexperienced landmen.

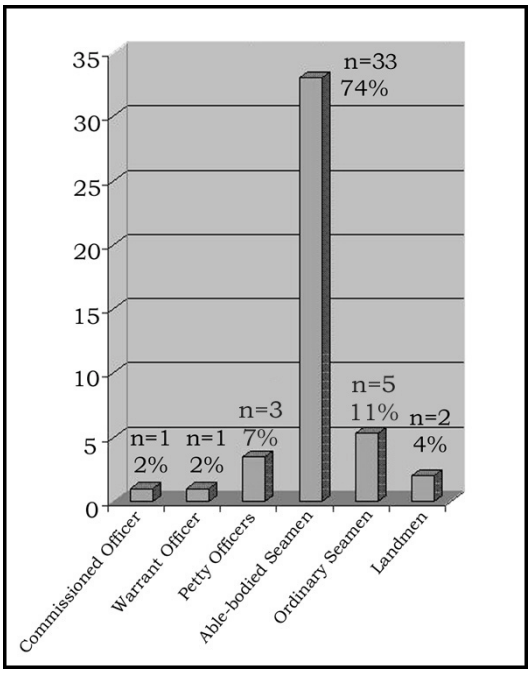


Figure 105. Breakdown of *Fox*'s entire crew by rank. Does not include the eight men discharged from the *Fox* whose rank was not recorded.

Even with the assumption that the clerk served as a petty officer, this breakdown represents a very high proportion (8.9 to 1) of seamen to officers. This is especially notable when compared to the percentage of seamen present on other naval vessels under normal conditions. The authorized compliment for a first rate 100-gun ship of the line made a 6.5 : 1 seaman to officer ratio, while that for a 74-gun ship ranged between 5.9 and 6.4 : 1, a 38-gun frigate was 4.7 : 1, a 20-gun frigate was 3.5 : 1. The most comparable seaman-to-officer ratio was on the smallest class (8-gun) sloops, 7.1:1, though on other small sloops the ratio usually varied between 3.4 and 5.9 to 1 (Rodger 1986: 350-351). The difference between these figures and the high proportion of seamen on *Fox* probably reflect idealized conditions vs. real world, wartime conditions. These figures also suggest that some of the more competent, experienced, or educated able seamen on *Fox* took on supervisory roles usually reserved for warrant and petty officers on larger, better-manned ships.

A final subject of importance is the number of men who left the ship's company, legitimately or otherwise. Of the 48 seamen listed on the muster books, nine were discharged for various reasons. In all of these cases except one the discharged men had been pressed into service in Jamaica. In most cases the reason for discharge is somewhat unclear. In no case is it known for certain if the individuals were discharged from the *Fox* into naval service elsewhere, or out of the Navy entirely. Four seamen—James Ward, William Greenwood, John Collins, and Peter Peterson—were discharged "P^{r} Order of Comm^{r} in Chief,". Three young men, possibly even boys—William Arundal, Daniel Piper, and John Wilks—were discharged with the reason listed as "Being Apprentices." This explanation seems unclear, though Rodger addresses this issue and he may provide a partial explanation:

> Masters often contrived to get their apprentices pressed, which spared them the necessity to feed, clothe, or educate, and gave them a good income, since by registering the indentures at the Navy Pay Office they could claim the apprentices' pay. Some of these apprentices were experienced seamen as old as twenty-four, and it was so obviously inequitable and impolitic to make them serve without wages that the Navy was in the habit, unjustified in law, of forcing the masters to take only part of the wages, "it being notorious that many of these people are drove to sea by the cruelty and ill-usage of their masters" (Rodger 1986: 173).

Finally, John Barry was discharged on 29 June 1799. The reason provided—"Kill Ship Dromedary"—is enigmatic at best, and the meaning of this phrase remains unclear. Also a mystery is the discharge of John Gilmore, who had not been pressed into service on the *Fox* but instead had come from the *Abergavenny*. The notation under "Whither or for what Reafon" is in a barely legible scrawl, reading in part " . . .ble . . . for passage . . .Provisions." The date of discharge is also unclear; "17 May" is scratched out, and replaced with "15 J . . ." The year is clearly written "1800," though the ship had been lost by that time and this muster book only covered the period through 30 June 1799 (other post-June 1799 details, such as the subsequent desertion of a sailor in August, are not marked on this muster book). Thus, the details of Gilmore's discharge also remain uncertain.

In addition to the discharged seamen two individuals deserted the *Fox* while in Port Royal, Jamaica. Both able-bodied seamen, Arnold Scroder and John Ward made their escape on 30 June 1799. Their desertion necessitated a separate record and page in the muster book, listing their names, the time and place of their desertion ("R[un] 30th June 1799 Port Royal from Duty") and the script below:

> These are to certify the Principal Officers & Commifioners of His Majestys Navy that the Men named in the above List did Run from His Majestys Schooner under my Command at the Times & Places set against their Respective Names in the said List and in my present Opinion deserve no Relief
> Wooldridge Lieut & Commander

The actual signature seems to be in a different handwriting and added later, suggesting that the clerk Mr. Francis did the writing in the muster, with Wooldridge signing the appropriate places when necessary.

A number of generalizations can be made about men making "run" from naval vessels in the 18th century. It may surprise the modern reader to learn that runaways often simply wished to return to their original vessel and old shipmates. This may indeed be the case with Scroder and Ward, both of whom had been turned over from HMS *Abergavenny* only ten days before deserting *Fox*.

> Probably the most frequent motive of all which tempted men from one ship to another was the desire to be reunited with their former shipmates. The cohesion of a settled ship's company was by far the strongest force which bound the Navy together, and officers and men were at one in intensely disliking any idea of breaking one up. If men were drafted away from their ship of their captain, their first reaction was often to run straight back. If newly turned-over men deserted, it tended to be assumed that this was where they had gone . . . (Rodger 1986: 195).

It may be that the men simply fled to their old ship. If this was the case, it is likely that they were found out, and the fact that the *Fox*'s muster book only covers the period through 30 June (the same day they deserted) means that we cannot know if they were re-integrated into the *Fox*'s crew or not. Punishments for desertion were often light or even non-existent if the culpable ones were found serving on another of His Majesty's vessels.

It is also quite possible that these two conspired to willfully leave the Service. HMS *Fox*, a small vessel with a brand-new crew located in the Caribbean, fits the profile for a ship likely to produce deserters. More men ran from small ships, which were typically more cramped, less comfortable, and entailed more strenuous work than ships of the line. The West Indies, which offered the best temptations and opportunities, were the most likely place for seamen to desert. Newly formed ship's companies, such as that of the *Fox*, were the least settled and fostered the most runaways. Indeed there is a definite correlation between the time spent on a new ship and the propensity to run away. Over 50% of deserters "ran" during their first six months on board a vessel, and 75% did so within their first year. By the time a sailor had spent 18 months on a vessel his chances of desertion were very low. These statistics, based on analysis of muster books like that of the *Fox*, hold true whether the deserters were from large or small ships, were pressed or volunteers, or even turned over from one ship to another (Rodger 1986: 196-197).

It is also known, from the 30 August *Bahama Gazette* article mentioned above, that another sailor deserted within two months of Scroder and Ward, once the *Fox* was in Nassau Harbour. This individual was William Edwards, and there is some discrepancy about his origins. There are two seamen, both able and transferred from *Abergavenny* on 20 June, listed on the muster table by the name of William Edwards. But according to the *Gazette* article, the deserter Edwards was "pressed into service in Jamaica," not turned over in Jamaica. It seems most likely that Wooldridge was mistaken about the origins of this sailor. A possible explanation is that a third man named William Edwards was pressed into service aboard *Fox* sometime after 30 June (the

end of the period covered by this muster book) before the ship departed Jamaica. It seems clear that Wooldridge felt this man was willfully fleeing the ship's compliment (as opposed to simply rambling the waterfront taverns) as he offered a substantial reward for Williams' capture. The regular reward for capturing a deserter was 30 shillings and Wooldridge offered a prize of an additional 10 pounds. This generous reward may also reflect the fact that *Fox* was rather seriously undermanned at this point.

The May-June 1799 muster table of His Majesty's Schooner has proved to be a very useful tool in understanding the sociocultural complexities of even such a small naval vessel. Any such shipboard company was a microcosm of society, with its divisions of ranks and ratings, social status, professions and skills, and age. The muster book is probably the best documentary key to understanding these patterns and will prove even more valuable when the wreck of the *Fox* is discovered and investigated archaeologically.

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

Appendix G:
Historical Account of the 1766 Loss of *Le Tigre*

The following selections are taken from the 18th century shipwreck narrative of Pierre Viaud (*Naufrage et Aventures de M. Pierre Viaud, Natif de Bordeaux, Capitaine de Navire, Histoire véritable, vérifiée sur l'Attestaion de Mr. Sevettenham, Commandant du Fort St. Marc des Appalaches*.), as recently retranslated by Robin F. A. Fabel (1990[1768]).

Pierre's voyage on Le Tigre continues, and there is a dangerous close call when the captain accidentally ventures too close to breakers off the Isla de Pinos near Cuba. Viaud helps the captain sail clear of these waters, and they finally make the turn around the Cape of San Antonio, on their way into the Gulf of Mexico. But their troubles are not over . . .

(Pages 41 - 42)

At last we rounded Cape San Antonio. Fresh gales struck us and opened the leaks again. Although they were in constant use, the two pumps contained them with difficulty. The wind was unrelentingly adverse and the weather worsened. The sea was rough and a violent storm threatened. We could not have survived it. Everyone on the ship was afraid. Any improvement in our sad and terrifying situation seemed unlikely, but in these dire circumstances, on 10 February, at seven in the evening, we met a Spanish frigate coming from Havana. She was carrying a governor and a senior military officer who were going to take possession of Louisiana for Spain and asked us to keep company with her? We agreed with pleasure. Had we not been forestalled, we would have asked permission to follow her. During a tiring and troublesome voyage, nothing is more comforting to sailors than to meet a vessel sailing the same course. It is not that they can count on receiving much help in the middle of a storm, when everyone is too concerned with his own preservation to worry about others, but that an expected danger seems less menacing when one knows that it will be shared.

We did not manage to keep company with the frigate for very long. We lost her at night when she was making way under reduced sail, while we set no sails at all and were compelled to lie to. The following day we found ourselves alone, and, to increase our alarm, discovered a new leak. I was consulted about what we should do. I thought it vital to lighten the vessel at once. It is a harsh necessity for merchants to have to throw away part of the goods they have acquired with so much labor and in which they have invested money in the hope of making more. In circumstances like ours, however, preserving life is the first priority. It becomes the only concern, and all others are forgotten. I had all the heavy cargo thrown overboard. Since the two pumps were not coping, at the main hatch I set up a makeshift pump-well with barrels from our cargo, so that we could bail out the water with buckets. These measures proved useless. The water continued to gain on us. Their work exhausted the sailors without achieving its goal. It was impossible to hold back the sea much longer. We decided to put into Mobile

[present day Mobile, Alabama]. It was the nearest port but the wind's direction in fact gave us no other choice. At the time we were twelve or fifteen miles from the Chandeleur Islands.

We therefore made course for Mobile, but Providence prevented our making landfall there because the wind changed direction after two hours, and we had to give up the attempt. Instead we made every effort to reach Pensacola, which was some distance from Mobile. This plan failed too. The winds continued to thwart us, deflected us again, and kept us in rough seas against which we still strove, lacking any hope of making any port whatsoever, just waiting for the moment when the ocean depths would open and swallow us up.

After failing to reach shore at the ports of Mobile and Pensacola, the* Tigre *attempts to make it to the Spanish territory of Apalachee, the region of the Florida panhandle including the modern cities of Tallahassee and St. Marks, Florida. The vessel runs aground on an offshore reef, and is smashed by the waves, losing its rudder and part of its bow structure . . .

