FLORIDA ARCHAEOLOGICAL REPORTS

SUBMERGED HISTORICAL RESOURCES OF PENSACOLA BAY, FLORIDA

The Pensacola Shipwreck Survey
Phase One, 1991

Submitted to Florida Department of Environmental Regulation
January 22, 1992 in fulfillment of Grant #CM-291

Bureau of Archaeological Research

Division of Historical Resources

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FLORIDA DEPARTMENT OF STATE
Jim Smith, Secretary of State

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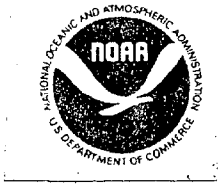

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16. Abstract (Limit: 200 words)

Florida's coastal zone contains numerous significant historical and archaeological sites, including the submerged remains of wrecked or abandoned watercraft. These sites represent non-renewable cultural resources that be being threatened statewide by beach erosion, coastal development, dredging, and slavage activities. In order to assemble a long-term research and managment plan for these resources, the Florida Division of Historical Resources, Bureau of Archaeological Research developed a pilot study to inventory and assess a cross section of sites in the Pensacola bay and river system. The goal of the Pensacola Shipwreck Survey was to assemble and test a regional management model for potential future application elsewhere in the state. Thirty-three significant sites were identified, assessed, and recorded over a period of six months. Data from the study sites were applied to a proposed Shipwreck Matrix model, which classified each site by age and integrity. Within the matrix the sites were assigned a priority rating to determine the range of proposed management options viable for each site. Recommendations for further fieldwork were proposed, as well as specific recommendations to other state and federal agencies.

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EXECUTIVE SUMMARY

Florida's coastal zone contains some of the more significant historical and archaeological sites in the United States. This zone, which includes offshore reefs, barrier islands, river mouths, and bay estuaries, always has been favored for human settlement and commerce supporting sustenance, trade, communication, and transportation. Within this land-water interface, there are three broad categories of sites: prehistoric to early historic Native American sites; European-American occupational and industrial sites; and historic shipwrecks. The latter category is especially important to the understanding of Florida's exploration, settlement, and commercial growth. As submerged "time capsules," the remains of wrecked or abandoned watercraft often contain well-preserved assemblages of cultural materials in use at the same moment in time, which can help to explain past lifeways and historical events.

Due to Florida's peninsular configuration and marine orientation, and because of a steady rise in the sea level in prehistoric times, there may be as many "wet" archaeological sites in Florida as there are on dry land. These sites represent non-renewable cultural resources that are fragile and finite, since unlike natural resources, they cannot be regenerated once they are disturbed or destroyed. At present, many of these resources are being threatened state wide by beach erosion, coastal development, dredging, and illegal collecting or salvage activities.

Since the enactment of the Florida Historical Resources Act in 1967, ownership and management of archaeological and historical sites on state lands and submerged bottomlands has been vested in the Division of Historical Resources, Florida Department of State. In recent years, growing awareness of adverse impacts on these resources has resulted in increasing concern for their protection and preservation. Consequently, the Interagency Management Committee of the Florida Coastal Zone Management Program has designated the identification and protection of cultural resources as an "issue of special focus." Basic objectives of this focus are the need to understand the kinds of cultural resources within the coastal zone; the identification of natural and human factors that influence resource preservation and alteration; an examination of the legal and regulatory mechanisms for addressing preservation; and a determination of the effectiveness of existing research and management programs.

At present, the State of Florida lacks a comprehensive research and management plan for the large number of submerged cultural resources within its jurisdiction. Aside from limited budget, staff, and equipment needed to locate, identify, and assess sites throughout the state, lack of regional and site-specific data, poor inventories, outdated management policies, and poor interagency coordination have restricted the state's ability to protect, preserve, and promote its unique cultural resources for the public benefit. This issue has become increasingly critical with the passage of the Abandoned Shipwreck Act of 1987, the guidelines for which stress that the states should develop programs to survey, inventory, and evaluate shipwrecks under their jurisdiction to establish appropriate management policies.

In order to assemble a long-term management plan for submerged cultural resources, basic data on a cross-section of Florida sites are required. In 1990, the Division of Historical Resources, Bureau of Archaeological Research, prepared a proposal to develop a pilot study for such a management plan by undertaking an inventory and assessment of sites in a key area of the state known to contain significant resources. The Pensacola bay and river system

was chosen as an ideal location to assemble and test a regional management model because it contains an abundance of shipwreck sites of various ages in a broad range of underwater environments. The proposal was submitted to the Florida Department of Environmental Regulation, Office of Coastal Zone Management, and a research grant was awarded with funds made available through the National Oceanic and Atmospheric Administration.

The Pensacola Shipwreck Survey, as the project came to be called, established its headquarters in the Pensacola Historic District in January 1991. Core staff included Dr. Roger C. Smith, Billy Ray Morris, and Marianne Franklin, working with a number of other local volunteers and students. The survey's research design called for a public-oriented program with a broad scope of work to include a review of all previous investigations, collection of archival and oral information on potential sites, underwater field investigations with local divers and fishermen, electronic remote sensing to detect new sites, development of an inventory and assessment system for targets and verified sites, establishment of a classification scheme for sites studied, and proposals for appropriate management options for groups of sites according to category.

Fieldwork began in February 1991 and continued until September, when the writing of this report commenced. Throughout the project, overwhelming cooperation and support were offered by numerous agencies, organizations, and individuals, resulting in a large variety of information useful to the survey. From archival and published materials, oral interviews, and preliminary remote sensing using sonar and magnetometry, 162 possible target sites were gathered into a computer data base and filing system. The chronological range of possible sites in Pensacola was divided into eight time periods: The First Spanish Period (1513-1763), The British Period (1763-1783), The Second Spanish Period (1783-1821), The Early American Period (1821-1861), The Civil War (1861-1865), The Maritime Expansion Period (1865-1906), The Early 20th Century Period (1906-1945), and The Later 20th Century Period (1945-Present). These periods generally follow the historical development of Florida, but are refined to reflect maritime phases of Pensacola's past.

Research strategy focussed on four geographical areas known to be associated with past maritime activities, and thought to contain accumulations of significant sites; the bay itself, the Gulf Breeze peninsula, the bayous, and Blackwater River. Within these areas, 33 significant sites were identified, assessed, and recorded. Each site was evaluated on arbitrary criteria established for the sole purpose of the survey. Considerations included the condition and extent of structural remains, hull type and construction methods, historical significance relative to Pensacola and the broader background of the period, as well as environmental and cultural impacts to the site. The sites that were studied ranged in size from a 16-foot punt to the 350-foot-long remains of an American steel battleship, and in age from the second half of the 18th century to the first half of the 20th century. The conditions of sites also varied from extremely well-preserved to badly deteriorated and disturbed.

The majority of the studied sites were associated with the Maritime Expansion and Early 20th Century Periods, as was expected due to the preponderance of maritime activities in Pensacola during those periods. No sites were identified from the First and Second Spanish Periods, although there were well-documented ship losses in each. In addition, no sites from the Late 20th Century Period were studied during the survey. Thus, the sample base of sites did not include examples from three of the eight periods of Pensacola's maritime chronology, and many of the sites were found to be of the same age and function, and were located in similar environments. Examples of these include a cluster of four lumber vessels at Shield's

Point in the Blackwater River, and several barges in Bayou Chico.

Hence, the chronological and environmental spread of the 33-site sample base was limited, representing only a small part of the great variety of vessels expected to be encountered in Pensacola's waters. Over 20 of the sites recorded by the survey show evidence that they were abandoned vessels, rather than "shipwrecked" vessels. As such, these vessels were the most accessible, and are associated with the locations of historic maritime activities, such as careenages, shipyards, mills, and wharves. Their present accessibility depended largely on having been abandoned, rather than having been damaged or lost by wrecking or storms. And their accessibility is also a result of their situations in relatively calm and protected environments conducive to good organic preservation.

The first phase of the Pensacola Shipwreck Survey produced a number of significant sites; however, the limited sample base offers only partial conclusions regarding historic shipwrecks contained in the Pensacola Bay system. Data from the recorded sites were applied to a proposed matrix, along with recommendations for proposed management options. As a tentative model, the Pensacola Shipwreck Matrix initially separated sites by the period to which they date, age being one criterion for assessing implied historical and archaeological significance. They were also separated by site integrity: the amount and condition of hull remains and associated cultural materials, serving as an additional means for determining significance. Within the matrix, the sites are assigned a priority rating to determine the range of proposed management options viable for each site. The management options range from restricted public access to a site to commercial salvage for the sale of artifacts at the other end of the spectrum, although these two options probably are not appropriate for Pensacola shipwrecks. More suitable are options such as Archaeological Preserve status, or Research Project Permitting within acceptable professional guidelines. The matrix thus combines a classification of individual sites by age and integrity with proposed appropriate management options for each.

Recommendations are offered for further fieldwork to broaden the sample base for a more complete model for regional management. Further recommendations are addressed to specific agencies. The Bureau of Archaeological Research is urged to establish an Underwater Archaeological Preserve in Pensacola, similar to three that exist elsewhere in Florida. The nomination of USS *Massachusetts* by a local diver is an excellent one. It is further recommended that the Bureau develop an amateur underwater archaeology workshop, incorporating local diving enthusiasts into a structured network of trained recorders and reporters to preserve Pensacola's submerged cultural resources. The Bureau is also urged to create the means by which amateur groups that are preservation-oriented can be issued permits for exploration and recording of new sites. Another recommendation is the establishment of a new Landmark status for submerged sites that may not meet the accessibility and recreational criteria for Preserve status, but are significant to Florida history and thus deserve recognition and interpretation. A final recommendation to the Bureau is the creation of a new site form specifically for shipwrecks to be listed in the Florida Master Site File.

Recommendations to outside organizations and agencies include the proposed erection of signage at Deadman's Island by the City of Gulf Breeze to better inform the public of local ordinances protecting the natural and cultural resources of that unique location. Continued cooperation with the Historic Pensacola Preservation Board is encouraged to incorporate a permanent maritime display component into existing exhibits in the Historic District. Following a proposed Florida Department of Natural Resources management plan

for the Ft. Pickens Aquatic Preserve, incorporation of the submerged lands around Deadman's Island into the Preserve is recommended. Close interaction with District 11 of the Florida Marine Patrol throughout the survey pointed to the need for a broader cooperation between the Division of Historical Resources and law enforcement agencies throughout the state. It is recommended that the Florida Law Enforcement Academy include a teaching unit on historic preservation laws and policies, and that a brochure be developed as a teaching tool.

Cooperation with federal agencies also produced recommendations for future action. A more formalized information-sharing network with the National Ocean and Atmospheric Agency's Hydrographic Survey branch and the Office of Ocean and Coastal Resource Management is recommended to more efficiently compare and clarify data on submerged resources. Interpretation and promotion of the site of the *Sport* (8ES99) as a public attraction in shallow water off the Ft. Pickens part of the Gulf Islands National Seashore is recommended to the National Park Service.

Finally, increased educational interaction at the university level to encourage the participation of students in the preservation and interpretation of Florida's underwater sites is recommended. For the general public, the publication of an educational brochure to create a better awareness of submerged cultural resources is proposed.

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The Pensacola Shipwreck Survey could not have been organized and carried out without valuable assistance from a number of individual volunteers, organizations, businesses, and government agencies. The amount of support received from the Pensacola area residents was tremendous. The survey staff would like to thank everyone who offered their information, time and interest. Special thanks should be afforded to a number of groups and individuals. Any omissions are deeply regretted.

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Gulf Breeze: Citizens of the City of Gulf Breeze, Mayor Ed Gray and the City Council demonstrated their support for the protection of submerged cultural resources at every opportunity, offering a combined monetary reward for information leading to the apprehension of those responsible for vandalizing a local colonial shipwreck. Members of the Gulf Breeze Historical Society have volunteered their time and energy to gather historic data and local information useful to the survey project.

Harbour Village at Pitt Slip Marina: The marina provided the project with free dock space for survey boats and use of office equipment. Special thanks to Bill Carson, Fulton Hampton III, and Heidi Hippensteele. Dockmaster Jeff Miller not only took good care of the boats, but often lent a hand in the field.

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Pensacola: The City Council demonstrated a great commitment to preserving Pensacola's heritage, by contributing to a reward fund in an effort to apprehend shipwreck vandals. The *News Journal* staff, led by editor Earl Bowden, encouraged and publicized the survey of Pensacola's submerged resources from the start of the project. Members of the Pensacola Archaeological Society, the Pensacola Historical Society, and the Pensacola Rotary Club all offered volunteer support and demonstrated continuing interest in the shipwreck survey. Caleb Curren, of the Pensacola Archaeological Lab, supported our efforts and supplied the survey with his historical and archaeological research. The Pensacola Historical Museum in Old Christ Church provided valuable archival information on Pensacola's maritime past.

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CHAPTER 1. INTRODUCTION

Among the more significant historical and archaeological sites in the United States are those located in Florida along a coastal zone that includes river mouths, bay estuaries, barrier islands, and offshore reefs. Within this region, there are three broad categories of sites: prehistoric to early historic Native American sites; European-American occupational and industrial sites; and historic shipwrecks. Then, as now, human settlement and commerce have favored the coastal areas of the Florida peninsula, at the land-water interface that supports sustenance, commerce, communication, and transportation.

Prehistoric and historic Native American sites include coastal village middens, ceremonial complexes, hunting and fishing camps, and quarries. While many of these sites have been found in coastal hammocks, other sites are submerged as a result of a rising sea level over the past 8,000 years. Drowned terrestrial sites are only just beginning to be discovered in many nearshore areas and may represent a significant portion of the sites in this category.

Historically important European-American coastal settlements and industrial areas are concentrated along the shores and bays of the Florida coast with concentrations in Pensacola, Apalachicola, Tampa, Key West, and St. Augustine. Sites in these areas range from colonial outposts and fishing communities to early American port towns and maritime facilities.

Florida's waters also contain a large number of historic shipwrecks of many nationalities and periods. As a result of human error, storms, or warfare, the remains of historic watercraft are found all over the state. Some are surprisingly well-preserved; others have deteriorated over time. Many have yet to be discovered and identified. To understand the exploration, settlement, and commercial growth of Florida, shipwrecks provide a unique source of valuable information. As submerged "time capsules," wrecksites often contain well-preserved assemblages of cultural materials in use at the same moment in time, which can help to explain past lifeways and historical events.

Submerged archaeological and historical sites are a non-renewable cultural resource. They represent tangible but irreplaceable elements of Florida's past, but many of these sites are being threatened statewide by beach erosion, coastal development, dredging, and illegal collecting or salvage activities. They are fragile and finite, and, unlike natural resources, they cannot be regenerated once they are disturbed or destroyed.