(Pages 42 - 43)

I have made many voyages in my life. I can remember none in which I suffered so much or had a worse run of luck. Never were Providence and the sea joined with more consistent violence to torment unhappy travelers. In the end we felt that saving our vessel and belongings was out of the question, and even saving our lives was moot. We concerned ourselves solely with preserving life and tried to strike the coast at Apalache [the region around modern day Tallahassee, Florida], but we could not make it. We stayed at the mercy of the waves, suspended between life and death, lamenting our bad luck, sure now that we would die, but never slackening our efforts to escape danger. Such was our condition from 12 February up to the 16th when at seven in the evening we found ourselves grounded on a reef six miles from the mainland. The pounding of the breakers was so violent as to smash open the stem of our vessel. We remained for thirty minutes in this situation, experiencing inexpressible fear. After half an hour the shocking force of the waves threw us beyond the reef. We found ourselves afloat again with no rudder and at the mercy of both the sea which surrounded us and of the constantly rising water entering our vessel.

Until then we had managed to hold onto a scrap of hope. Now it vanished completely. Our vessel resounded to the pathetic cries of sailors making their farewells, preparing for death with prayers for God's pardon, interrupting them to make vows, in spite of the dreadful certainty that they would never live to fulfill them. What a scene, my friend! Only a witness could have any idea of it. What I have outlined is very imperfect, and much less poignant than its reality.

I shared the crew's terror. My despair showed less, but I was every whit as frightened. The excess of bad luck, and the feeling that it was unavoidable, gave me a kind of stability. I accepted the fate awaiting me as unalterable. I abandoned my life to the being who gave it me, but retained enough courage to anticipate the fatal moment coolly, and to concern myself with ways of delaying it.

Le Tigre is blown towards shore without any helm control, and is wrecked about off the east end of Dog Island. But seas are so rough that the crew is stranded on the hammered vessel, tantalizingly close to shore. One sailor, driven mad by the predicament, throws himself into the sea and drowns.

(Pages 43-45)

My apparent calm communicated itself to the crew. At that terrifying time I inspired them with a kind of trust which made them ready to obey my commands. The wind was pushing us toward the shore. I steered with the foresail braces and sheets, and by extraordinary luck, which we had no right to expect, we arrived at nine in the evening east of Dog Island and ran aground within a musket shot of the land. The sea's roughness did not allow us to reach it. We thought of chopping up our masts to make a raft which could carry us there. While we were engaged in this task, the violence of the wind and the force of the waves combined to hurl our brigantine onto its port side. This unforeseen jolt all but killed us. We should all have fallen into the sea and perished but narrowly avoided this fate. Some of our sailors, who were jerked into the water by the shock, had the good fortune to get back to the vessel and, thanks to the helping hands we extended, to climb on board again.

Suddenly the moon which, until that moment, had provided us with a feeble light often interrupted by clouds, disappeared from sight altogether. Once deprived of the benefit of moonlight, it became impossible for us to think of crossing to dry land. We had to steel ourselves to wait for day on the side of our vessel. The night seemed endless. We were exposed to heavy rain: the sky appeared to turn to water. The waves rose higher by the minute, swamping our boat and bursting over us. Thunder rolled from every point of the compass. From time to time, lightning flashes showed us an endless horizon and a raging sea ready to engulf us. The ensuing darkness became even more terrifying.

Clinging to the side of our vessel, nailed, as it were, to anything we had been able to lay hands on, rain-soaked, numb with cold, worn out by our efforts to resist the impetuous waves, which would have dragged us away, at last we saw dawn break. It clarified the dangers we had endured and which still beset us. The sight we beheld seemed even more frightening. We saw dry land a short distance away, but could not get there. The wildness of the sea, whose waves crashed with a fury I have seldom seen, deterred even the bravest of swimmers. Any unfortunate wretch who exposed himself to such waves would have risked either being carried out to the open sea or being smashed against the boat or the rocky shore. On seeing them, despair seized our sailors. Their plaintive and doleful cries increased. Thunder claps and the howling of the wind agitating the ocean could not stifle their wails and, combining with them, added to the horror of the situation.

Several hours passed without bringing any change in our lot. A sailor who from daybreak had wept incessantly and who had shown himself weaker than his comrades, suddenly stopped crying and, after a deep silence of several minutes, got up at last with unusual vivacity.

"What are waiting for?" he shouted with desperate determination. "Death surrounds us on all sides. It will soon come for us all. Let's fly to meet it. Let us speed its leisurely blows. We must find death in the waves. Perhaps if we go to meet it, death will retreat. Land lies in front of us. It's reachable. I am going to try. If I fail, all I'm doing is to hasten my end by a few hours and to shorten the length of my misery."

With these words he dove into the sea. Fired by his example, several sailors wanted to follow him. I only just managed to hold them back by pointing to their shipmate, tossed by the waves, uselessly fighting them. First he was swept to the beach and actually touched it, but was then dragged back by the sea, in which he vanished for several minutes. When he came up again, we saw him crushed against a rock. This cruel sight made the sailors shudder and rid them of all impulse to copy his action.

After being stranded for most of the day, three sailors attempt to make it to shore in the ship's boat . . .

(Page 46)

Most of the day had passed. It was five in the evening. We thought with terror of the night that we had already spent, and we trembled in anticipation of the one to follow. The waves had carried off the masts and shrouds we had cut down the previous evening. The hope of using a raft to save ourselves had vanished. We had a rowboat in bad repair, but it was too dilapidated to make the short crossing from the brigantine to the shore. We had examined it on several occasions, but each time we had given up the idea of using it. Three sailors, braver or more desperate than the rest, dared to set out in this frail craft. They got into it without telling anyone what they were about. We did not realize their intention until after they had pushed off, but believed them as good as dead.

We watched their struggles and the difficulties they overcame, while constantly risking being swamped. In spite of our expectations, they reached the shore. We envied their success and all regretted that we had lacked their boldness. Everyone complained because they had given no warning of their plan. If ever the sight of happiness was mortifying to the miserable it was then. Their gestures to us and their demonstrations of glee stabbed us. Their good luck made us feel our bad luck more keenly. No doubt what I am telling you is horrible and inhuman. Nevertheless this despicable feeling is natural. I admit that it is discreditable. All the same, I say to those who condemn it and consider us as monsters for harboring it, "Let them first put themselves in our position, and then let them judge us."

Soon darkness hid our more fortunate companions from sight. With no choice but to remain with our vessel, we compared our predicament unfavorably with theirs. Our sufferings seemed worse, because they were not sharing them. This second night proved as testing as the one before. The strain was the same, but the exhaustion we felt from lack of sleep scarcely left us the strength to cope with it.

Ever since our vessel had been blown on its side, we had been unable to get inside her. We had not dared to make holes in her for fear of creating gaps for

water to enter which, filling up the vessel, would soon have broken her apart. Thus would we have been deprived of our only refuge. Consequently we had no provisions and no way of getting them. We had survived all this time without eating or drinking.

It seemed that God had taken pleasure in heaping on us every kind of misfortune. Our weary bodies vainly craved rest and food to restore their strength. Both were denied. Never had we anticipated death in such a hideous way. Our wrecked brigantine was held in place by huge rocks. The waves dashed against her with appalling force which shook and constantly threatened to shatter her and submerge us. Luckily for us she remained intact.

***After a night spent on the shipwreck, another sailor attempts to make it to Dog Island, by swimming, in order to re-enforce the ship's boat and return to the wrecked* Tigre . . .**

(Pages 47-48)

The following day, 18 February, we witnessed the break of a day we had despaired of ever living to see. Death would have relieved us of our suffering and would no doubt have been a blessing, but the strongest sentiment in the human heart is love of life. Mankind clings to it to the very end. The torments people endure can weaken but rarely quite extinguish it. On seeing that we were still on the side of the brigantine, our first action was to thank God for having allowed us to live and to pray that He would complete His work and crown His mercy by providing a means of reaching dry land.

Never was a prayer more heartfelt, and God seemed to grant it. The wind abated, the raging sea calmed, and we were presented with a sight which, though terrible enough, was much less so than on preceding days. One of our sailors, an excellent swimmer, after gazing for some time at the route he would have to take to reach the beach, decided to make the attempt. "I am going to rejoin my shipmates," he told us. "We'll try to caulk and frap [re-enforce by bolstering with rope] the rowboat. Maybe we'll make her stout enough to make several trips back and save all your lives. It's our only chance. Let's not argue about it. We are getting weaker all the time. Let's not wait until we are totally worn out. Let's use our small remaining strength to get ourselves out of this horrible mess."

We backed his suggestion and, as best we could, helped him to carry out his scheme. It was the only one which could be of any use to us. We gave him handkerchiefs and ten fathoms' of rope which might be used to caulk the rowboat. Loading himself with them, he jumped into the sea. Several times we saw him on the point of sinking. Our anxious eyes followed his every move. We saw in him our only resource, our only possible savior. We shared his risks; our fate depended on him. We urged him on with shouts and gestures, mentally struggling alongside him. We suffered when he had to make an extra effort to overcome the resistance of waves. Our imagination and urgent wishes put us in his place. We experienced what he experienced. We overcame the breakers or were beaten by their fury, and grew weary as much as he. We begged God to help him; his safety became ours. At last, after a hundred alternating bouts of fear

and hope, we saw him, after unspeakable effort, reach the shore. At once we fell to our knees to thank God. A spark of joy flamed in our souls and warmed them.

The crewmembers ashore fix the damaged rowboat, and return to the shipwreck, to rescue the rest of the stranded sailors and passengers. Pierre Viaud and the others finally make it to Dog Island, where their adventures are just begun.

(Pages 48-50)

It was then seven in the morning. We waited impatiently for the moment when someone would come to fetch us. We stayed constantly facing the beach. Our eager eyes were always darting there, looking at our four sailors busy around the rowboat, missing not one of their actions insofar as distance allowed it. Such lively and sustained observation seemed to soothe our impatience and to shorten our time of waiting. Although we urged on their work with our longing, it still progressed slowly, and we quaked inwardly at the thought that it might all be futile. The work was done at three o'clock in the afternoon. We saw the rowboat launched into the water and it came toward our vessel. How can I depict the joy of the crew at this sight? It burst forth in the form of shouts and tears of happiness. Everyone hugged whoever was next to him, congratulating him on this sign of divine favor.

These feelings of tenderness and compassion for each other did not last. Everything changed when it became a question of who should go first. The small rowboat could hold only part of our group. It would sink if everybody climbed aboard. We all knew it, but no one wanted to risk waiting for a second trip. The fear that some accident would make a second trip for the rowboat impossible, stranding those left on the brigantine, caused all the sailors to clamor to be among the first passengers. The sailors rowing the little boat urged me to take my chance in it at once, because they feared it was not sturdy enough to make two ferrying excursions. These words, which everyone heard, evoked yet more groans and pleas of increased anguish for priority.

I swiftly asserted myself. Raising my voice, I commanded silence. "Your shouting and fretting are pointless," I told everybody. "They do nothing but delay our rescue. Every one of you will die, if you insist on being ferried all at the same time. Listen to reason. Obey what reason commands, and then hope. We all run the same risks. In the situation we are in, giving preference to anyone is unacceptable. Misfortune makes us all equal. Let us choose by lot those who are to leave first. Accept what chance decides. To show the losers in the lottery that they have no reason to despair, I shall stay with them and be the last to leave the brigantine."

This suggestion amazed them, but they all agreed to it. By chance, a sailor had some playing cards in his pocket, and with this deck lots were cast. From the eleven we now numbered, four set off with the four sailors who had brought the rowboat to us. They arrived on land without incident, and the little craft came back to pick up others. While this was happening, I noticed that the force of the waves had all but detached the counter from our vessel. Helped by Desclau and my black, I succeeded in breaking it off completely. This flotsam seemed

suitable to replace the rowboat as a means of getting to shore. I discussed it with Desclau, who agreed. When all the others had left in the rowboat, Desclau, my slave, and I got onto the counter, followed the rowboat, and arrived at the beach almost simultaneously with it.