Since the enactment of the Florida Historical Resources Act in 1967 as Chapter 267 of the Florida Statutes, ownership and management of archaeological and historical sites located on sovereign state lands has been vested in the Division of Historical Resources, Florida Department of State. In recent years, growing awareness of adverse impacts to these historical resources has resulted in increasing concern for their protection and preservation on the part of the scientific community and the public. Consequently, the Interagency Management Committee of the Florida Coastal Zone Management Program has designated the identification and protection of cultural resources as an "issue of special focus." A basic objective of this special focus is to understand the scope of the resource and the causes and effects of forces that threaten its preservation. Critical questions concerning the prudent management of cultural resources in Florida's coastal region were raised at least ten years ago (Tesar 1981):

1. What are the kinds of cultural resources and their distribution within the coastal zone, both known and expected?

2. What factors, both natural and human, influence cultural resource preservation and alteration?

3. What are the legal and regulatory mechanisms for addressing site preservation?

4. What is the effectiveness of existing research and management programs?

In the past, certain aspects of these questions have been partially addressed by government agencies engaged in short-term, project-oriented research studies, and by universities engaged in independent, uncoordinated projects. However, neither approach has provided sufficient scope to answer any of the questions. Long-term, multidisciplinary research and management studies are needed to provide data that can help answer these questions.

At present, the State of Florida lacks a comprehensive research and management plan for the vast number of submerged cultural resources within its jurisdiction. The absence of a comprehensive plan has been partially due to limited staff and equipment needed to identify and assess sites in various regions throughout the state. While the Division of Historical Resources has continued to enter into exploration and salvage contracts on shipwreck sites, this has mainly been in response to the demands of treasure hunters whose ability to record and report data about sites, is at best, limited. And, while staff of the Division's Bureau of Archaeological Research receive reports of submerged sites from sport divers and fishermen, site investigations have been conducted on an occasional and informal basis. Lack of regional and site-specific data, poor inventories, outdated management policies, and limited interagency coordination has restricted the state's ability to protect, preserve, and promote its unique cultural resources for the public benefit.

This issue has become increasingly critical since the passage of the federal Abandoned Shipwreck Act of 1987, which affirms the states' ownership of historic shipwrecks and the management responsibilities inherent in that ownership. The U. S. Secretary of the Interior's guidelines for implementation of the act have stressed the need for states to develop programs to survey, inventory, and evaluate shipwrecks under their care to establish appropriate management policies.

In order to assemble a long-term management plan for submerged cultural resources, basic data on a cross-section of Florida sites are required. In 1990, the Bureau of Archaeological Research prepared a proposal to develop a draft of such a management plan by undertaking an inventory and assessment of sites in a key area of the state known to contain significant resources. Pensacola Bay was chosen as an ideal location for the development and testing of a statewide model on a regional basis, since it contains an abundance of sites of differing ages in fresh and salt water, riverine and estuarine, as well as inshore and offshore locations providing a broad range of site environments. The proposal was submitted to the Florida Department of Environmental Regulation, Office of Coastal Zone Management, and a research grant was awarded with funds made available through the National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972.

Pensacola Bay was chosen as a regional model for several reasons. The original concept of an underwater survey of the bay was expressed by the late G. Norman Simons, former curator of the Pensacola Historical (Society) Museum. For years, Mr. Simons carefully collected and collated records of ship losses, old charts and maps, reports of wrecksites, oral histories, and artifacts recovered by divers, to form a body of data which has served as a departure point for all previous survey work as well as the present project. Under Simons, the Museum became a repository for all kinds of information, a meeting place for those interested in local history and archaeology, and a neutral ground for artifact seekers and collectors to share their discoveries.

Simons was instrumental in organizing Pensacola's first Conference on Maritime History and Marine Archaeology in May 1988, bringing together research professionals and amateurs, governmental officials and recreational divers, conservators and collectors, in a formal manner for the first time. The conference was the result of informal meetings, negotiated by Simons, between a young diver from Louisiana and Florida's state underwater archaeologist regarding a large assemblage of artifacts collected from a local shipwreck site. The materials subsequently were returned to Pensacola, where they formed the basis for an exhibit which opened at the Historical Museum concurrent with the conference.

The 1988 conference, jointly sponsored by the Pensacola Historical Society, the Historic Pensacola Preservation Board, the University of West Florida, the Florida Division of Historical Resources, and other groups including local dive shops, revealed several key issues. First, the meeting emphasized Pensacola's long and continuous history of maritime activities and its important role in the naval and commercial development of the Gulf of Mexico. Written records, as well as reports by fishermen and sport divers, indicate that Pensacola's waters contain a broad range of historic shipwreck sites from the 1500s to the present.

A notable example of these historical resources had turned up earlier in 1988 with the discovery and investigation of a well-preserved two-masted coastal schooner abandoned in a back bayou of the Blackwater River, near Milton. The submerged 19th-century vessel is almost a hundred feet in length, and is intact from the rails to the keel, with her pump and deck windlass still in place (see Previous Work below).

Second, the conference demonstrated a great interest on the part of Pensacola's residents in their maritime history. Aside from an informal network of amateur historians and archaeologists, there are large and active memberships in the Pensacola Historical Society and the Pensacola Archaeological Society, both of which helped to sponsor the 1988 conference. In addition, a growing network of recreational divers, as well as commercial and sport fishermen, manifested itself during the conference and at the shipwreck exhibit. Although relatively uninformed about marine archaeology, these groups expressed both curiosity and enthusiasm for Pensacola's prospects, since local shipwrecks represent good diving and fishing sites. And, recent efforts in public-oriented terrestrial excavations, conducted by the University of West Florida at locations in the downtown Historic District, had caused 'archaeology' to become a household word in Pensacola. The potential for public involvement in similar marine archaeology projects had already encouraged a few determined sport divers to seek professional advice and assistance to identify and document their finds.

Third, as one of the sponsors of the conference, the University of West Florida also acknowledged an awareness of the potential significance of the area's submerged cultural resources, but admittedly lacked the knowledge and expertise to pursue research and training

in this direction as it had with terrestrial resources. However, the situation changed within months after the conference when UWF archaeologists conducting a survey of Deadman's Island for the City of Gulf Breeze encountered the remains of a small colonial ship in eroding from the beach in shallow water. Dr. Judy Bense, who had represented UWF as a speaker at the conference, contacted state underwater archaeologist Dr. Roger C. Smith at the Division of Historical Resources in Tallahassee, and he helped to organize a preliminary investigation with students and volunteers (see Previous Work below). Bense and Smith subsequently organized a class in underwater archaeology, which was taught at UWF in the spring semester of 1989 and included field investigations of a fishing smack buried under the sand at Perdido Key (Williamson 1991). The University then co-sponsored, with the Division of Historical Resources and the City of Gulf Breeze, a summer field school to excavate the colonial ship at Deadman's Island, resulting in the training of ten undergraduates and the creation of a permanent exhibit at the local recreation center. Classes have continued, and in 1991 UWF established a graduate program in Historical Archaeology, which includes a nautical component.

The Pensacola Shipwreck Survey, as the project came to be called, established its headquarters in the Pensacola Historic District in January 1991 at the Tivoli House, which was generously made available by the Historic Pensacola Preservation Board. Boat slips were kindly provided nearby at Pitt Slip Marina. Survey staff consisted of Dr. Roger C. Smith, Billy Ray Morris, and Marianne Franklin. Smith is the state underwater archaeologist for Florida; Morris is a graduate of East Carolina University's program in maritime history and underwater archaeology; and Franklin is a student at Texas A&M University's program in nautical archaeology. The staff was joined for three months by Sheila Clifford, also a student at Texas A&M University, who helped with the field survey, writing and drawing, and with computer drafting. Her stay in Pensacola was made possible by financial support from the Santa Rosa Historical Society.

The survey's research design called for a public-oriented program with a broad scope of work that included the following components:

1. Collection of archival and oral information on potential sites;
2. Underwater field investigations in conjunction with local divers and fishermen;
3. Deployment of electronic remote sensing instruments to detect previously unknown sites, and development of a computer-based inventory of targets and verified sites;
4. Assessments, evaluations, and recommendations for individual sites;
5. Establishment of a classification scheme of sites according to age, integrity, and environment; and
6. Development of appropriate management options for groups of sites.

The scope of work was divided into specific tasks with overlapping schedules. Actual fieldwork commenced in February 1991 and continued until September, when the present report was begun. Throughout the project, overwhelming cooperation and support was offered by numerous agencies, organizations, and individuals. As a result of public interaction through formal and informal meetings and talks, tremendous amounts of local information about a variety of sites were collected. Archival materials and results of historical research were compiled to create a vivid background picture of Pensacola's maritime heritage. This information, along with archaeological data recovered from a variety of shipwreck sites recorded, collectively form the base of the research conducted during the Pensacola Shipwreck Survey.

Interpretation and dissemination of carefully acquired information is the foundation of a maritime archaeology project. This report contains the following sections: Chapters 2, 3, and 4 provide background information for the reader from a variety of perspectives. Chapter 2 presents the maritime geography of the Pensacola Bay System, focusing on physical descriptions and initial impressions of Pensacola waters by early explorers and settlers. Chapter 3 describes Pensacola's natural and environmental history, including its geomorphology, climate and weather, and the influence of these natural factors upon the people. Chapter 4 presents a chronology and descriptive narratives of the eight designated periods of Pensacola's maritime and industrial history. Chapter 5 contains summaries of previous marine archaeological work conducted in Pensacola. Chapter 6 provides a brief background description of shipwreck archaeology, and cites the current laws that pertain to shipwrecks in Florida waters. Chapter 7 outlines the methodology of the Pensacola Shipwreck Survey. Chapter 8 contains the descriptive narratives, site plans, and individual analyses of the underwater sites recorded during the eight-month field season. The conclusions of this report are offered in Chapter 9, in which the data are examined for broader implications, and a collective analysis of the recorded wreck sites are placed into the form of a schematic matrix to aid in assessing Pensacola's submerged cultural resources and in proposing management options. The final section of this report, Chapter 10, presents recommended actions based on the information gathered during the course of the Pensacola Shipwreck Survey.

By utilizing Pensacola Bay as a regional model for the survey and evaluation of sites in varying environments, a management plan can be developed for statewide implementation. The plan will be based on a classification of sites by type, condition, location, age, and significance. These factors will help to determine which kinds of management policies are best suited to certain kinds of sites. Coordination with other agencies, such as the Division of State Lands, Bureau of Aquatic Preserves, Coastal Zone Management Program, Historic Pensacola Preservation Board, and Gulf Islands National Seashore, will help to identify specific resource needs and how they can be met through public-oriented programs. In addition to increasing public knowledge and appreciation for Florida's underwater resources, the management plan may also be useful to other state and federal programs as they relate to submerged historic sites.

CHAPTER 2. MARITIME GEOGRAPHY OF PENSACOLA BAY

Description of the Bay System

Located in the northwest Florida Panhandle (Figure 2.1), Pensacola Bay, which is an arm of the Gulf of Mexico, is approximately 12.5 miles long and 2.5 miles wide (U.S. War Department 1929:1). The eastern end of Pensacola Bay is joined by Escambia Bay, which drains the Escambia River, and by East Bay, which drains the Blackwater River (Figure 2.2). Both tributary bays extend in a northerly direction, with average depths of 7 to 12 feet. The interior of Pensacola Bay is deeper, averaging 32 feet in depth. Santa Rosa Sound is a narrow body of water extending eastward from the southeastern part of Pensacola Bay for a distance of 24 miles to connect with Choctawhatchee Bay. The Sound is protected from the Gulf by Santa Rosa Island, a thin, low, sandy barrier island. The size of Pensacola Bay is approximately 64 square miles (U.S. Army COE 1912:593). Three shallow bayous empty into the harbor. The largest, Bayou Grande, is situated on the western side; Bayou Chico is on the northern side, and Bayou Texar is on the northeast.

These waters and their tributaries form routes that connected Pensacola Bay with interior resources to support its commercial development as a major port. However, the sheltered geography of the bay itself and its natural access to and from the Gulf of Mexico were of primary importance to early mariners who charted its features.

Early Exploration and Historical Descriptions of the Bay

On the western end of Santa Rosa Island, the entrance to the bay is formed by a wide navigable channel, through which currents flood and ebb depending on tidal conditions and the force and direction of winds. The outside approaches to the channel are flanked by shoals of hard, shifting sand. Prior to modern dredging, there was a submerged bar at the entrance; but, it was of sufficient depth to allow safe passage into the bay in most weather conditions. Navigational directions issued in 1763 for entering Pensacola harbor noted that:

> The depth of water over the bar, at the entrance to the road, in the middle of the channel, is never less than twenty-one feet. A ship that is going in, before she comes upon this bar, must bring the fort of Pensacola to bear between N. and 1/4 N.N.E. from her. She must then haul up a little towards the main land on the west, keeping at much the same distance between that and the island, in order to avoid the point, from which a little bank stretches out pretty far towards the west northwest. (Universal Magazine 1763)

The "little bank" today is called Caucus Shoal, which has been periodically dredged since 1895 due to the encroachment of another sandy shoal, called Middle Ground (U.S. Army COE 1912:592-593). Another offshore shoal, called East Bank, extends to the east and south, but has not obstructed navigation in modern times.

The maritime geography of Pensacola Bay has always been appreciated from a strategic naval perspective. A former commandant of the Navy Yard put this perspective into succinct words:

> Pensacola Bay forms one of the important harbors of the United States and may be regarded as next to that of San Francisco. It is very extensive, is landlocked, deep, safe and commodious and is clear of obstructions to navigation over most of its area . . . This includes an area of seven and a half square miles off the Navy Yard in which the average depth is thirty three to thirty five feet, in all of which the bottom is a blue marl affording a fine anchorage and good holding ground. (Young n.d.:8)

The first European vessels to sound the entrance approaches and to come to anchor in Pensacola Bay were on a strategic naval mission for conquistador Hernan de Soto. After arriving at Apalachee (near modern-day Tallahassee) in 1539, Soto ordered captain Francisco Maldonado and pilot Gómez Arías to sail west in two small vessels along the coast to investigate the entrance of every creek and river, and to find a suitable harbor where Soto expected to march his army (Biedma 1922:8,9). Sixty leagues distant in the winter of 1539-40, they reached a province called Ochuse with a sheltered, deep harbor believed to be Pensacola Bay (Swanton 1985:163, 169). According to Garcilaso de la Vega, the bay was sheltered from all winds, was capable of harboring many ships, and had such good depth even up to shore that Maldonado could bring his ships close to land and disembark "without putting out a gangplank" (Vega 1951:247,248). The reconnaissance party returned to report their discovery, bringing with them an Indian chief of a village they found on the shore of the bay. Although Maldonado probably drew a map of his soundings, it has not survived. Soto's army marched elsewhere into history.

The magnificent harbor called Ochuse, having been registered in the growing bank of Spanish navigational knowledge, became a strategic candidate for a colonial port from which to conquer and pacify the territory called La Florida. A major settlement attempt was planned by the Viceroy of New Spain, who sent pilot Gonzalo Gayón in 1558 to reconnoiter Florida's ports in advance of an occupational expedition to be led by Tristán de Luna y Arellano. In a single vessel captained by Juan de Rentería, Gayón sailed counter-clockwise along the Gulf Coast, discovering "the port of Polonza [the name given to Pensacola Bay], the port of Filipina [Mobile], the coast of Apalachee, and the Costa de Médanos [Padre Island]" (Weddle 1985:259-260). This voyage decided the choice of landing sites for the Luna expedition in favor of Polonza (Ochuse).

Luna's fleet of twelve vessels entered the bay of Ochuse on August 14, 1559, renaming it Bahía Filipina del Puerto de Santa María (August 15 was the day of the Ascension of the Queen of Angels, Mother Mary, into Heaven; Filipina was added to pay homage to King Philip II). Luna considered Pensacola Bay one of the best harbors yet discovered, "so secure that no wind could ever do any damage whatsoever." He described the bay in a letter to Philip:

> Seamen say that it is the best port in the Indies, the town and the site which has been selected for founding is no less good, for it is a high point of land which slopes down to the bay where the ships come to anchor. (Priestly 1928 Vol II:213)

No one knows exactly where Luna's ships landed. Speculation has centered on the high ground near present-day Fort Barrancas, or on the bluffs near the entrance to Bayou Texar (Parks 1986:10). Another possible location is modern-day Gulf Breeze. Priestly wrote that "it was three leagues wide at the spot where Luna landed, the entrance over the bar being half a league wide, with a minimum depth of eleven cubits. Its landfall was marked by a reddish bluff which divided the eastern side of the bay" (Priestly 1928 Vol I:xxxv). Within

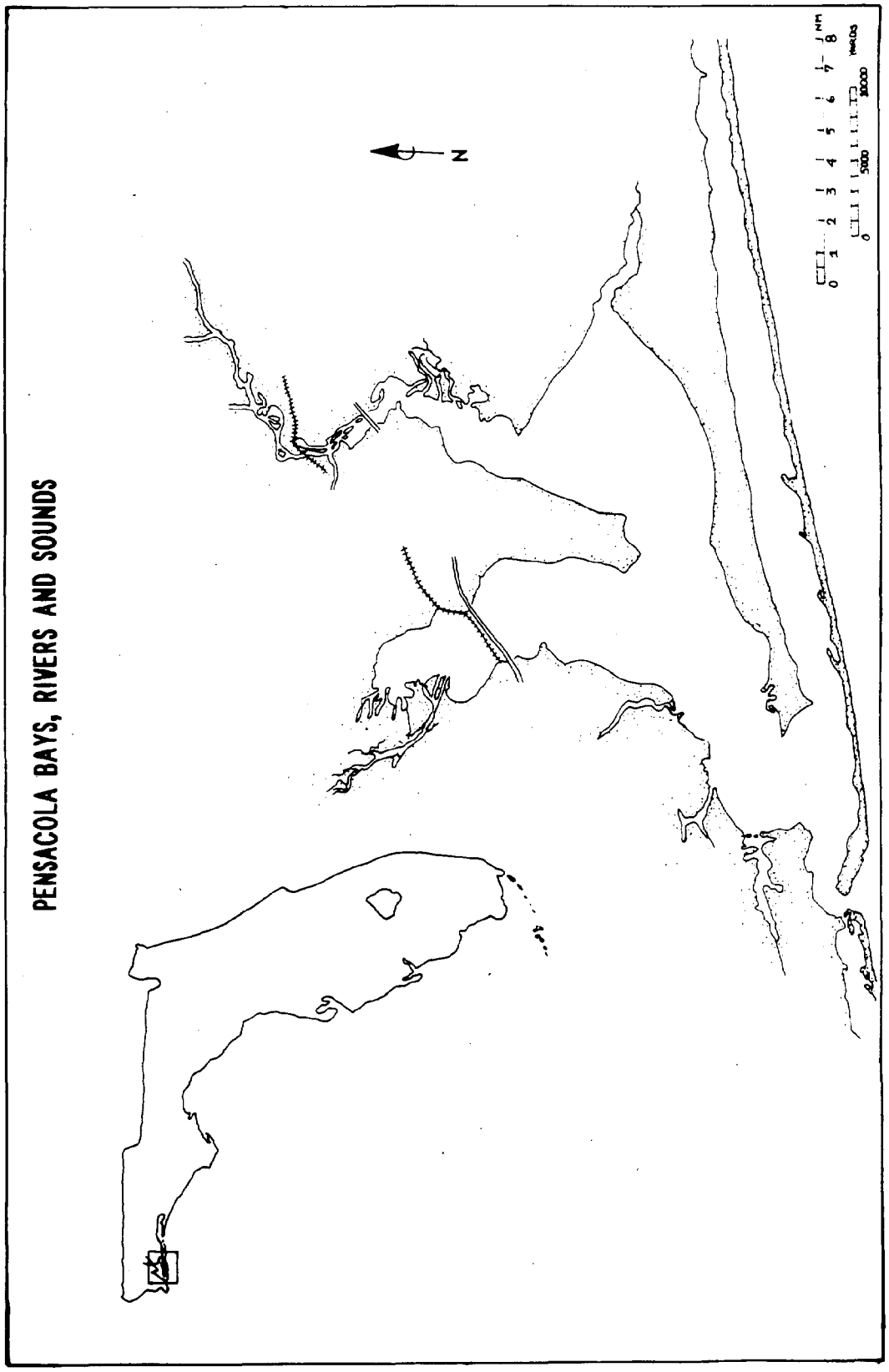

Figure 2.1. Project Location Map.

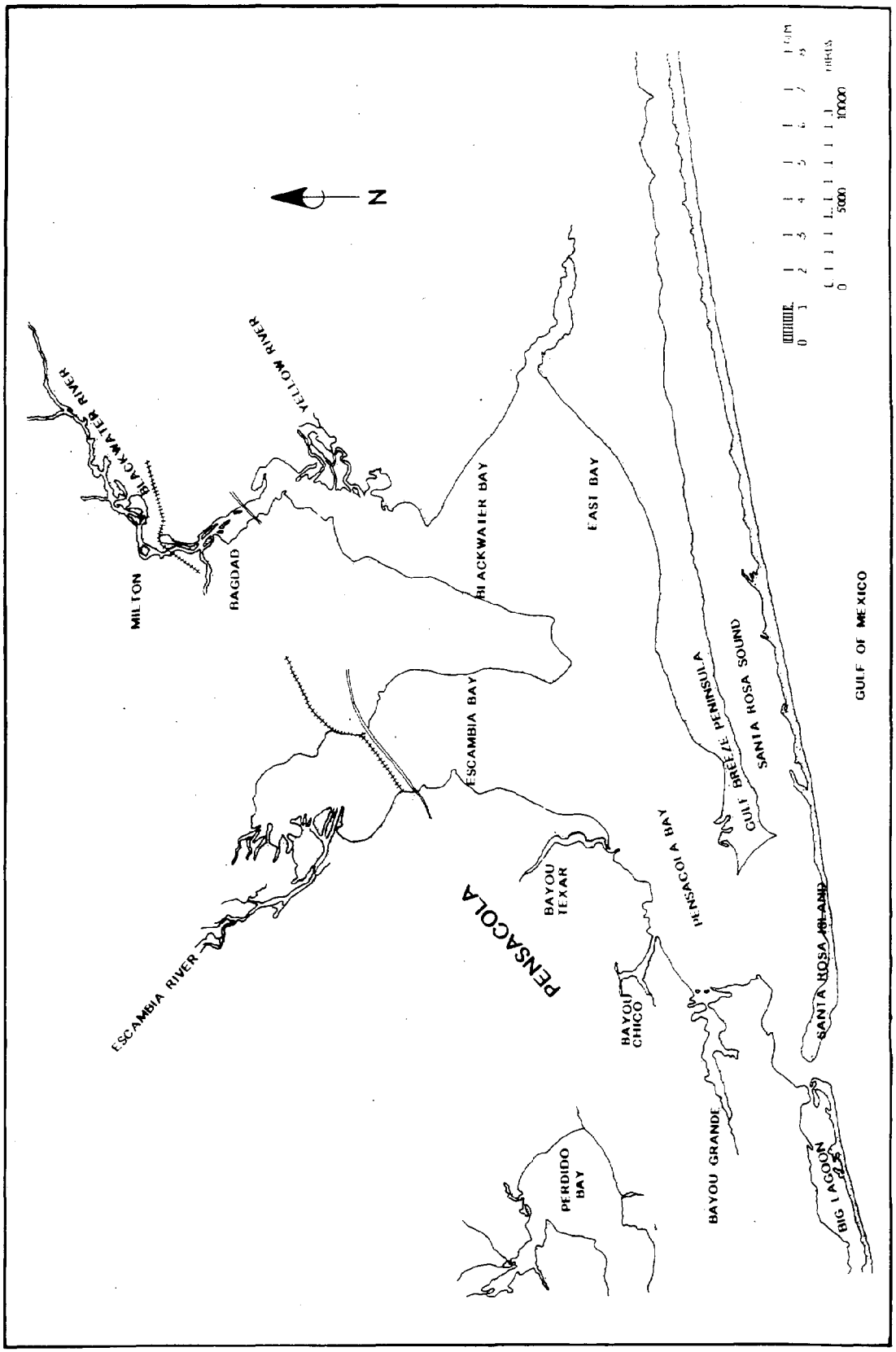

Figure 2.2. Map of Pensacola Bay System.

a week of Luna's landing, eight of the ships in his fleet were destroyed in a hurricane on August 19, dooming the first Spanish attempt to colonize Florida from the Gulf. In 1565, St. Augustine was founded, and strategic maritime focus turned away from Pensacola.

Over a century later, Spanish response to the French explorations of La Salle around the Mississippi River prompted an expedition to the northern Gulf under Juan Enríques de Barroto and pilot Antonio de Ramirez. An officer on the voyage, Juan Jordán de Reina, kept a log in which he described the Spanish rediscovery of Pensacola Bay in 1686:

> I turned west-northwest and saw a bay, the best I have ever seen in my life. We put into it, finding a depth of eight, nine, and ten fathoms in its mouth which is not very wide. After steering northeast, north and northeast inside the bay, I anchored in seven fathoms. Its opening lies on an almost straight north and south line. The Indians call this bay Panzacola . . . . With the Indian pilot we went in the longboat to the village of the Panzacola . . . (Leonard 1939:13).

The Barroto voyage, and continued French and English rivalry for colonial possessions, caused the King in 1692 to order the Viceroy of New Spain, Condé de Galve, to implement a plan to investigate Pensacola as a possible site for a new colony and fortification. Two vessels were sent in 1693, under Admiral Andres de Pez. The expedition noted the interior features of the bay, sounded the depths of its bayous and rivers, and investigated local Indian villages. Once again, Pensacola Bay was given a new name, Bahía de Santa María de Galve, after the Viceroy.

Dr. Carlos de Sigüenza y Góngora, a geographer and mathematician who accompanied the exploration party, prepared a report, which included a detailed map of the bay and its landmarks (Figure 2.3). Its title, "nueva demarcación de la Bahía de Santa María de Galve," suggests that earlier Spanish charts of the bay existed and were probably in use by pilots. Perhaps such a chart accompanied Juan Jordán de Reina's account of the Barroto voyage, since on Sigüenza's map, East Bay River on the extreme eastern shore of the bay is designated as Rio Jordán. This river may have been in the vicinity of the village of Panzacola visited by Barroto's party. Sigüenza and his companions visited two Indian encampments on the shore of East Bay. One they called Robledal, for the oak grove there, and the other Baratillo, for the odds and ends left by retreating inhabitants. Blackwater River they called Rio del Almirante, probably after Admiral Pez, and Escambia Bay was denoted as Golfo de Villafranca. Of importance is the detailed recording of Pensacola Bay's depths and promontories. The strategic western end of Santa Rosa Island was named Punta Sigüenza, and the reddish bluffs on the mainland heights, Barrancas de Santo Tome.

Early Coastal Fortifications

In his report, Sigüenza was extremely enthusiastic about the advantages of the bay and the surrounding territory. He and Pez favored immediate settlement of the area, but it was not until 1698 that their recommendations were acted upon. In November a military expedition under Andres de Arriola landed at Barrancas and established gun emplacements at the crest of the heights. Named San Carlos de Austria, this was the first Spanish fortification in Pensacola (Manucy 1959:230). Sigüenza's original suggestion for a fortification on the western end of Santa Rosa Island in defense of the entrance to the bay was not acted upon; early Spanish commandants realized that gun installations at this point could not

adequately control the wide entrance channel. Later, in 1718, commandant Matamoros de Isla decided to fortify Point Sigüenza, because Spain was at war with France. The stockade mounting three 12-pound guns was barely completed when a small French fleet sailed into the bay and attacked Point Sigüenza on May 13, 1719 (Coleman and Coleman 1982:10). Both the island and mainland forts were captured by the French, who took control of Pensacola from the Spanish.

With peace restored, Pensacola was returned to Spain in 1722; under the direction of Alejandro Wauchope, a new presidio, Santa Rosa Punta de Sigüenza, was built three-quarters of a mile east of the old fortification. It was never called upon to defend the bay. The low, sandy island was vulnerable to storms; a 1752 hurricane prompted the fort to be moved a quarter mile east to higher ground, where it fell into disrepair. With the British occupation of Pensacola in 1763, new fortifications were concentrated on protecting the town, rather than the channel entrance. During the years 1779-1781, the impending Spanish invasion prompted British attempts to increase the defenses of Pensacola. General John Campbell intended to fortify the western end of Santa Rosa Island, but lacked additional tools, manpower, and guns. He did, however, refortify the red cliffs of Barrancas overlooking the channel. The small fort was named the Royal Navy Redoubt because sailors had completed much of the construction and were expected to man the fort in an emergency (Coleman and Coleman 1982:22).

Thus the strategic entrance to the bay was poorly defended by the British, who relied mainly on Fort George at Pensacola and the redoubts surrounding the town. In March 1781, the Spanish invasion fleet under Bernando de Gálvez sailed through the channel and established its first camp on Santa Rosa Island. Although the batteries at Barrancas had fired numerous salvos, they did little damage to the Spanish fleet, and Gálvez eventually bypassed the Navy Redoubt to attack the town. During the second Spanish period, the former British forts were renamed and reinforced, and new military plans were drawn up to protect the colony. Based on the previous failure of the British to prevent an invasion fleet from entering the bay, the new Spanish plan again recognized the importance of Punta Sigüenza and Barrancas. A new battery was constructed on the western tip of Santa Rosa Island, and San Carlos de Barrancas was reinforced by a new battery called San Antonio. Ultimately, these two locations became an important part of the seacoast defenses of the new American nation, with the construction of the large masonry Forts Pickens and Barrancas in the early 19th century. In addition, Pensacola's entrance was further reinforced with the construction of Fort McRee on the western side of the channel.