How happy we were to be on dry land! What thanks we then offered to God! How sweet it was to stretch out on *terra firma*, without worrying that it would give way under us! By luck we found oysters on the banks of a nearby river. They made a tasty meal. The hunger we had endured since 16 February provided the best possible seasoning for them. We reveled in our new situation, passing a peaceful night in deep sleep, which restored our strength and was undisturbed by concern for the future. The following morning we awoke with the same satisfied feeling. It did not last long.

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

Appendix H:
Historical Research Conducted on the 1899 Shipwreck Event at Dog Island

During a research trip in the fall of 1999, Assistant Project Director James McClean visited Norway to conduct archival research at the Norsk Sjøfartsmuseums Bibliotek in Oslo. A substantial amount of information was uncovered on the Norwegian ships involved in the hurricane at Dog Island in August 1899. Information from ship registries included data pertaining to vessel tonnage, configuration, dimensions and information on crewmembers. A number of photographs, a copy of a painting and a number of relevant (modern) newspaper accounts were uncovered. Most of this documentation has yet to be translated, though an overview of the preliminary research results is provided below.

In addition to research conducted by Mr. McClean in Scandinavia, a number of primary and secondary sources were researched in Florida depositories. Much of this work was conducted in conjunction with the 1990 investigation of Dog Island Shipwreck # 2, and was compiled by Zamanillo (1990). Results of this domestic research includes contemporary Floridian newspaper accounts and a series of contemporary photographs from the shipwreck site.

Secondary Source Research

Hurricane Tracking Chart

One of the useful documents located by Zamanillo was a hurricane-tracking chart for the year 1899 (Figure 106). It originally assisted Zamanillo (1990: 9) in determining the date of the hurricane, thus narrowing his search for primary sources. The chart, from Neumann 1977, clearly indicates the reconstructed path of a hurricane that raged from 31 July through 2 August, striking the mainland on 1 August.

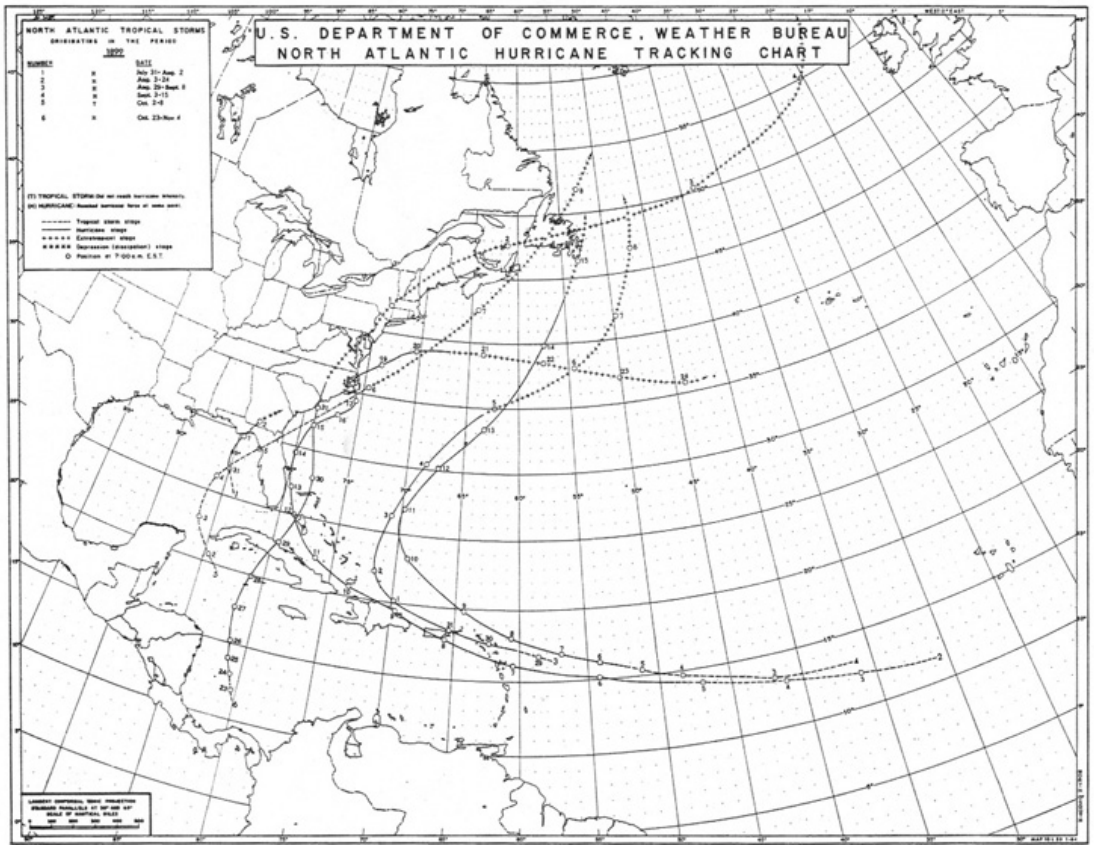


Figure 106. Hurricane tracking chart for the year 1899 showing the path of the August 01 hurricane (Neumann 1978).

Letter, 31 May 1978, from W.J.L. Parker to Joan Morris

This letter is included as a secondary source since it is not historical in nature. Captain W.J.L. Parker, a retired U.S. Coast Guard Captain, wrote this letter to Mrs. Morris, who was the Director of the Florida State Photographic Archives at the time. Mr. Parker had acquired a series of historic photographs taken within the first two days the 1899 hurricane and shipwreck event (these photographs are presented below in the historic photo section).

67 Chestnut Street
Camden, Maine 04843

31 May 1978

Mrs. Joan Morris
Director, Florida State Photographic Archives
Robert Manning Strozier Library
The Florida State University
Tallahassee, Florida 32306

Dear Mrs. Morris:

Thank you very much for sending the excellent print of the De Witt Brown and the xerox copies of the three pictures I missed. From the latter, I would like to have a print of the Putnam Lumber Company dock at Jacksonville. This is the xerox print I am returning. No doubt it is from a halftone in the American Lumberman. Ordinarily I don't collect photos of halftones, but this seems interesting enough to make an exception.

The enclosed ten prints will leave me about six in arrears, but I'll try and make up the difference before long. I think you will like the prints. You have at least two of the 1899 hurricane views, but my originals appear to be in very much better condition than the ones you copied. The captions are based on the casualty notes in the New York Maritime Register.

The copy negatives were so good that I thought I would like to keep them in my own file. If, at the time Bill Bunting was here with his camera, it would have been just as easy to make two negatives of each, but I don't like to impose on his friend ship to do this kind of work too often.

You might be interested in the fate of the vessels in the 1899 mess. The Warren Adams, James A. Garfield, Mary E. Morse and Vidette, ~~xkx~~ all American, were refloated. The Vidette was cut down from a barkentine to a three-masted schooner. The other two American vessels, the Benjamin C. Cromwell and Emma L. Cottingham, were also refloated and repaired. The Hindoo was refloated and became a barge under American registry. The Jafnhar, Vale and Latava, to say nothing of Cortesia, were total losses. All of them were old vessels.

Sincerely,

W J L Parker

W.J.L.Parker,
Captain, USCG (Ret.)

Tallahassee Democrat newspaper article, "Old Shipwreck Mystery is Solved"

A photocopy of this article was on file with the Parker letter at the Florida Photographic Collection, Florida State Archives, in Tallahassee. It does not have a date, but it is likely from 1962. The article contains a copy of one of the 1899 photographs obtained by Parker, and a photograph of Norwegian Thorvald Iversen posing in front of Dog Island Shipwreck # 2.

> RETIRED SHIPBUILDER WAS THERE—Owners of Dog Island (Ile de Chien) off the coast of Franklin County had wondered for years about the identity of the wrecked ship whose ribs still protrude from the beach sand, but they had no clues until Thorvald Iverson of Kilen, Kragero, Norway, showed up last weekend to recall an 1899 shipwreck. He was a ship's carpenter on one of eight Norwegian sailing vessels that went aground on Dog Island during a storm while on a voyage for cargoes of Florida pine. Now a retired shipbuilder, Iverson brought the above picture of the beached ships with him on a trip to this country to visit a son in Portland, Ore., and detoured to Florida from New York en route to Oregon to visit the wreck spot. The other picture shows Iverson standing in front of what remains of his ship.

Research Conducted in Floridian Archives

Letter, 4 January 1964, from Thorvald Iversen to V. Sherlock

This letter was written by Thorvald Iversen and is on file at the Florida Photographic Collection in the Florida State Archives. This letter is a very rare and useful tool for an archaeologist—a letter describing a 19th century shipwreck written by the person who was actually there. Unfortunately, the letter is missing at least one page (page 3) and possibly more.

Kalstadkilen,
Krágerø, Norway.
January 4, 1964.

Mrs. V. Sherlock,
709 Cheyenne Drive,
Fort Collins,
Colorado.

Dear Mrs. Sherlock,

Some time ago my wife and I came back from our trip to the U. S. A. I regret to say it has taken such a long time to answer your letter, but now I'll tell ~~you what I remember~~ something about the shipwreck at Dog Island in 1899.

There were altogether 13 ships lying at the island at that time. 6 of them were American three-masted schooners (I believe they are called fore-and-aft schooners in your language, because all the masts were of the same height). These schooners were flat-bottomed an shallow-draught, because they only sailed along the coast.

There were also 5 Norwegian three-masted barks, 1 Finnish schooner and 1 Spanish bark, all of them about 4-500 tons. I regret to say I don't remember the names of more than two of these ships.

The cargo they took was Florida pine: sawn timber and planks I was on board one and the same ship, the "Vale" of Kragerø, Norway, during the winters of 1896, -97, -98, and -99. We came there each time with ballast which was taken on board barges and they sailed outside the island and discharged it there.

Carabelle was at that time just a small town with only some few inhabitants. Altogether I stayed at Dog Island for about 7-8 month I was only ashore in Carabelle for some few hours, so I don't remember very much from that town.

The names of the 11 ships that were wrecked and whose names I've forgotten, I believe you'll be able to find in the books belongin to the timber merchants there or possibly at the consulates of the various nations.

Dog Island consisted then as now of white sand. From the south-western end of it and further in the north-eastern direction to the ballast place there was no green grass. This part of the island wa of an even height of about 5 ft. above normal water level. From the ballast place northwards, the island rose and was covered by bushes an

trees to a point north east of the present ferry place, from where there was once more white sand. I believe the highest point was about in the middle of the island about 18-20 ft. above water level. Just there stood a house where the quarantine officer lived. I remember this house well, because it had such a very large roof, and at two of the corners there were rain-water butts.

On the 26th of February 1899 there were, as I told you, 13 ships at Dog Island. Two of the U.S. schooners and one Norwegian bark, the "Hinda" of Mandal, had taken in cargo and were lying at anchor about midway between Dog Island and the mainland. They were ready to sail. One Norwegian bark from the town of Risør lay by the north-easter end of the island, heaving out the ballast. The remaining 9 ships lay in the bay with their anchors aft and the Florida pine rafts before their bows. They took in cargo through holes in the bow, the so-called "bows-ports". All these ships had a crew of 9 to 12 men. When a ship was loading there was also a gang of 8 Negro holdsmen on board.

The hurricane began before noon on the 26th of February 1899 and increased steadily, at the same time as the water rose to 14 ft. above normal level. Only the highest point of the island could be seen above the water. The wind increased to what they call a cyclone. At four o'clock in the morning of the 27th the first ship began to drift, but at ten o'clock everything was quite quiet. We then saw a flag being hoisted on a pole, somewhere outside the island. We got hold of a life-boat, rowed out and saved the whole crew. Only the captain had broken his left leg. That ship was a U. S. schooner which was ready to sail, and which had been drifting out of the channel and had stranded on a shoal outside the island. Apart from the captain no one was hurt. A U. S. schooner and the "Hindu" of Mandal drifted 5 miles before they eventually stranded on Prince Edward Island. The schooner was thrown into the forest so far that it could not be seen from the sea. The "Hindu" remained lying on shore without her rig. The rest of the ships, 9 altogether, lie on Dog Island, but only 8 of them can be seen on the picture. The ninth ship lies farther north on the island. I've been told that this was the strongest hurricane that has ever passed over this district. At that time I did not hear anything about the strength of the wind. But I think it may be found in the archives of the meteorologists. I can add that from 10 o'clock to 11 everything was calm, but then the wind returned from the opposite direction. It then blew for about one hour. I had the impression that it was quite as strong as the north-wester that blew when we were drifting ashore. All these ships had been built of various wood materials and they were strengthened from the inside by so-called iron knees. It is only these iron knees that

The crew on board the "Vale" consisted of:

Captain Markus Andersen
First mate August Sandberg
Second mate Birger Wenneberg
Carpenter Ole Svartkjendalen
Steward Karl Jakobsen
Sailor Amandus Heyerdahl
" Thomas Thommesen
Ordinary seaman Gunnar Erlandsen
" Thorvald Iversen
" Thor Haavet
Deck-hand Osvald Olsen

The captain's wife, Mrs. Nikoline Andersen, was also on boar

I should be very much interested to know which year they ~~#~~ ceised sending Florida pine from Dog Island, how many inhabitants there were in Carabelle in 1896 and how many there are now.

Yours sincerely,

Thorvald Iversen.

Thorvald Iversen 86 Years. Old.

Historic Photographs of the 1899 Dog Island Shipwreck Event

The following ten photographs were discovered in the Florida Photographic Collection, Florida State Archives, located in Tallahassee, Florida. The Florida Photographic Collection designates each photograph with an arbitrary, sequential negative number.

As stated in Parker's letter (1978) each of these pictures bears a caption. Parker has provided a tentative identification for most of the pictured ships, though a few remain unknown. His primary documentary source was *New York Maritime Register*.

By analyzing the various photographs, utilizing Parker's captions, and comparing them with the archaeological evidence gathered from Dog Island, it is possible to determine with relative confidence the directions that each of the first four photographs were taken from and the identities of six of the pictured ships. Both *James A. Garfield* and *Mary E. Morse* are positively identified, as their names could be made out on their respective sterns. *Vidette* was the only barkentine involved in the wrecking, thus its distinctive rig identifies it (Figure 107). One vessel, located directly ahead of *James A. Garfield* but only seen peripherally in two of the photographs, remains completely unidentified. Another vessel behind a tugboat to the starboard side of *Vale* also remains unidentified. The dismasted vessel in Figure 111 may or may not be *Cortesia*, but it does not seem to be visible in any of the group photographs. *Cortesia* may be the one pictured in Figure 110. This latter photograph shows possibly better than others, the dramatic and destructive results of a storm. It also provides a detailed view of a variety of rigging elements, masts, spars and their hardware. The ships that have been identified with a reasonable degree of accuracy are labeled in the following figures.

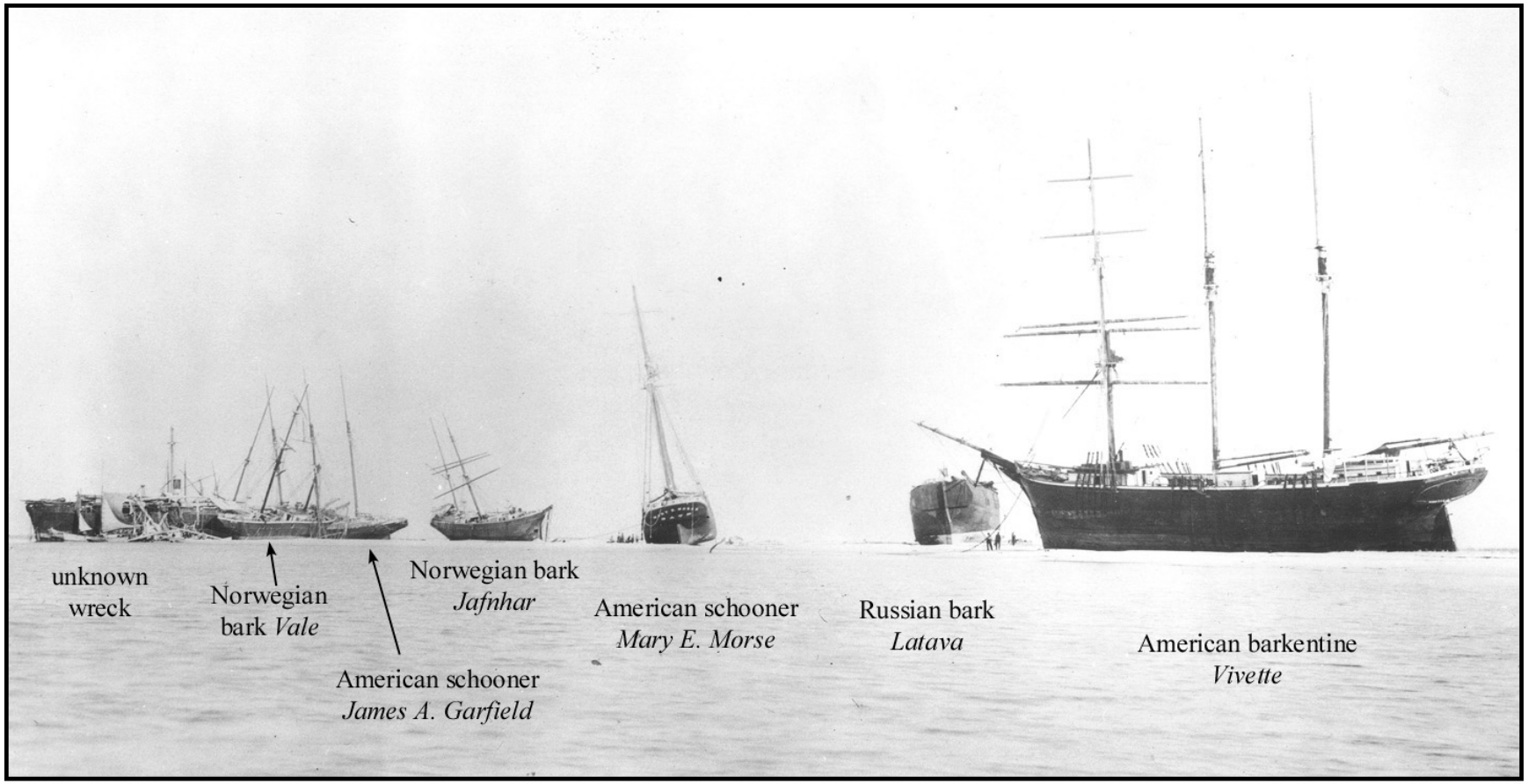


Figure 107. 1899 Dog Island Shipwrecks, photo taken facing southeast (1899ships02/Neg.12627).

Figure 108. The second group photograph of the 1899 Dog Island Shipwrecks (1899ships/Neg02.12625).

Figure 109. American three-masted coastal schooner *James A. Garfield*. This ship was re-floated. The ship to the right is the Norwegian bark *Jafnhar*, while the bowsprit of the *Vale* is just visible to the left, photo taken facing northeast (JamesAGarfield1899/Neg.12626).

Figure 110. View across the deck of an unidentified 1899 shipwreck, possibly the Italian bark *Cortesia.* Note man standing in cabing door for scale (deckview/Neg.17090).

Figure 111. Unidentified 1899 wreck on Dog Island, possible the Italian bark *Cortesia* (psblCortesia1899/Neg.12629).

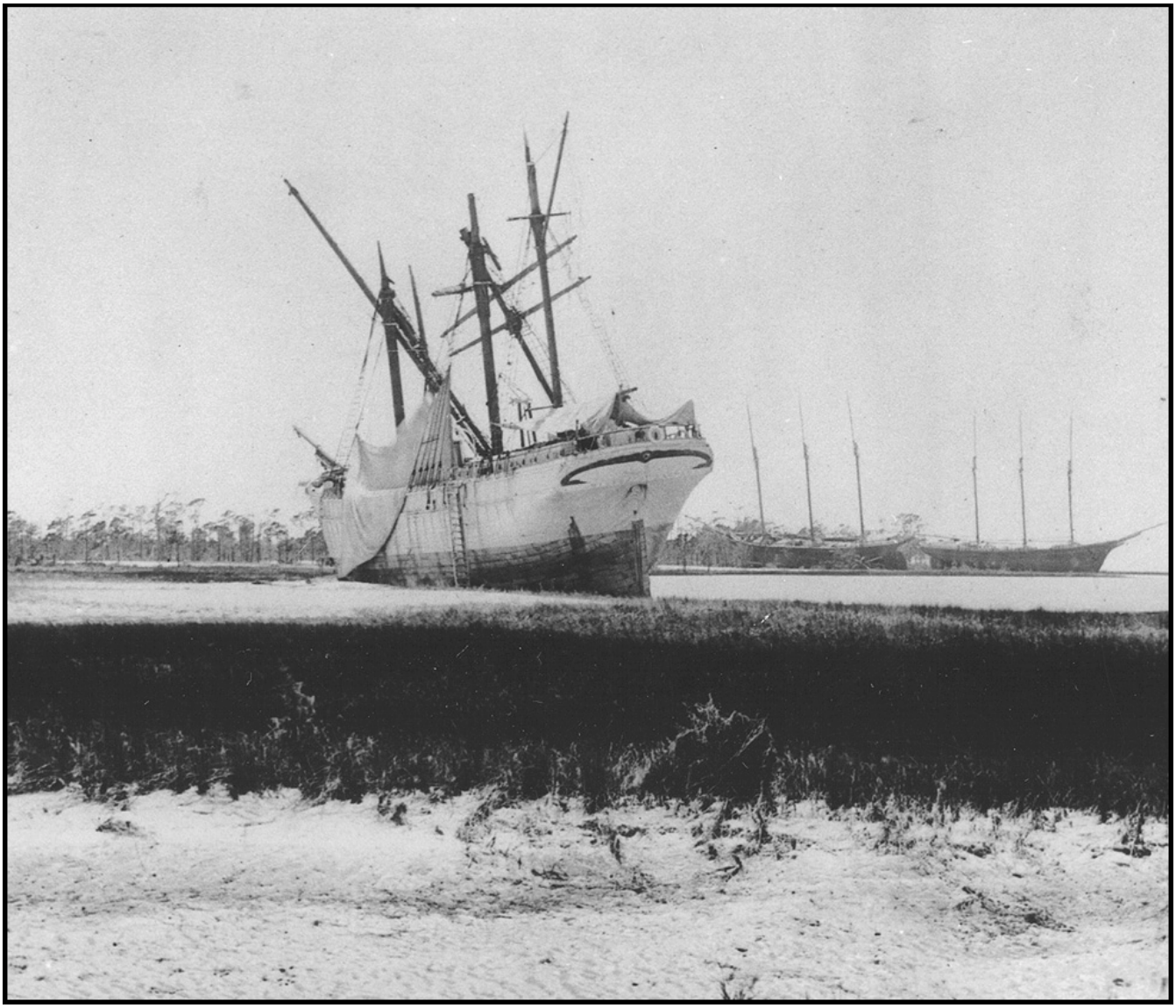


Figure 112. Norwegian bark *Hindoo* (labeled "*Hindos*" in the Florida Archives) stranded on St. George Island. The two schooners in the background are labeled *Emma L. Cottingham* (left) and *Benjamin C. Cromwell* (right), though *Warren Adams* also wrecked on St. George Island. Photograph taken on 2 August by Joseph W. King of Columbus, Georgia (Hindos1899/Neg. 17089NN).