The Gulf Breeze Peninsula

The peninsula of Gulf Breeze was recognized early by European mariners as a safe anchoring ground with seasonal protection from wind and weather. In addition, its strategic location in the middle of the bay, where deep water came close to shore, made Gulf Breeze an ideal place and refit seagoing vessels. Consequently, the peninsula was prominantly pictured on early charts and maps of Pensacola Bay. The northernmost projection of the peninsula, known today as Town Point or Deadman's Island, was originally called Punto Guzman on Sigüenza's chart. Later the English called it Sandy Point, due to the shallow bar that extends offshore. The western point of the peninsula was called Deer Point in the British Colonial Period, a name that was handed down from the earlier Spanish (Punto de Vanados), and French (Pointe au Chevreuil) designations. Its original Spanish name was Punta de Pescadores (Fishermen's Point). Today it is called Fair Point. Sometime in the 19th century,

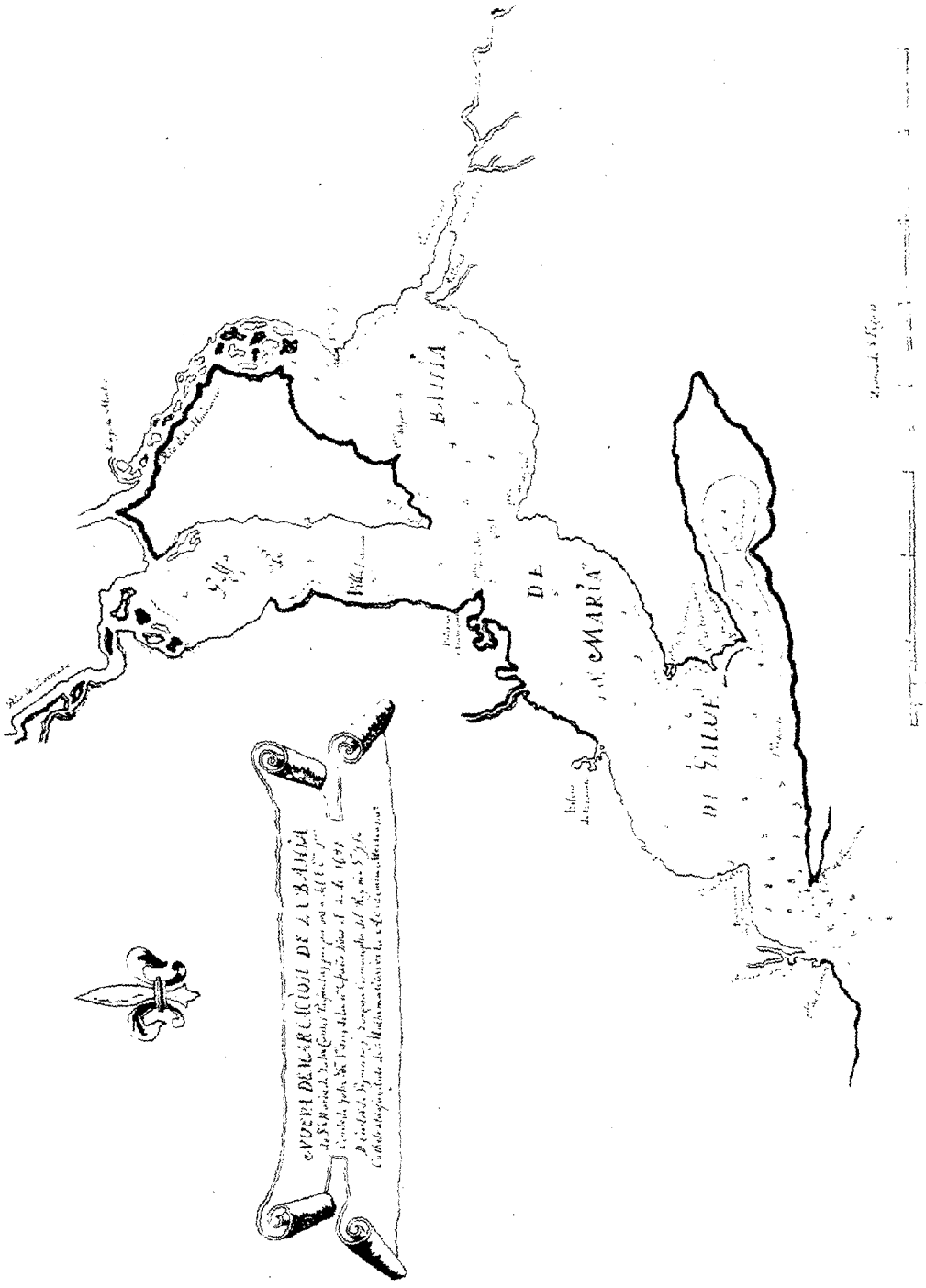

Figure 2.3. Sigüenza's 1693 Chart of Pensacola Bay.

the name Deer Point was shifted to the southernmost point of land in Gulf Breeze. Formerly it was called Punta de Cadena (Chain Point) by the Spaniards and Fan Point by the British.

At least two indentations in the shoreline were used throughout centuries of maritime traffic as careening places, on which ships could be hauled over, have their hulls cleaned, and be made seaworthy again. Old Navy Cove, on the northwestern tip of the peninsula, offered an ideal careenage during the summer months. On the opposite and southern side of Gulf Breeze, the English Navy Cove became known for its shelter from winter northwesterly weather. These names reflect the strategic naval use of the peninsula during the English colonial period, when at least two careening wharves were built to help in this process. In the late 19th century, the peninsula became the site of one of the largest marine repair facilities on the Gulf Coast, constructed in 1889. Town Point, familiar to mariners since the colonial period, was chosen due to its deep water access. Ships were pulled from the water on dollies that ran along iron rails up to the shore. But the disastrous 1906 hurricane caused the railway to fall on hard times. The site became a glue factory, and then a fish fertilizer factory.

The geographical and hydrographical benefits of the peninsula allowed it to play an integral role in Pensacola's maritime past. Shipwrights found in the interior of the peninsula an abundance of native live oaks suitable for their shipbuilding needs. Eventually, trees were cultivated especially for this purpose on a parcel of land some 25 miles long and between one and three miles wide that was purchased in 1828 by the Department of the Navy for a live oak plantation--the nation's first experimental tree farm.

Aside from timber, fresh water was also available on the peninsula. The French map of Bellin (Figure 2.4) shows a Petit Etang (small pond) on the south side of Gulf Breeze that represented an important source of potable water. The peninsula's central geographical location also played a role in the area's development. An 18th-century Spanish chart shows a dashed line running across the peninsula from north to south, indicating an early trail for the transportation of people and goods between Pensacola and Santa Rosa Island. In 1822, the peninsula was chosen by the U.S. Army as the beginning point of the first American road in Florida, which followed old trails to St. Augustine. During the Civil War, Gulf Breeze became the location of a Confederate hospital for yellow fever victims. The epidemic disease required that ships and their crews be quarantined, and the ships fumigated with sulfur, before proceeding to port. In 1876 the quarantine station was moved from the northern part of the Gulf Breeze peninsula to the southern shore, which was considered more isolated. Eventually, in 1881, quarantine operations were transferred to Sabine Island, just off of Santa Rosa Island in the Sound, and where many ballast stones can be seen today along the shoreline.

Until the opening of Pensacola Bay Bridge in 1931, the only communication between Pensacola and the small settlement of Town Point was by watercraft. With access by road, the peninsula grew in population and was incorporated as the City of Gulf Breeze in 1961. A temporary closing of the bridge due to a barge accident in 1989 halted traffic between Pensacola, Gulf Breeze, and Santa Rosa Island, daily reminding residents of the maritime geography of Pensacola Bay when many were forced to travel by water.

The Bayous

Of the three bayous, Grande, Chico, and Texar, Bayou Chico has played an important role in the maritime geography of Pensacola Bay. As the deepest and most accessible of the

three, Chico was chosen by the Spanish invasion forces in 1781 as a staging area for the attack on British Pensacola (Rush 1966:62-83). Watered by a fresh spring, the bayou (known at the time as West Lagoon) occupied a central location deep in the harbor from which the soldiers of Bernardo de Gálvez were deployed to attack the British defenses above the town. Bayou Grande (known as Cox's Lagoon) has always been shallower, its entrance blocked by a rocky shoal. Texar (known as East Lagoon), also relatively shallow, is situated in a swampy area with a narrow, winding entrance restricting navigation. The accessible, but protected, situation of Bayou Chico caused the lagoon to be developed into a center for maritime industries along with the Pensacola waterfront port facilities. Over a mile of its eastern shoreline was bulkheaded and filled with dredge spoil to make a wooden pier for the Pensacola Shipbuilding Company in 1918. Timber companies, such as the Weis-Fricker Mahogany Company, used the bayou for floating log 'rafts' (Port of Pensacola 1981:26,39). Currently, Bayou Chico is home to a variety of maritime related industries and facilities, including some of the largest shipyards and tugboat companies in the region. It is also home to the Pensacola Yacht Club, and several recreational marinas.

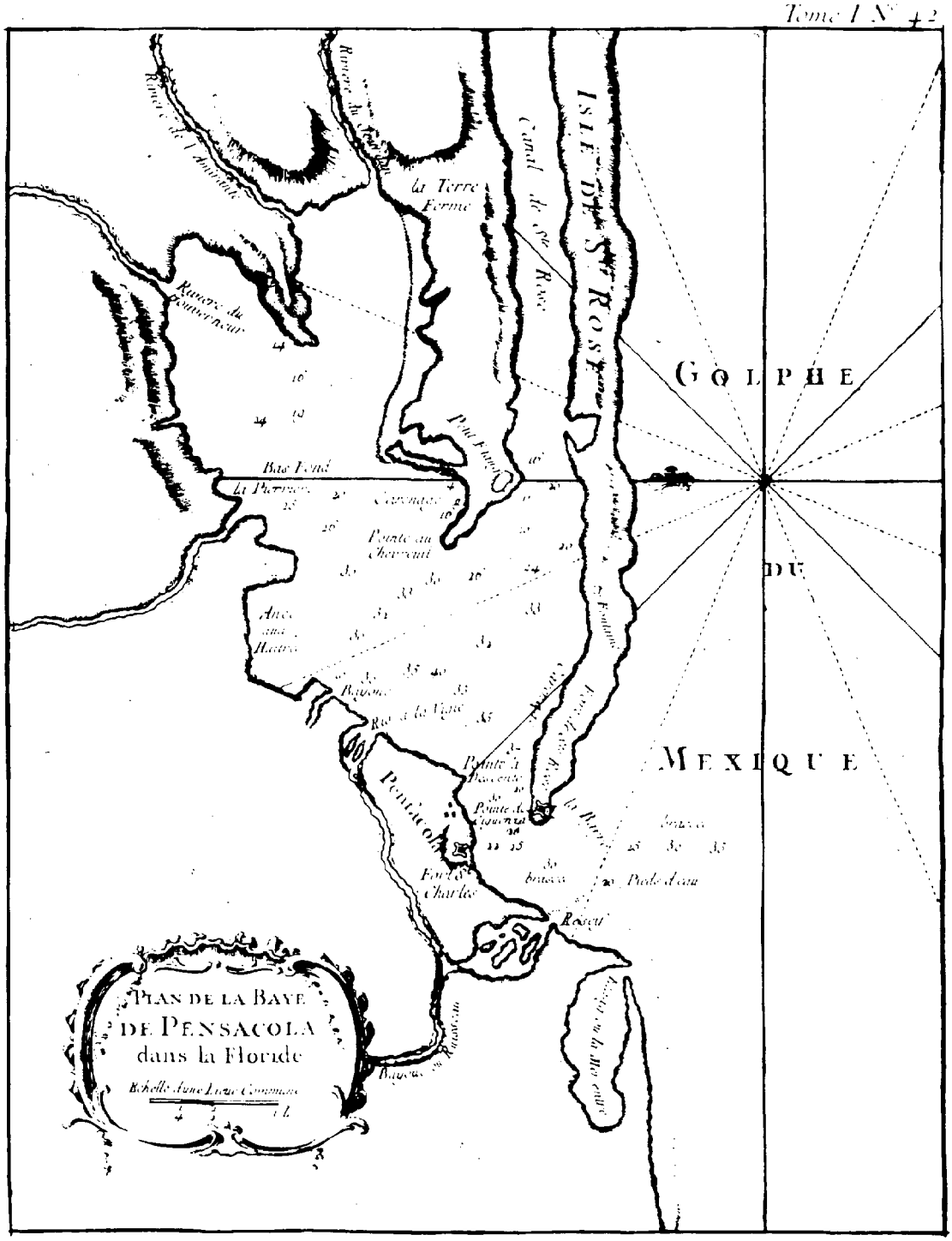

Figure 2.4. Bellin's 1764 Chart of Pensacola Bay.

CHAPTER 3. NATURAL AND ENVIRONMENTAL HISTORY

Introduction

Several environmental variables affect the location and condition of historical resources in a region. Geomorphology, or the natural configuration of an area's land masses, influences the placement and development of cultural and historical processes. Human settlement, means of subsistence, economic development, and access to trade depend upon and are affected by geographical factors. Along the coast, one of the most important factors is access to navigable water (Terrell 1990).

The shores of Pensacola Bay were settled because of the bay's coastal configuration, forming a protected harbor closely connected to navigable rivers and the Gulf of Mexico. As a natural haven for maritime activity, Pensacola drew settlers and trade, both brought by ships, some of which were lost or abandoned in its waterways. Geomorphological factors also determined where and why ships are lost, as well as influencing the underwater conditions that affect the preservation of sunken wrecksites.

Another environmental variable is the pattern of weather, including local climate as well as regional storms and hurricanes that have periodically affected Pensacola. Weather conditions influenced the seasonal pattern of marine commerce, and at times drastically interrupted development of the city and the port. Weather conditions also influence the deposition and distribution of wrecksites, and the underwater environment that determines the degree to which shipwreck sites are preserved.

Human impact on the natural environment is an additional variable that affects the preservation of submerged archaeological resources. Development, construction, dredging, pollution, and other man-made changes to the Pensacola Bay system have impacted sites that previously were stabilized within bottom sediments until disturbed. Shipwreck salvage and obstruction removal have also affected the integrity of several sites.

Geomorphology

Pensacola Bay is located within the Gulf Coastal Plain. The plain lies atop Tertiary sediments of limestone, clay, sand, and silt that slope gradually into the Gulf of Mexico. This deposit has accumulated for more than 100 million years, with significant alterations caused by a number of geologic factors, including the settling of the continental shelf and rising sea levels (Cooke 1945).

One of the most significant influences on the area of study occurred during the Wisconsin stage of the Pleistocene. Polar ice cap expansion lowered the sea level. Newly exposed landforms were sculpted, redefining the shapes of continents. An estuarine environment developed as global warming caused the level of the sea to rise again. A basin formed by the erosion of the Perdido and Escambia river drainages flooded to create the bay system. As the Coastal Plain submerged, forests disappeared, wetlands grew, and a bank of steadily eroding sediments formed the gradual slope of shallow water just off of the coast (Marsh 1966).

The sediments in the bay are mostly soft silt and sand lying over a hard clay surface. Nearer to shore, coarser sands are deposited, and the coastline is continuously reshaped by storms and tidal erosion. The Gulf Breeze peninsula was originally formed as a barrier island some 75,000 years ago. Santa Rosa Island first appeared approximately 5,000 years ago. Both barrier islands were created during interglacial periods when excesses of sand were shaped by tidal forces (Joy 1988). The formation of these islands, along with Perdido Key, created the protected, deep-water harbor of Pensacola.

Interglacial periods also caused the formation of two high, flat marine terraces that define the topography of modern day Pensacola. The Pamlico terrace was formed approximately 38,000 years ago. It shapes the shoreline, rising between ten and twenty feet above sea level. The Penholloway terrace, just up from the waterfront, was created between 73,000 and 88,000 years ago. The residential areas known today as East Hill and North Hill, as well as the bluffs that run along the Escambia Bay to the north, are all situated on the Penholloway terrace (Horvath 1968).

Ranges of Environments

Today the shores of Santa Rosa Island and Perdido Key are still changing. Seasonal storms and shifting currents continually reshape the islands. Shipwrecks on the Gulf side of the islands are repeatedly buried and exposed. The narrow pass into the harbor is constantly shifting and filling up with sand, necessitating periodic dredging to maintain an open channel.

In addition to the coastal barrier islands, a number of other environments are located within the bay area. Along the inner shores of the barrier islands, around Gulf Breeze peninsula, inside the bayous, and along the rim of the harbor, the sediments are a mixture of sand and soft silt. These areas also are affected by tidal erosion, but not to such an extent as the area offshore. Important factors here are sediment deposition from tributaries and runoff from rainfall in increasingly developed areas which drain into the bay. The bottom of the bay itself is characterized by deep deposits of silt.

Above the bay, the Blackwater River bisects an area characterized by low-lying coastal plains subject to flooding on one side, and flanked by rolling hills on the other. This creates four basic kinds of soil runoff, all variations of sand or loam, and most areas are predominantly unsuited for cultivation other than timber (Weeks et al. 1980, Phillips 1989). The Escambia River flows southward from Alabama, draining into Escambia Bay, an area characterized by recent industrial and residential development. The basic types of sediments in Escambia Bay also are sand near the shore and mud near the center of the bay (Olinger et al. 1975).

Climate, Hurricanes and Storms

Pensacola is situated along the 30th parallel of latitude above the equator. Its climate since historic settlement has remained relatively unchanged. Warm temperatures and high humidity characterize the summer months. Winters are short and very mild. An average temperature of 80 degrees Fahrenheit is recorded for the summer, with the winter temperature averaging in the mid-50s range. Recent rainfall averages 65 inches per year, with almost half of precipitation reported occurring during the months of summer (Phillips 1989).

Located in an area known as the "Prevailing Westerlies," almost all weather fronts and storms move across the state from west to east. Pensacola summers are characterized by short, violent thunderstorms and a prevailing sea breeze from the south or southwest. In the fall and winter, low pressure systems and cold fronts cause the wind to come out of the north, northeast, and northwest. Only hurricanes and tropical storms, creating their own momentum, can break this pattern. Hurricanes that hit Pensacola generally travel over one of two routes, entering the Gulf of Mexico from the south past the Florida Keys or moving along the southwest coast of the Gulf, up from the western Caribbean Sea.

The hurricane season occurs from June through November. Storms are designated as hurricanes when they are of tropical origin and their wind speed exceeds 64 knots. Pensacola has been continuously threatened by hurricanes throughout its history. Although no official records were kept of hurricanes until the mid-nineteenth century, descriptions of such storms and their impact on Pensacola's settlements can be found in historical accounts (Muir 1983). These storms have greatly affected Pensacola's development (Figure 3.1). Brief summaries of the most significant storms are reported, chronologically, as follows:

1559 Don Tristán de Luna y Arellano led a settlement expedition to the shores of Pensacola, then Ochuse. Within a week of their arrival, "there came up from the north a fierce tempest, which blowing for twenty-four hours from all directions until the same hour as it began, without stopping but increasing continuously, did irreparable damage to the ships of the fleet. [There was] great loss by many seamen and passengers, both of their lives as well as of their property. All the ships which were in this port went aground (although it is one of the best ports there are in the Indies), save only one caravel and two barks, which escaped" (Priestley 1928 Vol II:245). With his supply ship destroyed, Luna faced the hard task of finding sustenance for the settlers. Though they struggled to establish a small settlement, it was abandoned in less than three years.

1722 In September a hurricane is recorded as having hit New Orleans; the Mississippi River rose eight feet, and at least one ship was reported lost to the east in Bay St. Louis (Ludlum 1963:60-61). The Spanish, preparing to take back Pensacola from the French, arrived in November to find only a dilapidated hut still standing on Santa Rosa Island. The French may have demolished their settlement before leaving it, yet it seems likely that there was not much left after the hurricane's destruction (Muir 1983:2).

1752 The rebuilt Spanish settlement on Santa Rosa Island was destroyed, except for the storehouse and hospital, when it was directly hit by a November hurricane. "The village, fort, and dunes were all swept away" (Muir 1983:3). Finally, Spanish officials decided to move the settlement from the barrier island to the mainland.

1763 The new mainland settlement was hit by a storm in August, tearing the roofs from all of the houses and knocking down the stockade (Muir 1983:3).

1766 British Pensacola, established in 1763, was hit by a storm which tore the roofs off huts and wrecked several vessels in the bay. A dispatch by a Captain Henderson, reported in the *South Carolina Gazette*, stated that "only four vessels rode it out without receiving some damage; and all the rest were driven ashore . . ."(Ludlum 1963:62).

1772 A hurricane lasting five days hit the Gulf Coast at the end of August, flooding Mobile and doing much damage westward. Bernard Romans described the storm in *A Concise Natural History of East and West Florida* published in 1776. He stated that the storm "destroyed the woods for about 30 miles from the sea coast in a terrible manner," yet in "Pensacola it did little or no mischief except the breaking down of all the wharves but one" (Ludlum 1963:63).

1778 Governor Peter Chester's description of the hurricane in Pensacola was written in the margin of the minutes of the assembly dated 9 October 1778.

> "The severest hurricane ever felt or known in this part of the world since West Florida has belonged to the crown of Great Britain happened on the 9th with such iresistible [sic] fury and violence as entirely to sweep away all the wharfs, stores and houses contiguous to the Water Side, with part of the front batteries of the Garrison, besides destroying several houses and making general havock of the ferries (fences) in the town of Pensacola all of the ships and vessels in the harbor were either lost or driven ashore except his Majesty's Sloop of War *Sylph*, which with difficulty rode out the gale. The great loss of property by this general calamity affected the whole community . . . " (Ludlum 1963:64, Muir 1983:4).

1779 A hurricane in August was reported to have demolished all the boats and stores amassed by Bernardo de Gálvez, delaying a planned attack on the British forces in nearby Manchac and Baton Rouge (Muir 1983:3-4).

1780 Eight storms were recorded in the waters of America and the West Indies during the year 1780, especially noted for their size and tremendous force (Ludlum 1963:66). While most of the storms did not hit West Florida directly, they greatly influenced the history of the area. In August, storms caused damage to crops that supplied the area, as well as destroying a British fleet off Cuba. In October, a fleet of 64 ships left Havana under the military command of Bernardo de Gálvez. En route to attack British Pensacola, Gálvez's armada was damaged and scattered throughout the Gulf, thus delaying the attack on Pensacola until the following year (Ludlum 1963:72, Muir 1983:4).

1819 A storm hit in November, damaging Mobile and West Florida. The extent of the damage is unreported. (Ludlum 1963:137).

1821 The Pensacola *Floridian* reported that on the 15th of September "it commenced blowing quite fresh, and continued with increased and increasing violence until in a few hours it raged a most destructive storm." While no lives were lost or buildings damaged, "shipping suffered very severely [of thirteen brigs, schooners and sloops in the harbor: 6 were driven high ashore, five were able to get off after beaching, and others rode it out]" (Ludlum 1963:140).

1852 The *Pensacola Gazette* of August 28 described the local effect of an August hurricane that made landfall in Mobile in the following account: "two-thirds to three-quarters of the main wharf was carried away, leaving only the outer end remaining. All the bathing houses have been swept away. We have not heard of much damage done to

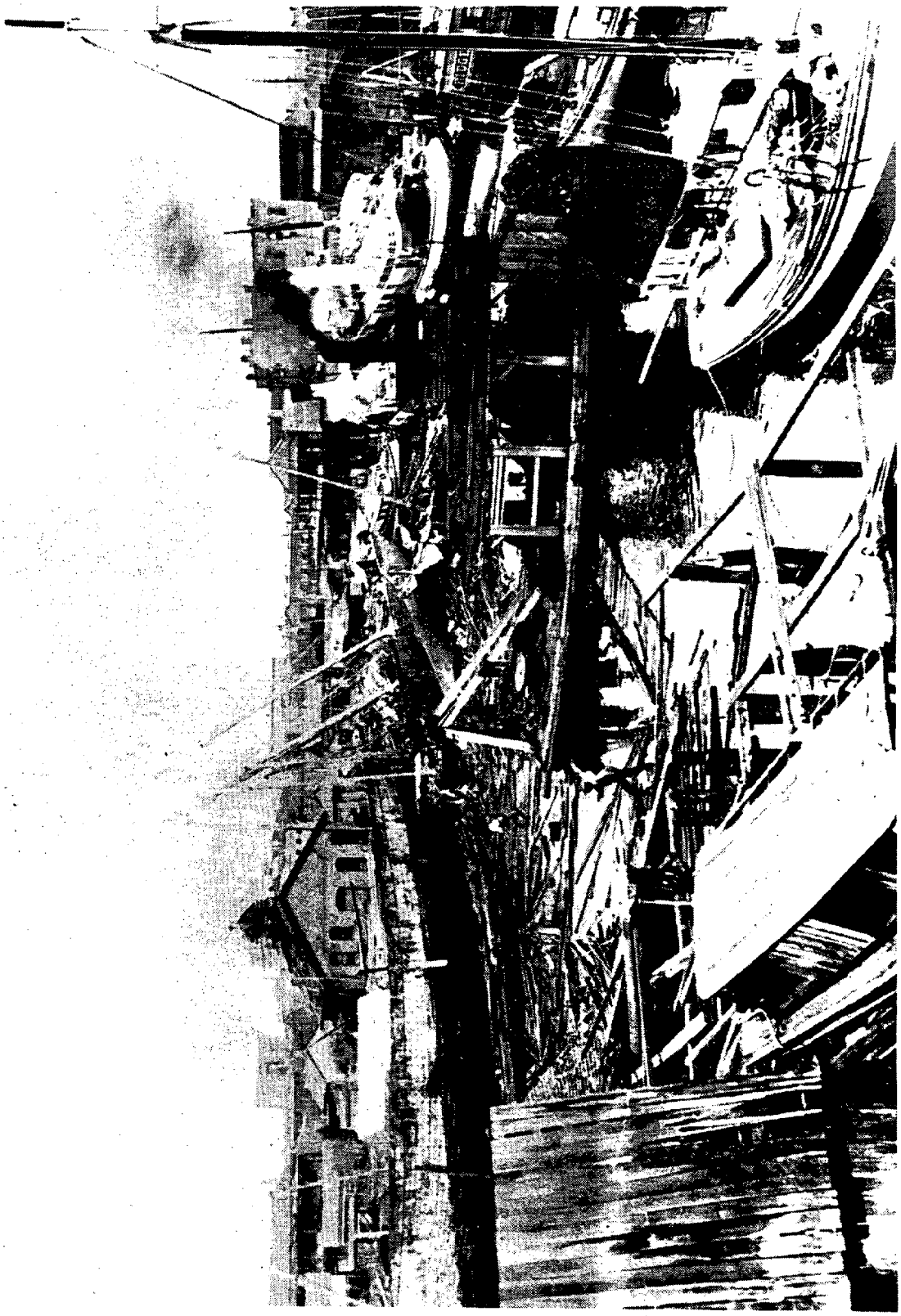

Figure 3.1. Photo of Pensacola After an Early 20th Century Hurricane.

shipping, but fear that we may yet hear of many wrecks upon our coast" (Ludlum 1963:160).

1882 Newspaper accounts reported that high winds from a storm occurring on September 9 drove several vessels ashore, while storm surge destroyed a wharf. One vessel, *Rhoda*, was reported sunk near Santa Rosa Island after being driven across the bay (Pensacola Historical Museum Hurricane file).

1887 No one was killed in the storm of October 19, but the wharf at the Pensacola Fish & Ice Co. was destroyed (Pensacola Historical Museum Hurricane file).

1894 Two storms were reported for this year. High winds reportedly drove the sailing vessel *Catherine* ashore on Santa Rosa Island on August 7. An October 8 storm drove several vessels ashore and swept away the pier at the Life Saving Station on Santa Rosa Island (Pensacola Historical Museum Hurricane file).

1896 There was no loss of life but "immense loss of property" caused by a July 7 storm. The *Pensacola News* reported that the wind blew off "nearly every tin roof in the city," flooded the downtown area, sank at least nine vessels and damaged and drove ashore countless others. Damage also occurred at the Quarantine Station and several wharves were destroyed (Pensacola Historical Museum Hurricane file).

1906 This September storm was called the "Big Six" by local residents who survived it. The *Pensacola Journal* reported that the storm completely washed away a two-mile mid-section of Santa Rosa Island. The Hospital, located at the Quarantine Station there, as well as the Life Saving Station, were swept away. Fort Pickens was awash, and men were seen lashed to the heavy guns before being washed away. At the Navy Yard, buildings were destroyed, and several vessels were driven far ashore. Tides eight and a half feet above normal flooded the inland area (Figure 3.2). Downtown at the waterfront, "every foot of the beach from Tarragona Street to Muscogee Wharf is one continuous mass of debris--the roofs and sides of dwellings; household furnishings of every description; wreckage from seagoing craft of every kind and rig; lumber, timber, unbroken bundles of shingles; merchandise of every kind; uprooted trees, trunks and branches--everything in fact that could go to make up a scene of destitution and desolation is piled pell-mell, helter-skelter on that stretch of waterfront" (*Pensacola News Journal*, July 9, 1967).

1916 Winds were clocked above 104 miles per hour in the hurricane that hit Pensacola on July 5. Newspaper accounts stated that at least one million dollars worth of damage occurred in this storm, approximately $150,000 at the Naval Air Station (Pensacola Historical Museum Hurricane file).

1926 *The Air Station News* of October 5 stated that "oldtimers" said that other storms had cost many more lives, "but for widespread destruction of property the recent hurricane has never been equalled." Wind speeds reached 152 miles per hour before the indicator broke. Tides were ten feet above normal in town, and fourteen feet higher than usual up the river in Bagdad. Wreckage in the downtown area was great; piers, wharves and structures along the waterfront were destroyed. Many vessels were wrecked or driven ashore (Pensacola Historical Museum Hurricane file).

Other storms continued to hit the Gulf Coast throughout the twentieth century, but with storm warnings now in established, loss of life was not so great. Flooding and damage to property, especially on the barrier islands, continues today. Storms of some consequence were reported in 1929, 1932, 1947, 1956, and 1969. "Frederic" hit Pensacola directly in 1979. "Elena" doubled back and struck the area in 1985, sinking at least ten boats (Pensacola Historical Museum Hurricane file).