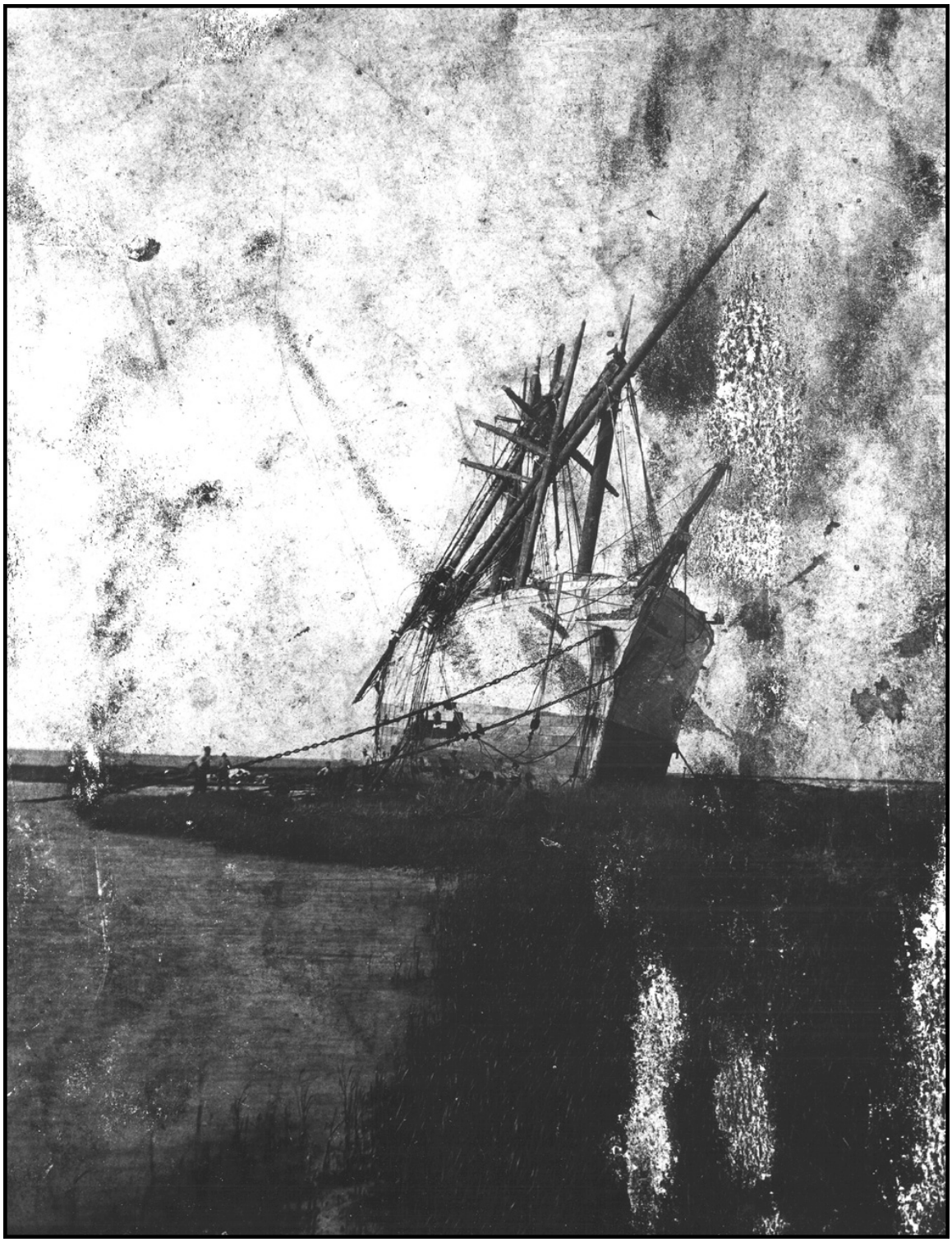


Figure 113. The Norwegian lumber bark *Hindoo* (labeled "*Hindos*" in the Florida Archives) stranded on St. George Island. Photograph taken by Mrs. William McCluskey on 2 August 1899 (Hindos1899_02/Neg. 12628).

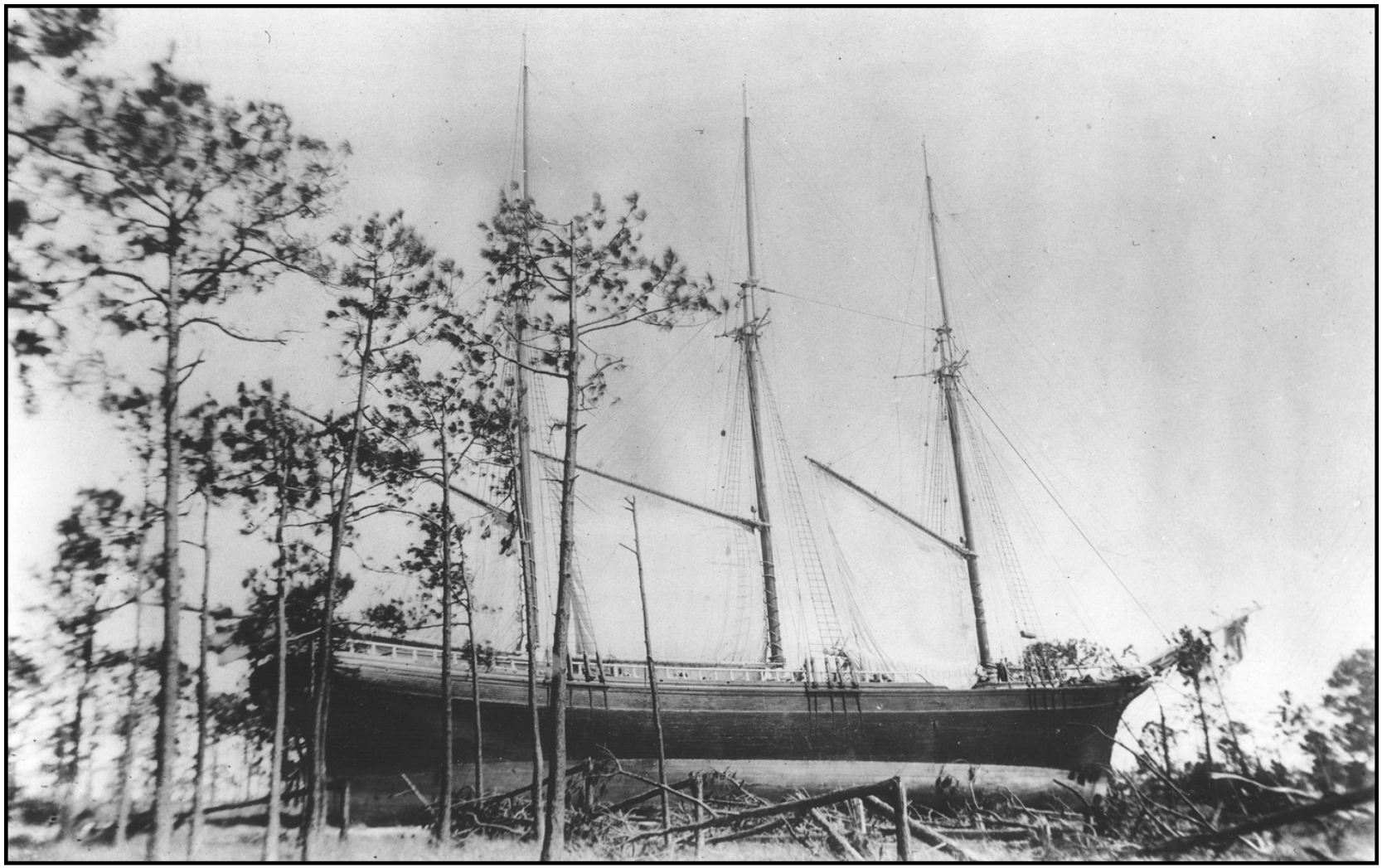


Figure 114. Three-masted schooner stranded on St. George Island. It is labeled as *Warren Adams* in Figure 115, however the two are clearly not the same schooner. Two other schooners, *Emma L. Cottinghame* and *Benjamin C. Cromwell* were also blown ashore adjacent to Warren Adams. (WarrenAdams1899/Neg17088NN