Cultural Impact on the Environment

Pensacola Bay Waterfront

Since the area of present-day Pensacola was first settled, the landscape has been steadily altered to suit changing needs. A rise in population was followed by an increase in trade, necessitating the building of more wharves and piers for loading and unloading cargos. Careening grounds, marine ways, shipyards and railroad wharves were built to service incoming vessels. These events changed the face of the waterfront. Figure 3.3 shows the downtown waterfront in the 1890s.

The city artificially extended the natural shoreline approximately 3000 feet southward, reclaiming the bay, between present-day 8th Avenue and A Street. Most of the landfill activity took place between 1900 and the 1930s (Bense 1989a:17). Figure 3.4 shows the previous location of the original waterfront, near modern Main Street.

The configuration of Bayou Chico was altered in 1918. Pensacola Shipbuilding Company built a seawall over a mile long extending from the bayou mouth to Garden Street. The area behind the wall was filled, a lift bridge was installed, and a new channel entrance was dug (Bense 1989a:17-18). Figure 3.5 shows the extent of these changes and the detail of the port and downtown area waterfront as of 1929. Today the shape of the waterfront looks much the same as in the chart of 1929. The port of Pensacola and the freight railroads are still in operation. A number of the piers are gone; in many cases, their places are filled with pleasure boat marinas or small boatyards for working vessels. Muscogee Wharf was destroyed in a hurricane but the area still serves as a barge terminal. Four small commercial shipyards operate out of Bayou Chico, and the rest of the bayou is filled with rental spaces for recreational boaters. In most protected waterfront areas not developed commercially, the construction of seawalls, docks and piers has been undertaken by private residents.

The Naval Air Station

The establishment of the Navy Yard in the 1820s prompted the need to dredge and to maintain the pass into the harbor, as well as navigation channels, at certain depths. This remains an ongoing process. Maintained by the Army Corps of Engineers, the channel was recently deepened to a depth of 45 feet to allow for the homeport docking of a larger aircraft carrier at the Naval Air Station.

Escambia Bay

The red bluffs lining the shore of Escambia Bay were first mined to produce red clay for Pensacola's nineteenth century brick-making industry. In the 1880s the cliffs became the site of the burgeoning railroad. Built below the cliff along the shoreline, the tracks have acted as a buffer zone, now vegetated, that prevents erosion (Bense 1989a:17). Today, along with the rail line, the shores of Escambia Bay house a number of private residences and modern industries, such as Westinghouse.

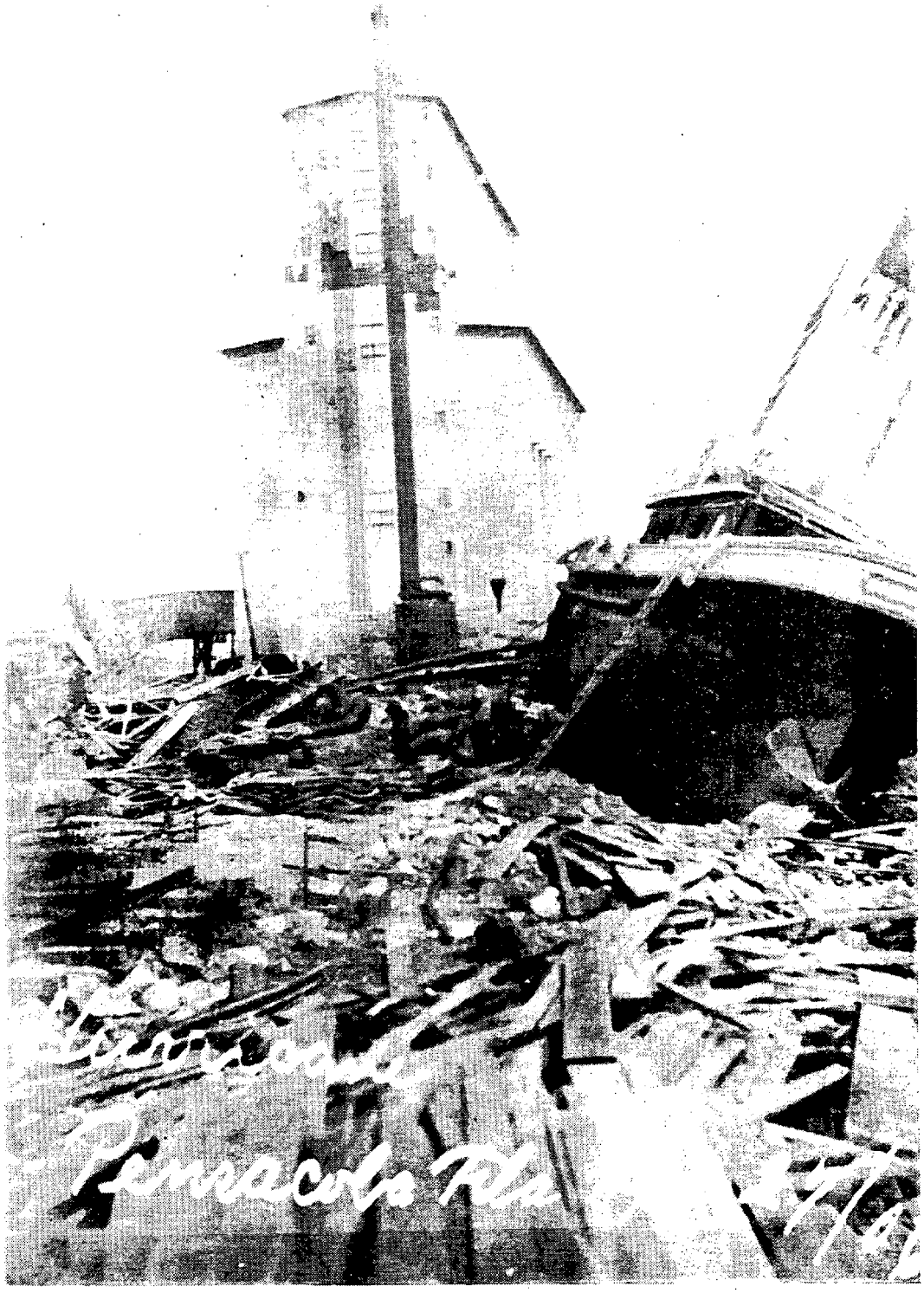

Figure 3.2. Photo of Pensacola After the 1906 Hurricane.

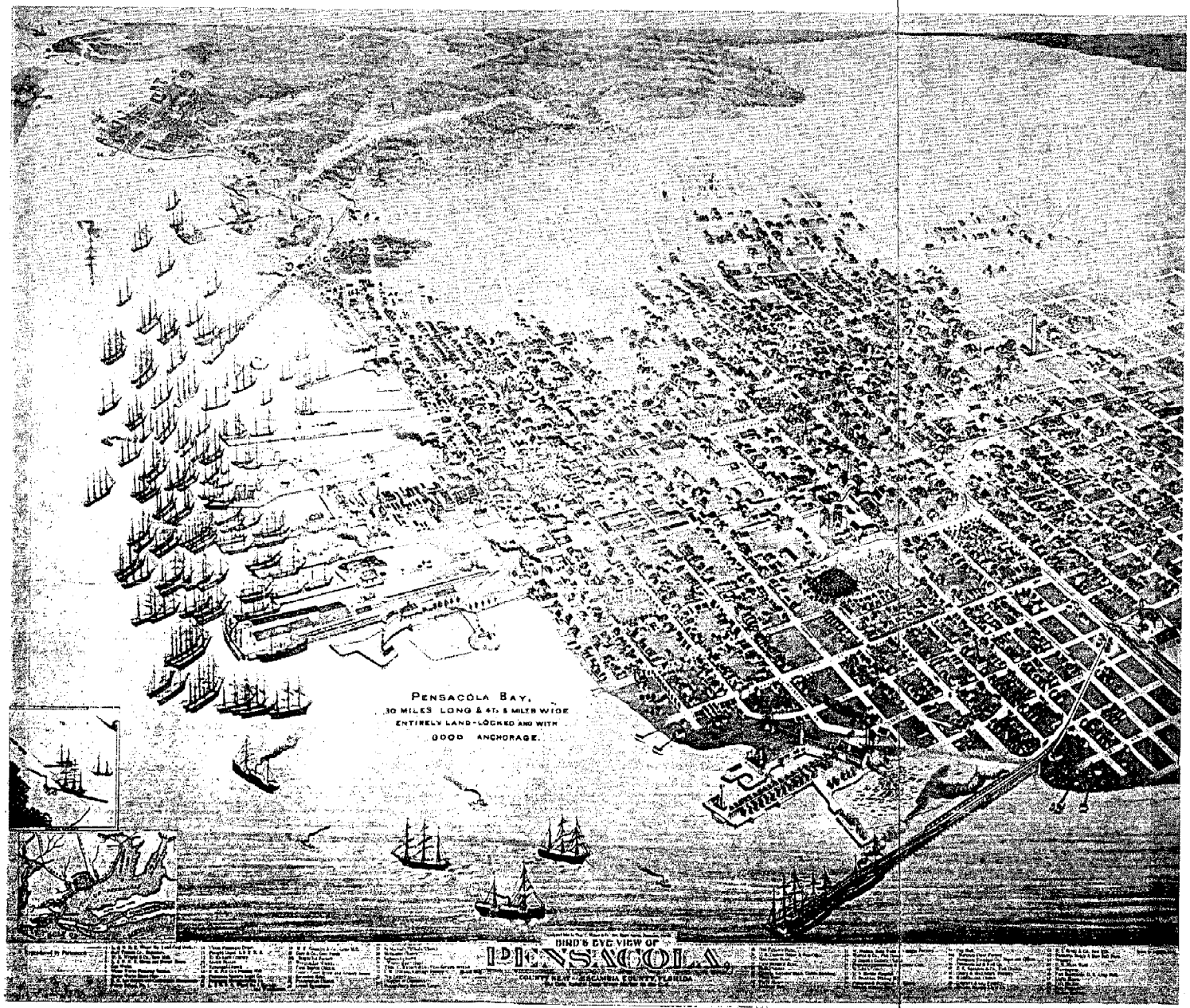

Figure 3.3. Bird's-eye View of Pensacola, circa 1896.

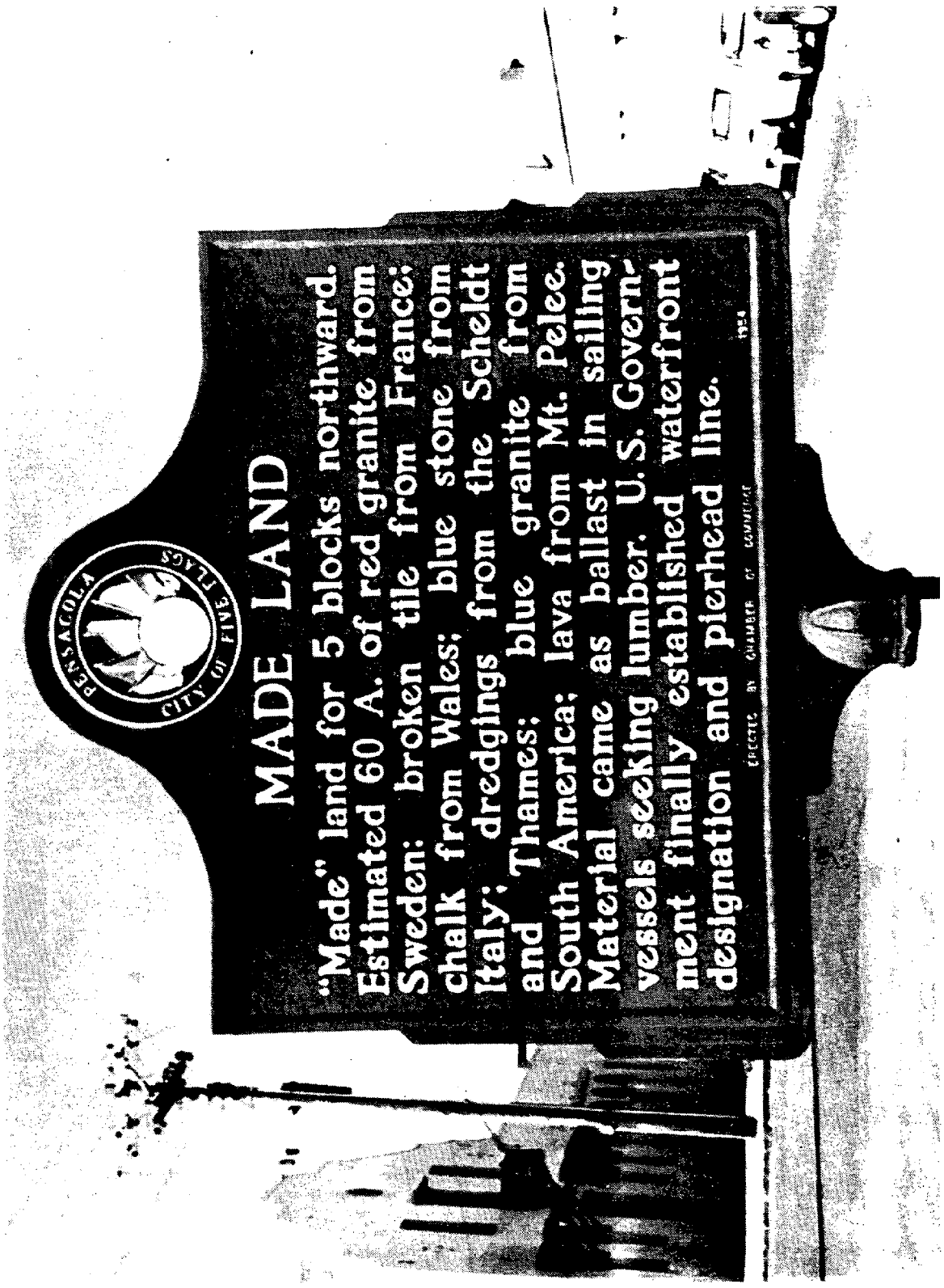

Figure 3.4. Historic Marker Describing Pensacola Landfill Practices.