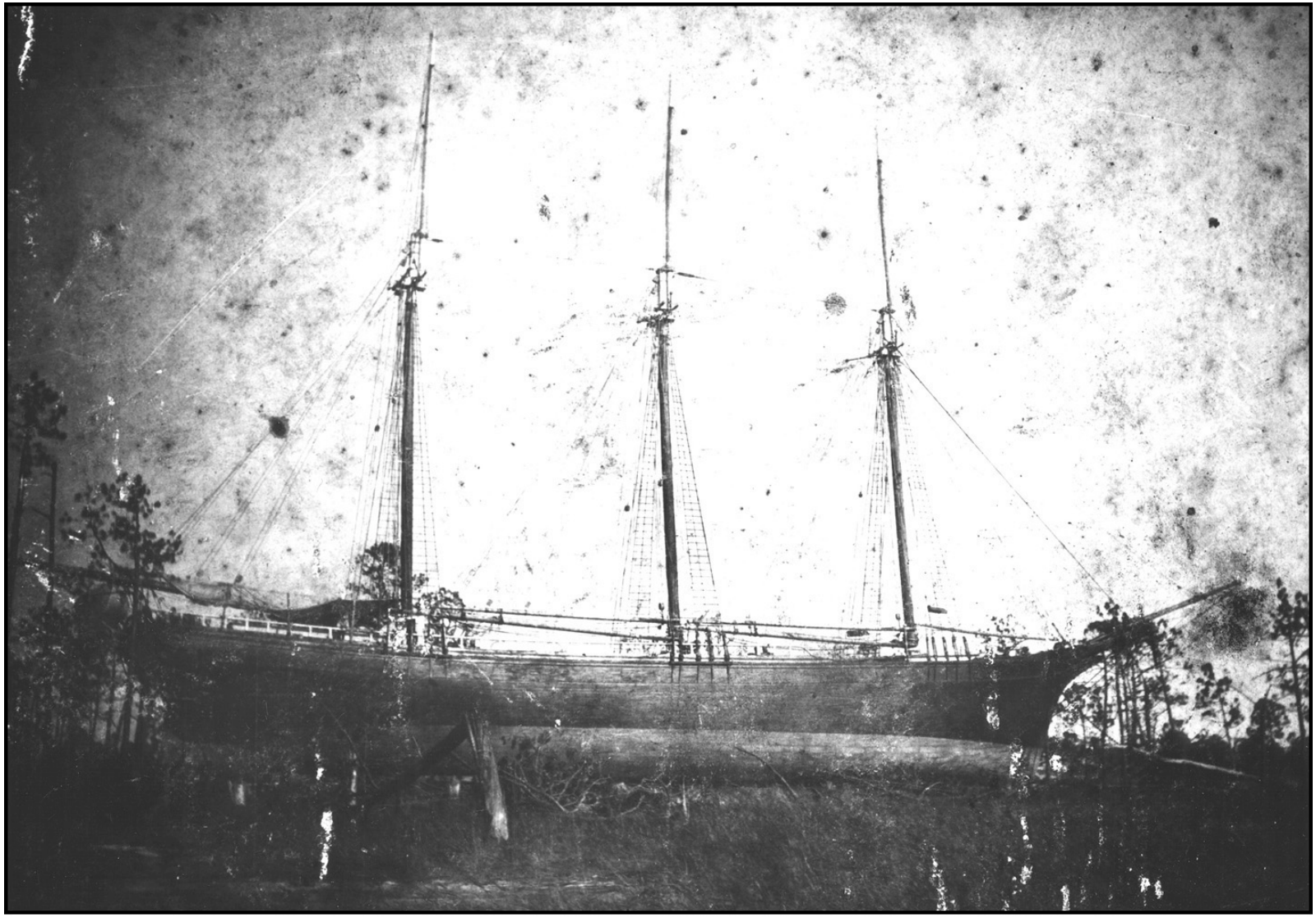


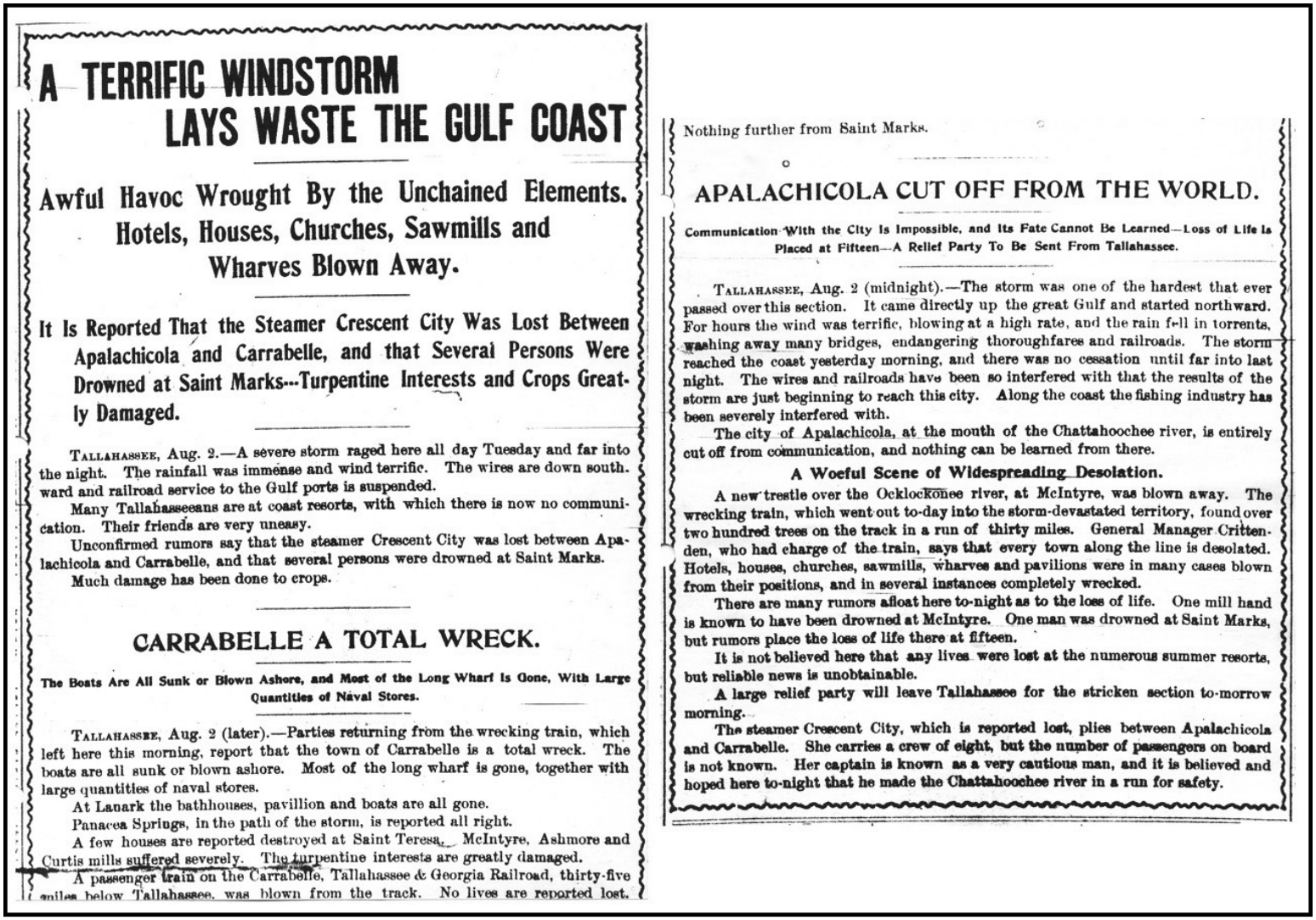
Figure 115. Schooner blown ashore St. George Island. Though it is labeled *Warren Adams* it could possibly be *Emma L. Cottinghame* or *Benjamin C. Cromwell* (WarrenAdams1899-02/Neg12630).

Florida Times-Union & Citizen newspaper article, "A Terrific Windstorm Lays Waste the Gulf Coast," 3 August 1899

The *Florida Times-Union & Citizen* was one of the primary newspapers in Florida, published in Jacksonville (Figure 116). This account, written on 2 August in Tallahassee describes the "awful havoc" wrought by the hurricane the day before. "Hotels, Houses, Churches, Sawmills, and Wharves Blown Away." The storm disrupted wires and railroad services along the coast. It was reported that the packet steamer *Crescent City* was lost. Carrabelle was described as "a total wreck . . . [t]he boats are all sunk or blown ashore. . . . [m]ost of the long wharf is gone, with large quantities of naval stores. . . . The storm was one of the hardest that ever passed over this section. It came directly up the great Gulf and started northward. For hours the wind was terrific, blowing at a high rate, and the rain fell in torrents . . ."

Florida Times-Union & Citizen newspaper article, "The Storm-Stricken Gulf Coast," 3 August 1899

This article appeared the following day, having been written in Tallahassee on 3 August 1899 (Figure 117). By this time news had spread of the shipwrecked lumber ships: "thirteen of the fourteen large lumber vessels in the bay were swept ashore, and are now lying well up on dry land. These vessels contained several million feet of lumber." Unfortunately, the only copy available is missing at least part of a line of text. The article continues to summarize the devastation caused by the storm.



A TERRIFIC WINDSTORM LAYS WASTE THE GULF COAST

Awful Havoc Wrought By the Unchained Elements. Hotels, Houses, Churches, Sawmills and Wharves Blown Away.

It Is Reported That the Steamer Crescent City Was Lost Between Apalachicola and Carrabelle, and that Several Persons Were Drowned at Saint Marks---Turpentine Interests and Crops Greatly Damaged.

TALLAHASSEE, Aug. 2.—A severe storm raged here all day Tuesday and far into the night. The rainfall was immense and wind terrific. The wires are down southward and railroad service to the Gulf ports is suspended.

Many Tallahasseeans are at coast resorts, with which there is now no communication. Their friends are very uneasy.

Unconfirmed rumors say that the steamer Crescent City was lost between Apalachicola and Carrabelle, and that several persons were drowned at Saint Marks.

Much damage has been done to crops.

CARRABELLE A TOTAL WRECK.

The Boats Are All Sunk or Blown Ashore, and Most of the Long Wharf Is Gone, With Large Quantities of Naval Stores.

TALLAHASSEE, Aug. 2 (later).—Parties returning from the wrecking train, which left here this morning, report that the town of Carrabelle is a total wreck. The boats are all sunk or blown ashore. Most of the long wharf is gone, together with large quantities of naval stores.

At Lanark the bathhouses, pavillion and boats are all gone.

Panacea Springs, in the path of the storm, is reported all right.

A few houses are reported destroyed at Saint Teresa. McIntyre, Ashmore and Curtis mills suffered severely. The turpentine interests are greatly damaged.

A passenger train on the Carrabelle, Tallahassee & Georgia Railroad, thirty-five miles below Tallahassee, was blown from the track. No lives are reported lost.

Nothing further from Saint Marks.

APALACHICOLA CUT OFF FROM THE WORLD.

Communication With the City Is Impossible, and Its Fate Cannot Be Learned—Loss of Life Is Placed at Fifteen—A Relief Party To Be Sent From Tallahassee.

TALLAHASSEE, Aug. 2 (midnight).—The storm was one of the hardest that ever passed over this section. It came directly up the great Gulf and started northward. For hours the wind was terrific, blowing at a high rate, and the rain fell in torrents, washing away many bridges, endangering thoroughfares and railroads. The storm reached the coast yesterday morning, and there was no cessation until far into last night. The wires and railroads have been so interfered with that the results of the storm are just beginning to reach this city. Along the coast the fishing industry has been severely interfered with.

The city of Apalachicola, at the mouth of the Chattahoochee river, is entirely cut off from communication, and nothing can be learned from there.

A Woeful Scene of Widespreading Desolation.

A new trestle over the Ocklockonee river, at McIntyre, was blown away. The wrecking train, which went out to-day into the storm-devastated territory, found over two hundred trees on the track in a run of thirty miles. General Manager Crittenden, who had charge of the train, says that every town along the line is desolated. Hotels, houses, churches, sawmills, wharves and pavilions were in many cases blown from their positions, and in several instances completely wrecked.

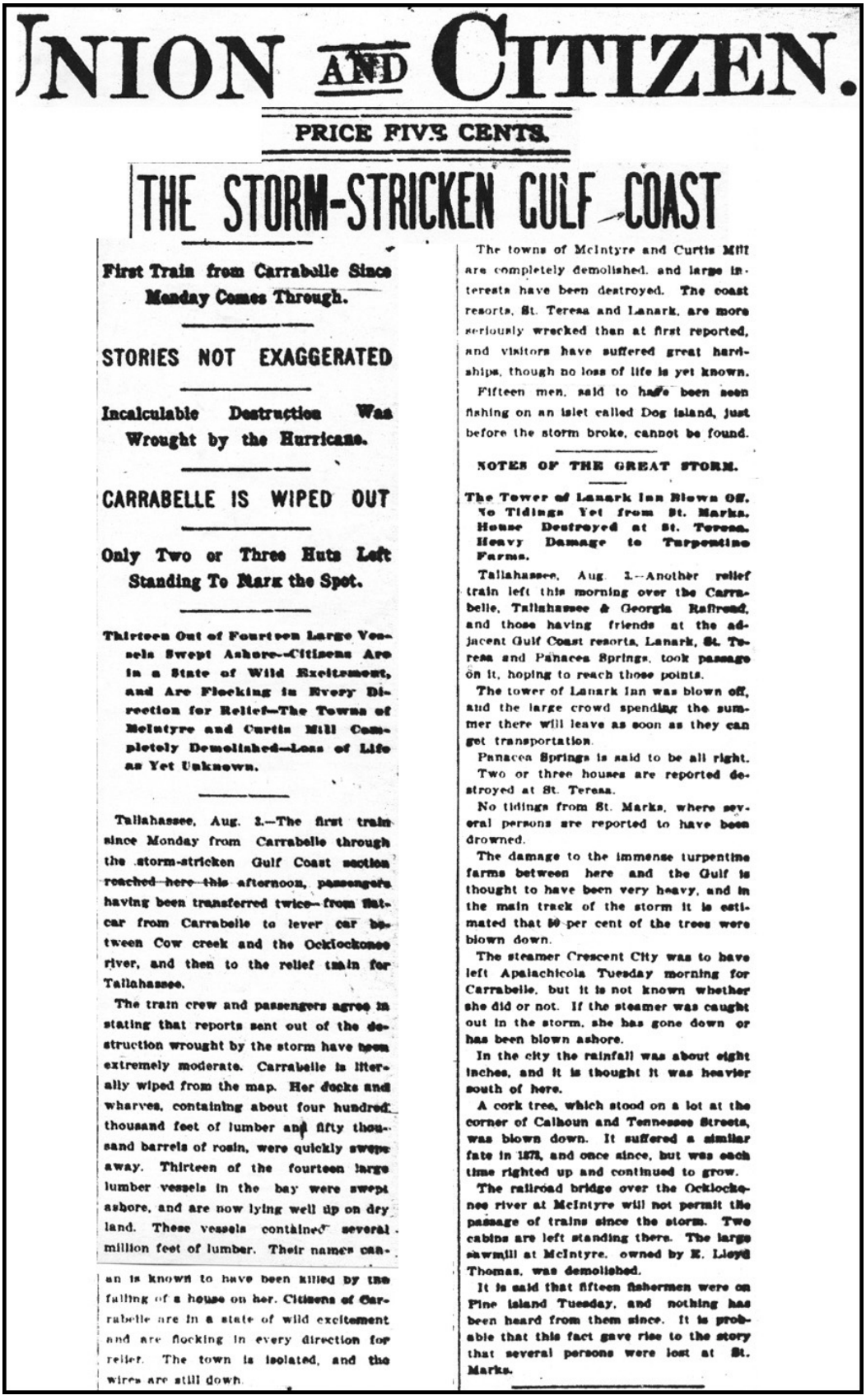
There are many rumors afloat here to-night as to the loss of life. One mill hand is known to have been drowned at McIntyre. One man was drowned at Saint Marks, but rumors place the loss of life there at fifteen.

It is not believed here that any lives were lost at the numerous summer resorts, but reliable news is unobtainable.

A large relief party will leave Tallahassee for the stricken section to-morrow morning.