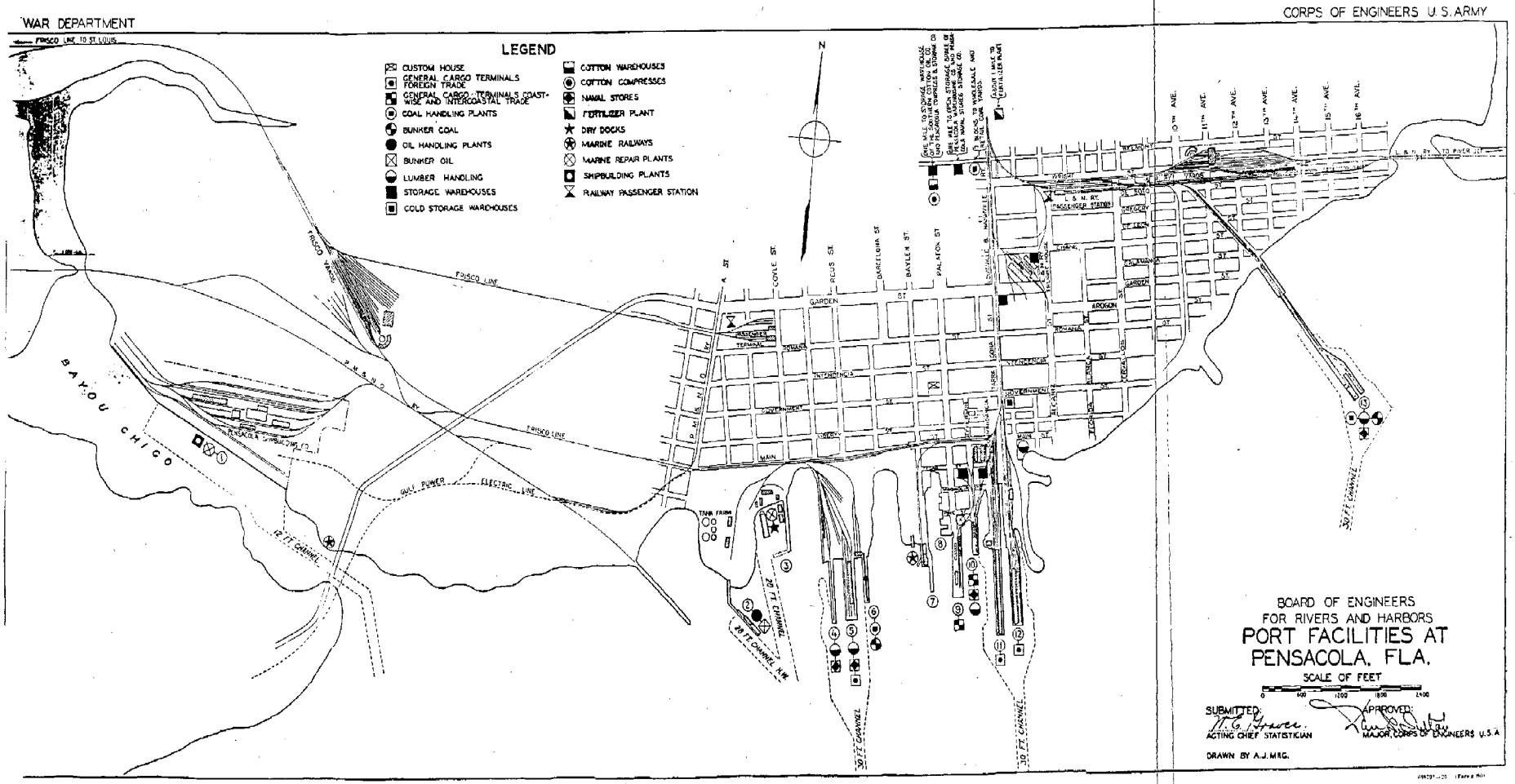

Figure 3.5. Port of Pensacola and Waterfront in 1929.

The Blackwater River

Harvesting of timber caused the configuration of the shores of the bays and rivers to change. As lumber production increased, more mills were built on the Blackwater River. Several of the basins along the river were used as storage ponds, and numerous pilings were sunk, both in the basins and along the river tributaries, to hold both logs and cut timber. At least two shipyards were in operation in Milton and Bagdad on the Blackwater River at the time of the Civil War (Woolsey 1989). The yard in Bagdad was still in operation through the 1920s. Figures 3.6 and 3.7 show the mill and shipyard in operation. Little evidence of this activity is visible above water level today, except protruding edges of driven pilings and piles of cut timber, which can be seen all along the river's bank at low tide. Figure 3.8 shows the configuration of the Blackwater River today.

During the latter part of the present century, and especially in the last decade, residential developments have begun to crop up along the shores of the Blackwater River, many with private piers built for pleasure boats. In at least two areas, homeowners on the river have shipped in loads of sand to create beaches, only to have them washed out when the river floods periodically (Wayne Williams, personal communication). Development along the northern reaches of the Blackwater River is limited by the boundaries of the Blackwater River State Forest, but rapid development has been noted in the Pond Creek watershed area, near Milton and Bagdad (Florida DNR 1991:96).

Gulf Breeze Peninsula and Santa Rosa Island

The peninsula and island reflect the same human impact upon the landscape. The major source of environmental alteration is modern development. Dredging of channels, building of seawalls, and construction of docks and piers have occurred all along the waterfront, to serve both commercial marinas and private residences. The areas that have remained undeveloped are for the most part those that have been designated as preserves. This includes The Gulf Islands National Seashore on Santa Rosa Island and Perdido Key, and The Naval Live Oaks Reservation on the southern shore of Gulf Breeze peninsula, both managed by the National Park Service. Deadman's Island was purchased to preserve its natural state by the city of Gulf Breeze in 1988.

When comparing developed and undeveloped shorelines, the differences in the resulting environments become apparent. In the preserves, the sandy shores are coated with dune vegetation which allows the sand to catch and pile up, shifting with wind and tidal flow. In the developed areas, the sand tends to scour and wash out near shore, especially where seawalls and piers have been constructed, leaving a muddier bottom. In both areas, deep pockets of sediment begin to be seen as water depth increases, usually around 8 to 10 feet.

Sediment Deposition

No doubt silt and sediment deposition into the bay system began to increase as shores lined with timber were harvested, accelerating first with agricultural cultivation, and then again with large scale residential development. A 1968 sediment survey reported that "bottom profiles indicate generally soft and fine sediments occurring in the middle of the bays, and harder and coarser sediments in the nearshore areas" (Horvath 1968:54). The study also reported the average percentages of sand and silt in the bay system, based upon bottom samples.

Average percentages of sand and silt in the bay system.

	Silt %	Sand %
Pensacola Bay	17.14	57.47
Escambia Bay	21.99	48.37
East Bay	17.13	59.28
Santa Rosa Sound	6.0	389.49

(Source: Horvath 1968:35,38).

Horvath's study noted that two environments can be distinguished in the bay system on the basis of sediment characteristics, inland lagoonal and a marine barrier island zone. In addition, Santa Rosa Sound appeared to be different from the other bodies of water, with most of its sediments derived from offshore rather than from fluvial origin (Horvath 1968:66).

Increased population and development has continued to add to the amount of silt washed out into the rivers and bays and accreted in all areas under study. While the *Florida Rivers Assessment*, published in 1991, reported water quality to be good, it cited future threats of erosion from agricultural fields and accelerating development occurring within the watershed of Pond Creek, a Blackwater tributary, both of which may cause extreme sedimentation (Florida DNR 1991:95).

Pollution

Accelerating development of the region has increased water pollution inside the bay, sound and rivers. Pollution sources are defined as either point (industrial and wastewater treatment runoffs) or non-point (agricultural and urban stormwater runoff) sources. A 1975 study reported a decrease of point source waste disposal into the bay system from four major industrial producers that has occurred between 1955 and 1964 due to legislated limitations. However, the study reported a significant increase in non-point source pollution, measured in both phosphorous and nitrogen load (Olinger, et al. 1975:2-1).

Yet, due to heavy bottom sedimentation, the report cited the presence of seven heavy metals trapped in the finer sediments of both East Bay and Escambia Bay. Lead, zinc, chromium, manganese, nickel, aluminum, and iron were detected. Cadmium, copper, cobalt, and vanadium were found in higher concentrations in Escambia Bay than in East Bay. Titanium was distributed equally throughout all the bays of the system regardless of sediment type (Olinger et al. 1975:2-5).

The effect of pollution on shipwreck preservation should be noted, but its extent is unknown at this point. The presence of heavy metals in some of the deeper sediments of the bay should be taken into account when specifying dive safety procedures for work in these areas.

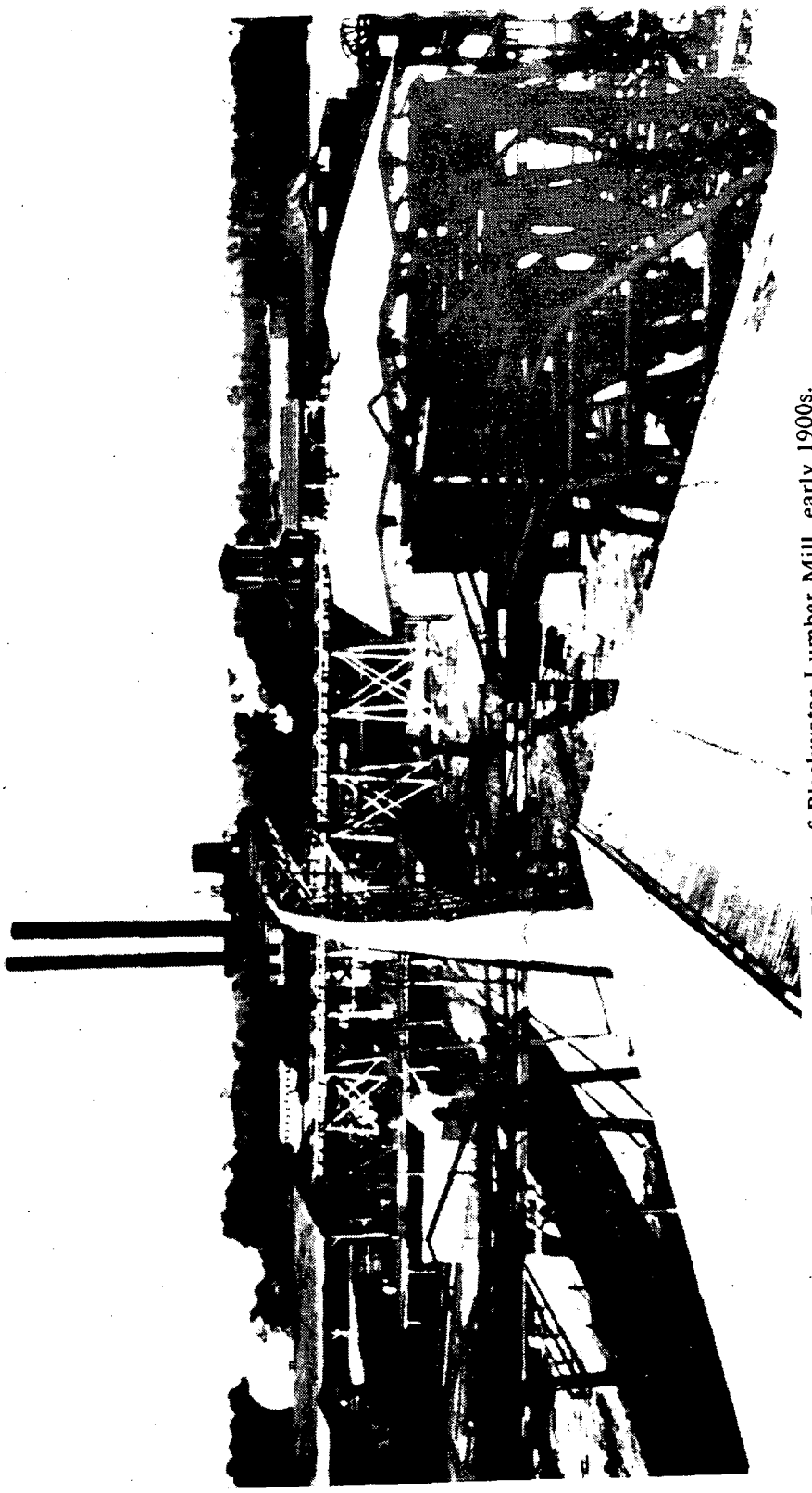

Figure 3.6. Photo of Blackwater Lumber Mill, early 1900s.

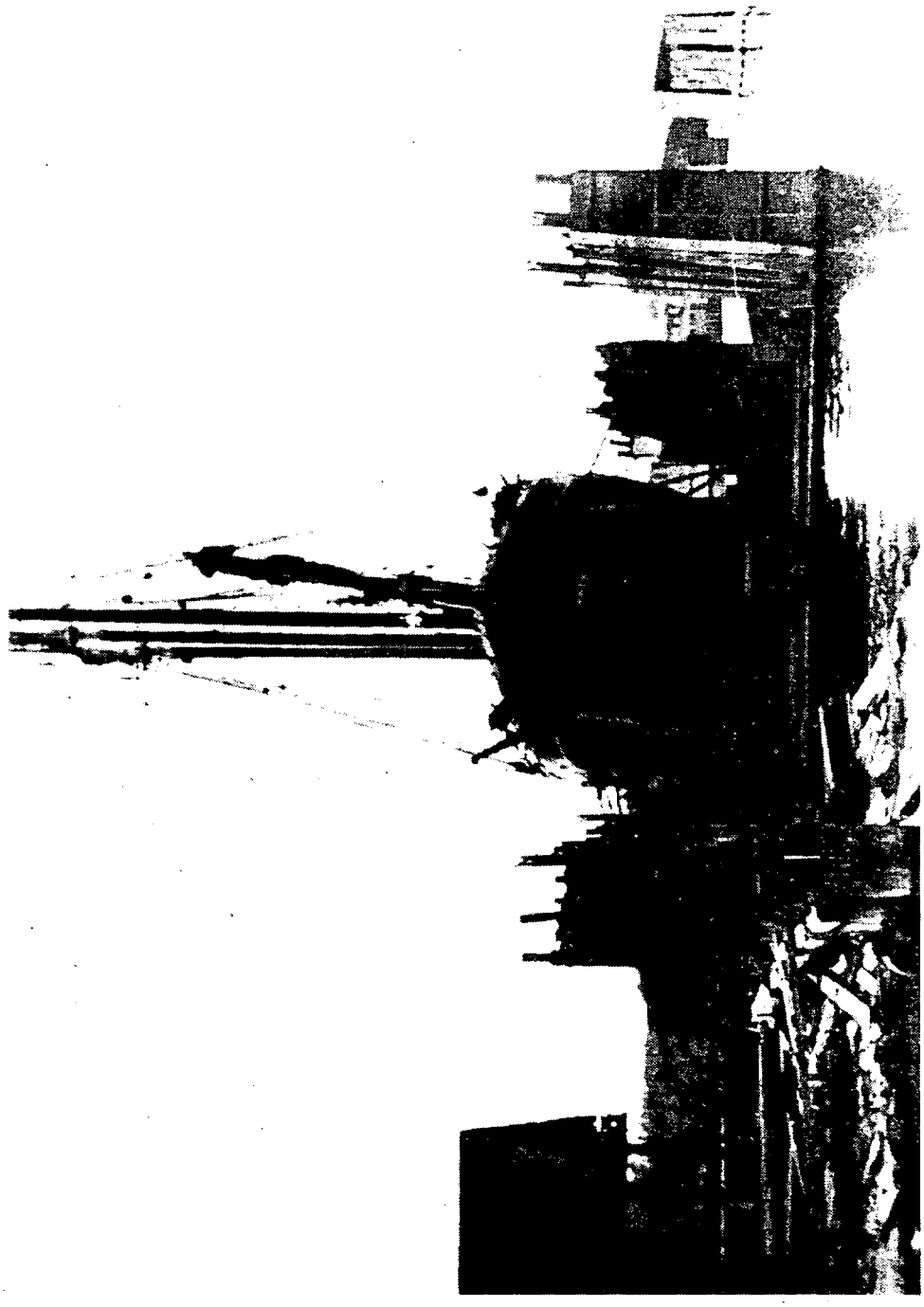

Figure 3.7. Photo of Blackwater Shipyard, early 1900s.