The steamer Crescent City, which is reported lost, plies between Apalachicola and Carrabelle. She carries a crew of eight, but the number of passengers on board is not known. Her captain is known as a very cautious man, and it is believed and hoped here to-night that he made the Chattahoochee river in a run for safety.

Figure 116. Article from the 3 August 1899 issue of the *Florida Times Union and Citizen*, Jacksonville, FL.



UNION AND CITIZEN.

PRICE FIVE CENTS.

THE STORM-STRICKEN GULF COAST

First Train from Carrabelle Since Monday Comes Through.

STORIES NOT EXAGGERATED

Incalculable Destruction Was Wrought by the Hurricane.

CARRABELLE IS WIPED OUT

Only Two or Three Huts Left Standing To Mark the Spot.

Thirteen Out of Fourteen Large Vessels Swept Ashore--Citizens Are in a State of Wild Excitement, and Are Flocking in Every Direction for Relief--The Towns of McIntyre and Curtis Mill Completely Demolished--Loss of Life as Yet Unknown.

Tallahassee, Aug. 3.—The first train since Monday from Carrabelle through the storm-stricken Gulf Coast section reached here this afternoon, passengers having been transferred twice—from flat-car from Carrabelle to lever car between Cow creek and the Ocklockonee river, and then to the relief train for Tallahassee.

The train crew and passengers agree in stating that reports sent out of the destruction wrought by the storm have been extremely moderate. Carrabelle is literally wiped from the map. Her docks and wharves, containing about four hundred thousand feet of lumber and fifty thousand barrels of rosin, were quickly swept away. Thirteen of the fourteen large lumber vessels in the bay were swept ashore, and are now lying well up on dry land. These vessels contained several million feet of lumber. Their names can-

an is known to have been killed by the falling of a house on her. Citizens of Carrabelle are in a state of wild excitement and are flocking in every direction for relief. The town is isolated, and the wires are still down.

The towns of McIntyre and Curtis Mill are completely demolished, and large interests have been destroyed. The coast resorts, St. Teresa and Lanark, are more seriously wrecked than at first reported, and visitors have suffered great hardships, though no loss of life is yet known.

Fifteen men, said to have been seen fishing on an islet called Dog island, just before the storm broke, cannot be found.

NOTES OF THE GREAT STORM.

The Tower of Lanark Inn Blown Off. No Tidings Yet from St. Marks. House Destroyed at St. Teresa. Heavy Damage to Turpentine Farms.

Tallahassee, Aug. 3.—Another relief train left this morning over the Carrabelle, Tallahassee & Georgia Railroad, and those having friends at the adjacent Gulf Coast resorts, Lanark, St. Teresa and Panacea Springs, took passage on it, hoping to reach those points.

The tower of Lanark Inn was blown off, and the large crowd spending the summer there will leave as soon as they can get transportation.

Panacea Springs is said to be all right.

Two or three houses are reported destroyed at St. Teresa.

No tidings from St. Marks, where several persons are reported to have been drowned.

The damage to the immense turpentine farms between here and the Gulf is thought to have been very heavy, and in the main track of the storm it is estimated that 50 per cent of the trees were blown down.

The steamer Crescent City was to have left Apalachicola Tuesday morning for Carrabelle, but it is not known whether she did or not. If the steamer was caught out in the storm, she has gone down or has been blown ashore.

In the city the rainfall was about eight inches, and it is thought it was heavier south of here.

A cork tree, which stood on a lot at the corner of Calhoun and Tennessee Streets, was blown down. It suffered a similar fate in 1873, and once since, but was each time righted up and continued to grow.

The railroad bridge over the Ocklockonee river at McIntyre will not permit the passage of trains since the storm. Two cabins are left standing there. The large sawmill at McIntyre, owned by E. Lloyd Thomas, was demolished.

It is said that fifteen fishermen were on Pine island Tuesday, and nothing has been heard from them since. It is probable that this fact gave rise to the story that several persons were lost at St. Marks.

Figure 117. Article from the *Florida Times Union & Citizen* (4 August 1899) describing the storm damage and the loss of 13 lumber ships in the August 1 hurricane.

Research Conducted in Norwegian Archives

The following is a brief overview of the historical data collected by James McClean in Norway. The majority of this information was obtained from the Norsk Sjøfartsmuseum in Oslo. This is a maritime museum consisting of a private collection assisted by government subsidies. Information on five vessels involved in the 1899 shipwreck event was gathered. Very little of the information recovered has been translated at this time, thus what follows is preliminary in nature.

Norse Shipping Records from the Norsk Sjøfartsmuseums Bibliotek

A search of shipping records produced the names of five Norwegian-resistered lumber ships lost in the Apalachicola Bay region during 1899. They are the *Vale, Jafnhar, Hindoo, Elsbeth*, and *Ranavola*. The first three names are familiar but there has been no record of the latter two ships in any account discovered thus far.

All five were listed as having been lost while loading pitch pine in either Apalachicola, "Carebello," or Dog Island. The shipping records contained data on the vessel type, tonnage, dimensions, home port, place and year of construction, original name, list of captains, circumstances of loss and the final outcome of the wreck. (Other information is included in the forms, but it has not been translated yet.) The relevant information from these records has been compiled in Table 30.

Also perused at the Norsk Sjøfartsmuseums Bibliotek was the *Det Norske Veritas Tabte Skibe 1895-1899*, a register of vessel losses. The same five vessels appeared on this list. Det Norske Veritas is probably a marine insurance company and classification society similar to Lloyd's of London. Information contained on the register includes vessel name, place and year of construction, 1899 registration number, classification, net ton, and the month, place, and circumstance of the vessel loss. This data, which corresponds almost exactly to that found in the individual shipping records, is compiled in Table 31.

Table 30. Summary of information on the Norwegian lumber ships lost at Dog Island in 1899, from shipping records at the Norsk Sjøfartsmuseums Bibliotek, Oslo.

Name	***Vale***	***Jafnhar***	***Hindoo***	***Elsbeth***	***Ranavola***
Original name	**Vale**	*Jafnhar*	*Hindoo*	*Eliza S. Willigan*	*Ranavola*
Original nationality	Norwegian	Norwegian	German	Canadian	British
Place built	Kragerø, Norway	Porsgrunn, Norway	Apenrade, Schleswig-holstein, Germany	Rothesay, New Brunswick, Canada	Newcastle, England
Year built	1878	1877	1877	1874	1861
Rig	Bark	Bark	Bark	Bark	Bark
Tons brtn	554	498	622	883	396
Net tons	536	476	541	802	374
Length	139	130	147.1	168.5	121.2
Breadth	30	29.3	31.5	34.9	27.7
Depth hold	17	16	17.5	19.7	17
Home port	Kragerø	Kragerø	Mandal	Risør	Kragerø

	(1878-1899)	(1877-1887); Larvik (1887-1895) Drammen (1895-1899)	(1889-1899)	(1890-1899); Lyngør (1899)	(1894/95-1899)
Captains	***K.A. Olsen (1878-1891);*** E. Olsen (1891-1899); Markus Andresen (1899);	J. Olsen (1877-1882); J. Terkelsen (1882-1888); H Sørensen (1888-1890 & 1892-1896); Larsen (1890-1892); H.Thygesen (1896-1899)	J.H.Holmer (1889-98/99); M. Madsen (1898/99-99)	E. Pedersen (1890-1899)	L. Evensen (1894/95-1899); Johansen (1899)
Fate	Total loss; abandoned at Dog Island	Total loss; abandoned at Dog Island	Re-floated; switched to U.S. registry as a 3-masted *slettopper* (?)	Re-floated; switched to U.S. registry in 1900 as *Helen Buck*	Total loss; abandoned at Dog Island

Table 31. Information on the five wrecked Norwegian vessels from *Det Norske Veritas*.

Name	***Vale***	***Jafnhar***	***Hindoo***	***Elsbeth***	***Ranavola***
1899 Reg. No.	496	1	96	64	11
Classification	A1	A1	A2	A2	(unassessed)
Net tons	496	456	517	802	374
Year built	1878	1877	1877	1874	1861
Place built	Kragerø, Norway	Porsgrunn, Norway	Apenrade, Germany	Rothesay, N.B.	Newcastle, England
Month lost	August	August	August	August	August
Place lost	Apalachicola	Apalachicola	Carabelle	Apalachicola	Apalachicola
Circumstance	Stranded in hurricane	Stranded in hurricane	Stranded in hurricane	Stranded in hurricane	Stranded in hurricane

Photographs of the Jafnhar and timber rafts

These are two photographs of the *Jafnhar* taken sometime before it wrecked. The first, by photographer John Nielsen, is in very good condition and provides a detailed view of the ship at anchor with sails furled (Figure 118). Presumably the bark is waiting to take on or offload cargo.

The second photograph of *Jafnhar* is a very similar setting, but the only copy available is of poor quality (Figure 119). It is a reproduction from a modern newspaper (*Porsgrunns Dagblad* 1974) on file at the museum library.

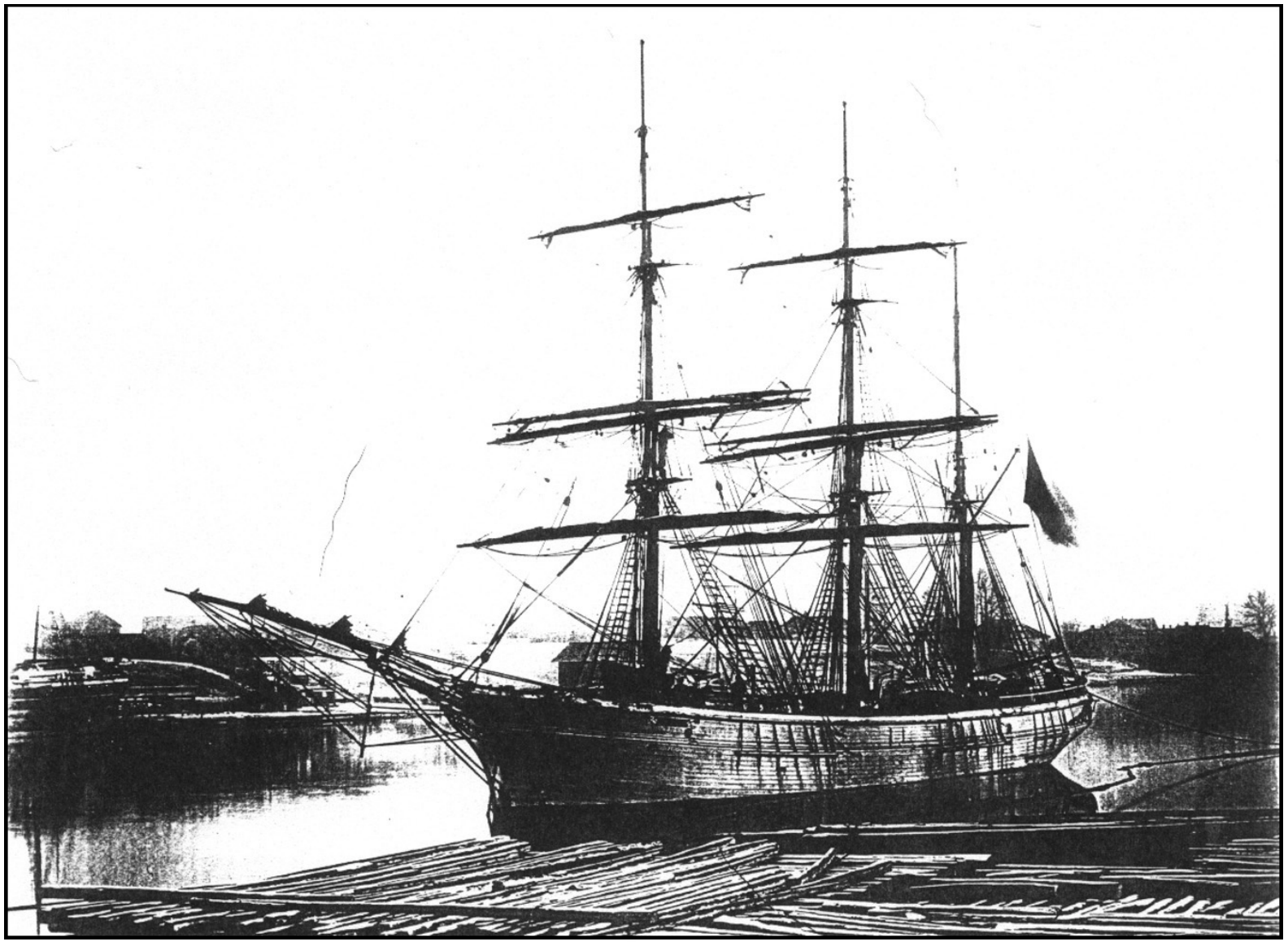


Figure 118. Historic photograph of Norwegian lumber bark *Jafnhar*, taken sometime before it wrecked at Dog Island (Norsk Sjofartsmuseums Bibliotek, Oslo, Noray).

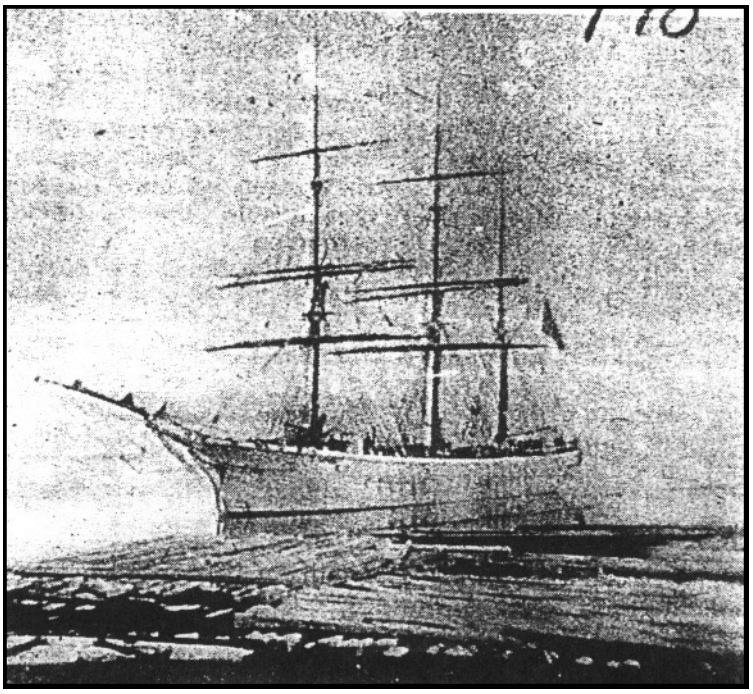


Figure 119. A second photograph of the bark *Jafnhar* at anchor, waiting to take on or offload a cargo of lumber (*Porsgrunns Dagblad* 1974)

Vestmar newspaper article, "Da Bark Vale av Kragerø forliste i 1899," 15 September 1997

This is newspaper article concerning Iversen's visit to the site of his shipwreck *Vale*. *Vestmar* is a Norwegian newspaper and the full article has not yet been translated. Written by Jimmy Åsen, it contains a picture of Thorvald Iversen in front of the *Vale* (Figure 120), a photograph of its crew (Figure 121) and a reproduction of a painting of the *Vale* (Figure 122).

mars 5/9. 1997

Da Bark Vale av K

Carl Iversen tok bilder av sin far ute ved vraket. Det var et ganske spesielt øyeblikk for familien. Disse bildene har Carl Iversens datter Vivi Tellefsen tatt vare på. Vi ser fra venstre Thorvald Iversen, kona til Carl, Evelyn. Til høyre Nelly, kona til Thorvald. Personen i forgrunnen er ukjent.

Thorvald og Carl Iversen:

med Carl Iversen i 1989, gjorde jeg noen notater.

Hva Carl Iversen fortalte

Thorvald Iversen var 83 år gammel da han fikk komme tilbake til Amerika. Et kontinent han hadde besøkt mange ganger som ung sjømann.

— Thorvald likte at vi skulle ned til Florida, og se etter Vale. Han hadde pratet om det som hente med skuta så mange ganger. Vi tok det med ro og kjørte rundt i flere dager. Vi viste hva stedet hette. Det var en plass som ble kalt for Carabelle, ute på Dog Island. Tro det eller ei. Vi fant plassen, en skipskirkegård. Det lå flere vrak av gamle seilskuter. De var nesten begravd i sanden, men Thorvald kunne straks peke på hvilket vrak, som engang hadde vært Barken Vale. Vi gikk utover på sandbankene, det var grunt. Thorvald skulle helt ut til vraket. Det var ingen tvil. Der lå restene etter båten som Johan Dahll bygget i 1878. Far fant flere håndfaste bevi-ser på at det virkelig var Bark Vale av Kragerø, fortalte Carl Iversen.

Bilder av vraket

Carl Iversen tok bilder av sin far ute ved vraket. Det var et ganske spesi-elt øyeblikk for familien. Disse bil-

Figure 120. 15 September 1997 article from the Norwegian newspaper *Vestmar* tells the "fantastiske historie" of Thorvald Iversen, who was on the *Vale* when it wrecked in 1899(Åsen 1997).

Figure 121. Officers and crew of the Norwegian bark *Vale*, including the captain's wife (Åsen 1997).

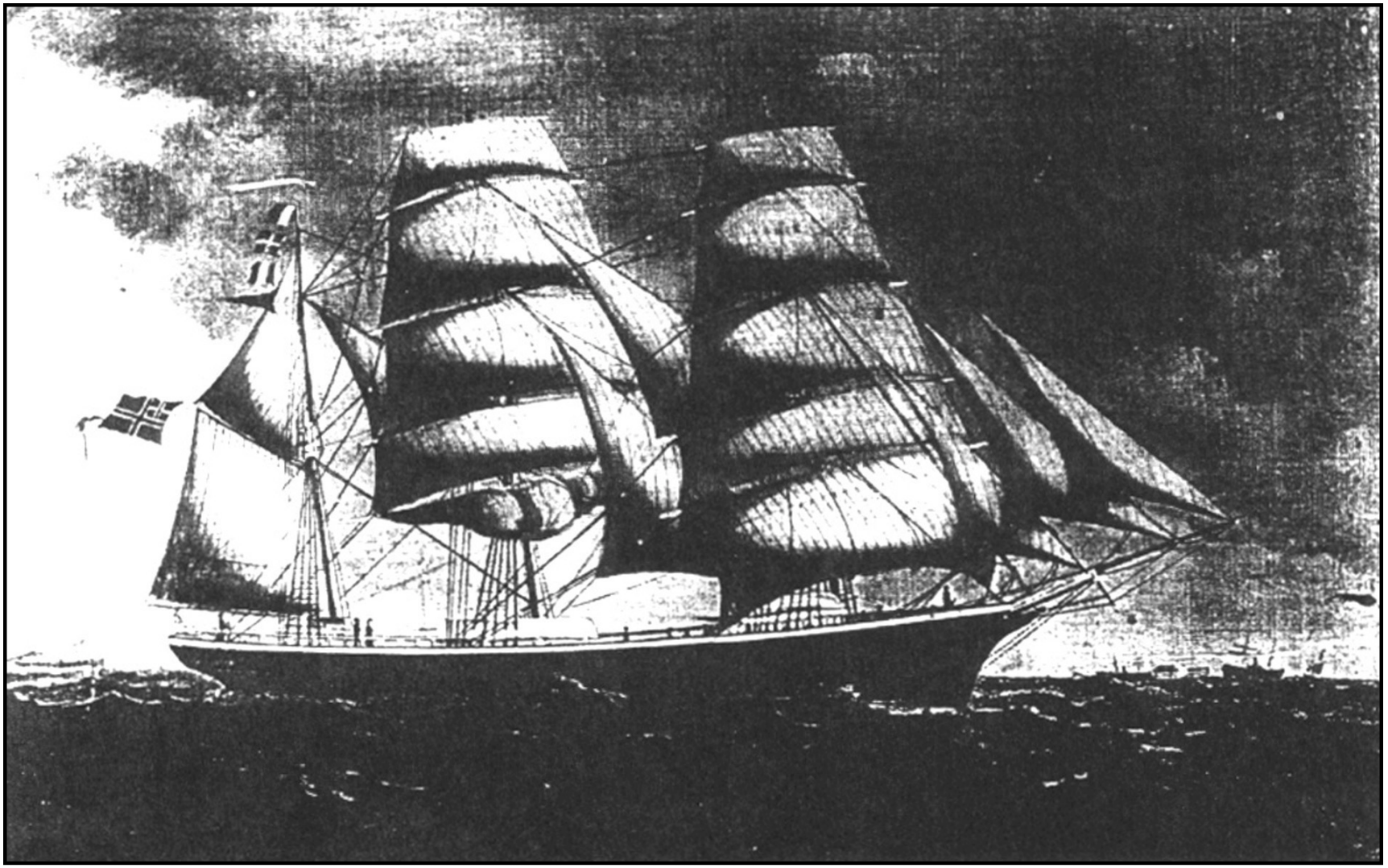


Figure 122. Historic painting of the Norwegian lumber bark *Vale* under sail (Norsk Sjofartsmuseums Bibliotek, Oslo, Noray).

Dog Island Shipwreck Survey 1999:
Report of Historical and Archaeological Investigations

Appendix I:
Letter from Baumer to Smith Concerning the Identification of Dog Island Shipwreck #1 (alleged *Priscilla*)

This letter, written by maritime historian David R. Baumer to Florida State Marine Archaeologist Roger C. Smith, discusses the probable identification of the Dog Island Shipwreck # 1 as the late 19th / early 20th century fishing schooner *Priscilla*. The letter delineates the archival research conducted by Baumer into the origins and characteristics of *Priscilla*. The original letter is on file at the Florida Bureau of Archaeological Research.

402 Lewis Street #4
Greenville, North Carolina
27834

Roger C. Smith
Florida Department of State
Division of Historical Resources
R.A. Gray Building
Tallahassee, Florida 32399-0250

Dear Roger,

I am a student of Bill Still's and have an interest in vessels used in Gulf Coast fisheries. He asked me to look at the Dog Island Shipwreck #1 Material and return your letter.

If the vessel is the Pricilia as suspected, she was a red snapper fisherman owned by E.E. Saunders & Co. of Pensacola. That was her status in 1911, I looked her up in Fishermen of the Atlantic for 1911 published by the Fishing Masters Association, Gloucester. Her 1900 Merchant Vessels of the United States entry also shows her in Pensacola:

Off.#	rig	name	gross	net	length	breadth	depth
150644	sch	Priscilla	48	64	69.3	19.8	8.9

Built: 1893 East Booth Bay ME, Homeport Pensacola, Fla.

E.C.U. does not have a set of registers, so I could not find out what year she piled up on the beach. She does not appear in the 1917 Gloucester Master Mariner's Association List of Vessels. I assume she was stranded on Dog Island some time in between 1911 and 1917 and considered a total loss.

The measurement you have for her length is a bit long, but the breadth is right on. This however does not tell you much, most all the red snapper fishing vessels had a regristered breadth between 18 and 20 feet with many close to 19 feet. I am not 100 % sure how they measured length in 1892 but I think it was an on deck measurement from the after party of the stem apron to the forward face of the transom.

Priscilla was one of many New England vessels that were used in this industry and one of about a dozen built in Maine. Many of these vessels used wet wells and delivered their fish to market live. This practice was abandoned with the introduction of efficient ice making in Pensacola in the

1880's. I would not think the Priscilla had a well, from the description of her fish pens, "boxes". If she did, in my opinion, this would make her a far more valuable cultural resource. There has been no study of a live well which is extant in an American fishing vessel, most all were taken out and ice boxes installed. Otherwise New England fishing schooner construction is relatively well known.

As you know if the site does not remain under the sediments it will not last long in such a high energy environment. This is incentive enough for more documentation, but I do not recommend spending very much State money in extensive excavation.

Sincerely,

David R. Baumer

David R. Baumer