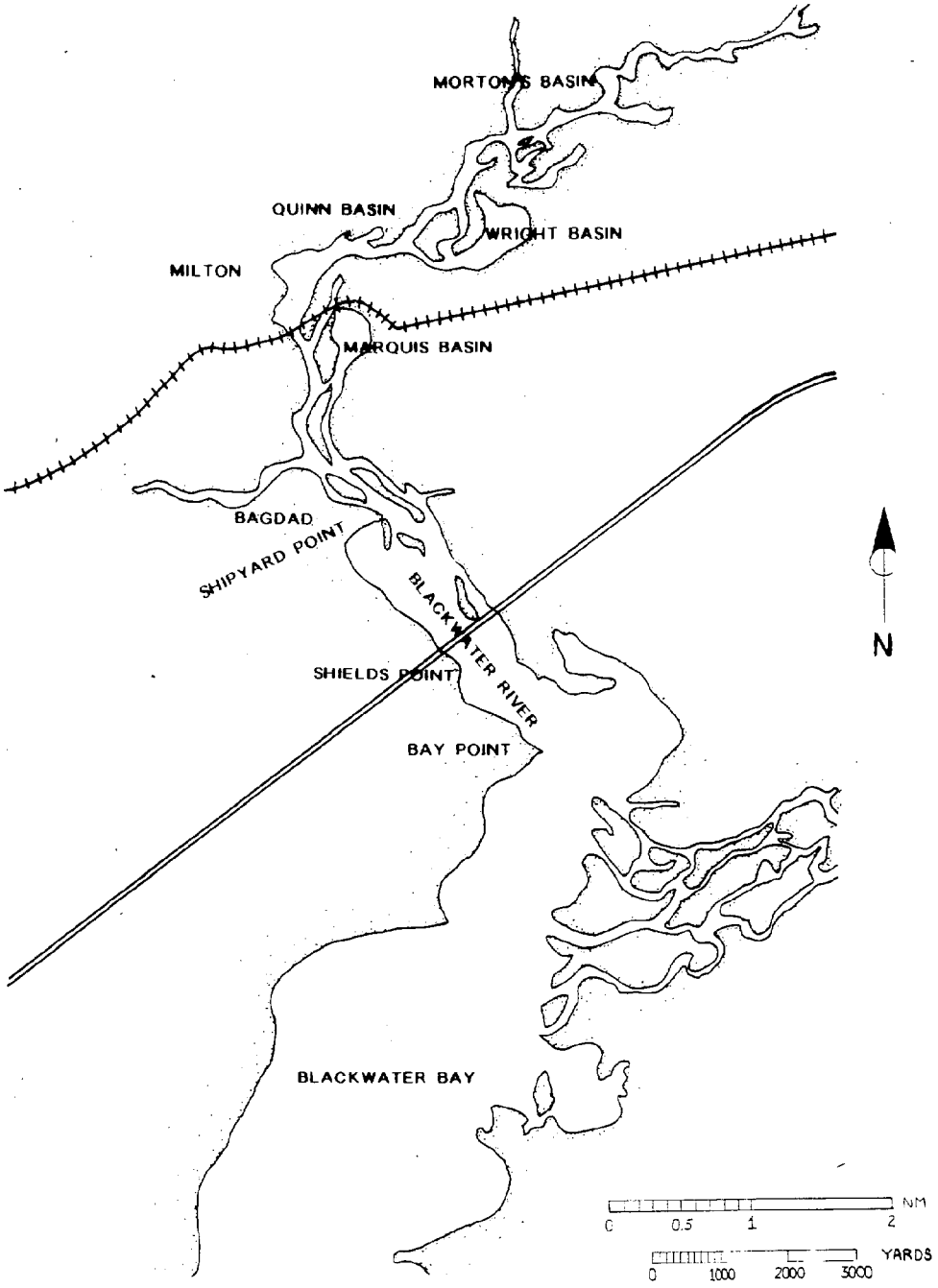

Figure 3.8. Current Map of the Blackwater River.

Cultural Impact on Submerged Resources

Human changes in the coastal environment affect both the discovery and preservation of underwater archaeological sites. Those sites near shore may be discovered and damaged upon modification of the coastline during construction and development. However, modern development along the bay and up the river has also caused increasingly greater deposits of sediment inside the bay system.

Sediment accretion impacts underwater sites on two levels. Increasing depths of bottom sediments may bury historic resources ever deeper. On the other hand, these same sediments form a stable environment that may help to preserve a shipwreck's structure, by protecting it from marine borers, disintegration, and salvage.

Sediment grain size is the primary factor in the Reoxygenation Discontinuity Potential, or Redox. This is simply the amount of sediment required to prevent oxygen penetration. In the context of wreck preservation, sedimentation determines how well a site will be protected, depending on sediment type and rate of deposition. A sediment with small grain size will require less sediment and therefore protect a site sooner. This is quantifiable according to grain size and depositional rates. Based on Horvath's 1968 study, preservation can be expected to be greater in the deeper, finer sediments at the bay's center, than near shore where sediments tend to be shallow and coarse-grained.

CHAPTER 4. PENSACOLA'S MARITIME AND INDUSTRIAL HISTORY

Introduction

Pensacola Bay was discovered, lost, rediscovered, and eventually colonized by the Spanish Empire in its constant quest for riches and land. Located on the northern rim of the Gulf of Mexico, the so-called "Spanish Sea," Pensacola was long sought as the gateway to a perceived land of limitless wealth. Eventually every major colonial power influenced the settlement and development of Pensacola as a port and a center for maritime intercourse.

Although the gold, turquoise and silver so desperately desired by the Spanish proved to be ephemeral dreams of the explorers, Pensacola eventually yielded riches of another sort. Vast tracts of timber, a sea of fish, and an ideal harbor made Pensacola a prize that was fought over time and time again. With the decline of European influence in Florida, Pensacola became a center of American maritime activity. It also became the home of a naval base that evolved into the "cradle of naval aviation."

The First Spanish Period, 1513-1763 (Figure 4.1)

By the beginning of the 16th century, the Spanish were deeply involved in the reconnaissance and exploitation of the Gulf of Mexico. Constantly in search of new lands and new sources of revenue, expeditions large and small probed the periphery of the New World. Although Florida's First Spanish Period officially begins with the recorded landing of Ponce de Leon in northeast Florida, the first European contact in the Pensacola region was somewhat later.

In the 1520s two Spaniards, a nephew and uncle named Miruelo, claimed to have viewed an inlet into a large bay on the northern rim of the Gulf. A later exploration was made by the nephew, who purported to have entered the bay and encountered hostile natives (McGovern 1974:7-8). This first European penetration of Pensacola Bay was reported by a survivor of the ill-fated expedition, Cabeza de Vaca, after he wandered for four years in the Florida wilderness.

In 1539 Hernando de Soto's explorations of Florida and the lower Mississippi Valley placed one of his subordinates, Diego de Maldonado, in a bay he called Ochuse. Although Maldonado praised the exquisite nature of Ochuse as a harbor, Soto did not visit the area due to dissension within his ranks (McGovern 1974:9). However, the description of the bay by Maldonado and Vaca raised the interest of the Spanish authorities sufficiently to authorize a colonizing expedition to Ochuse under the command of Don Tristán de Luna y Arrellano. On August 14, 1559, Luna's vessels dropped anchor in Pensacola Bay with the intent of creating a settlement. This would not come to pass. Four days later, on August 18, a hurricane destroyed Luna's fleet while it rode at anchor. Luna lost eight of his vessels (Priestley 1928, Vol II:245). Although the survivors struggled on for another year, the first attempt at Spanish settlement in Florida was a failure.

The western portion of Florida, including Pensacola, lapsed back into obscurity in the minds of the Spanish for over a century. It was not until a French expedition under LaSalle began to explore the Mississippi in 1682 that Spanish interest in the area was again piqued. Fear of French intervention prompted a recommendation in 1689, by Captain Andres de Pez,

that Pensacola Bay should be colonized because of its harbor (Tebeau 1971:60, McGovern 1974:12).

In 1693 the Spanish made a detailed reconnaissance of Pensacola Bay. Five years later, by Royal Cedula, Pensacola was occupied and fortified as a trade center. The leader of this expedition, Juan Jordán de Reina, had been captain of a sloop on the mapping expedition of 1693 (McGovern 1974:13). In November 1698, Reina, joined shortly by Don Andres de Ariolla, established a permanent Spanish settlement in Pensacola (McGovern 1974:14). The Spanish garrison at Pensacola was small and ill-equipped and depended almost entirely on supplies brought in from the outside. Although there was abundant timber available, only small amounts were harvested and exported for use by the Spanish Navy (Griffen 1959:247).

In 1699, a French expedition of five vessels under Pierre le Moyre d'Iberville arrived off Pensacola. Noting the Spanish presence, they continued west to Mobile (Tesar 1973:28). Despite their differences, the French in Mobile conducted fairly extensive trade with the Spanish in Pensacola, probably because a Bourbon sat on the Spanish throne. This trade continued until 1718, when war broke out between France and Spain. A combined French and Indian force, supported by four warships, seized Pensacola and occupied it for four years (Hamilton 1910:101). There was a brief naval skirmish between the Spanish vessels at Pensacola and the French fleet. Although the French won the engagement and held Pensacola, they lost two ships during this period. One frigate was burned and scuttled by its crew during the battle. The second, a ship named *Dauphine*, was reported as sunk near the entrance to Pensacola Bay in 1719, set afire by her crew's carelessness (Tesar 1973:38,163). The French fleet reportedly sank five Spanish ships in the bay during this conflict (Tesar 1973:39,40,167). This was the first naval engagement in Pensacola Bay. When the war ended in 1721, the French returned to Mobile and, ironically, trade resumed (Surrey 1916:419-421, Gold 1969:10).

By 1722 the Spanish had moved their settlement to Santa Rosa Island, believing that this location offered a better position to control the entrance of the bay. The settlement lasted for 30 years, when it was annihilated by a hurricane. During this time trade with the French continued, despite official approbation (Surrey 1916:423, McGovern 1974:39). With the destruction of Santa Rosa, the settlement was moved to the mainland. Enduring hurricanes and official indifference, the settlement was handed over to the British in 1763 as a result of the Treaty of Paris which concluded the Seven Years War (McGovern 1974:3).

The British Period 1763-1783 (Figure 4.2)

The Seven Years War was a disaster for the Spanish Empire throughout the world. British forces had captured Manila in the Philippines as well as Havana in Cuba. In the negotiations that followed the war, Cuba was returned to Spain. In exchange, Spain ceded Florida to the victorious British (McGovern 1974:57).

The British occupied Pensacola on August 6, 1762, but it was not until September that the Spanish garrison completed its evacuation. In addition to the garrison, almost all the Spanish inhabitants of Pensacola departed (Gold 1969:35,100-101, McGovern 1974:57-58). The town itself was in a state of disrepair and was considered squalid and primitive by the occupying British troops. Despite the low esteem in which the British held their new possession, in October 1763 Pensacola was named the capitol of the new province of West Florida (Johnson 1959:263-264, McGovern 1974).

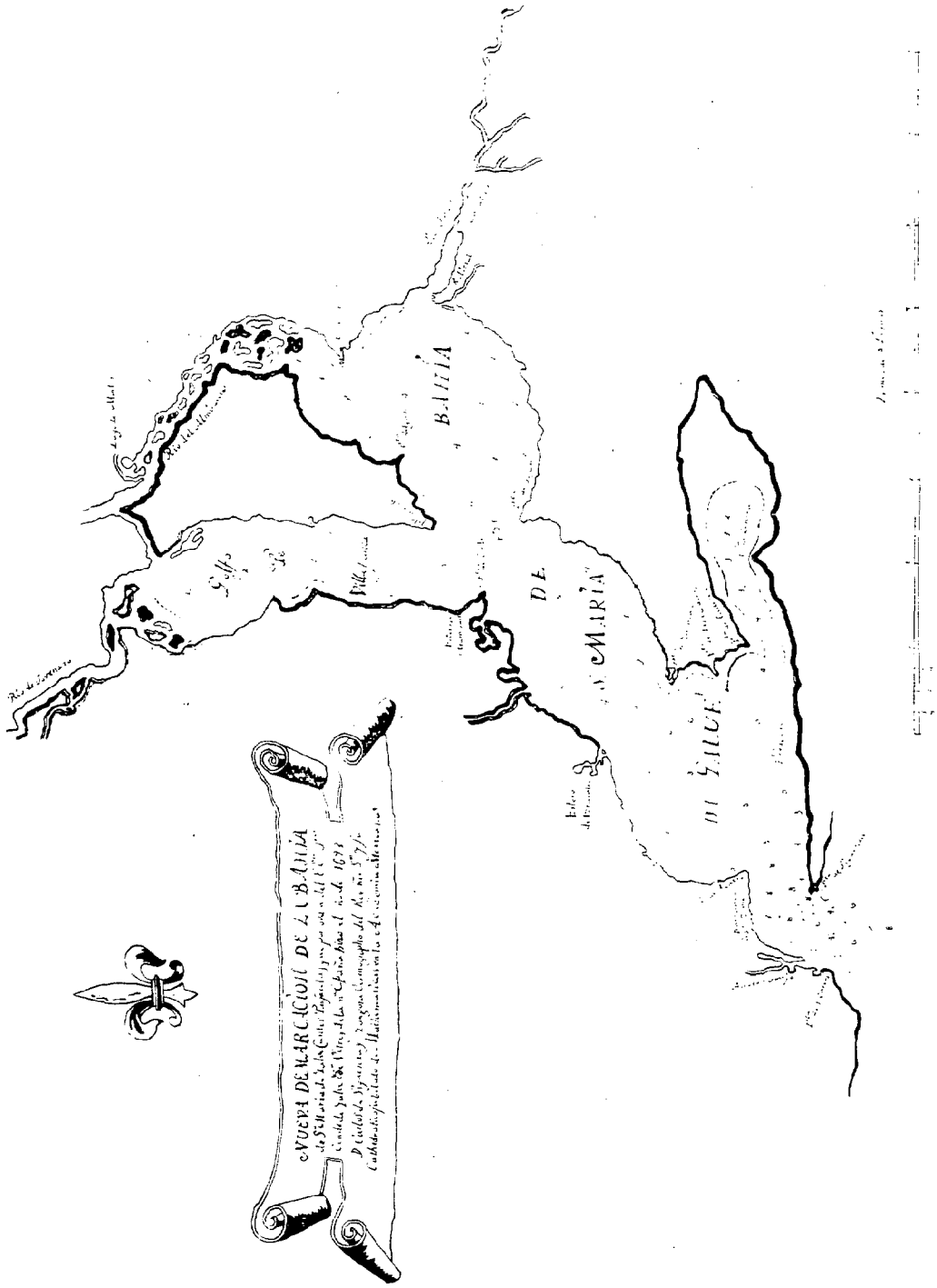

Figure 4.1. Siguenza's 1693 Chart of Pensacola Bay.

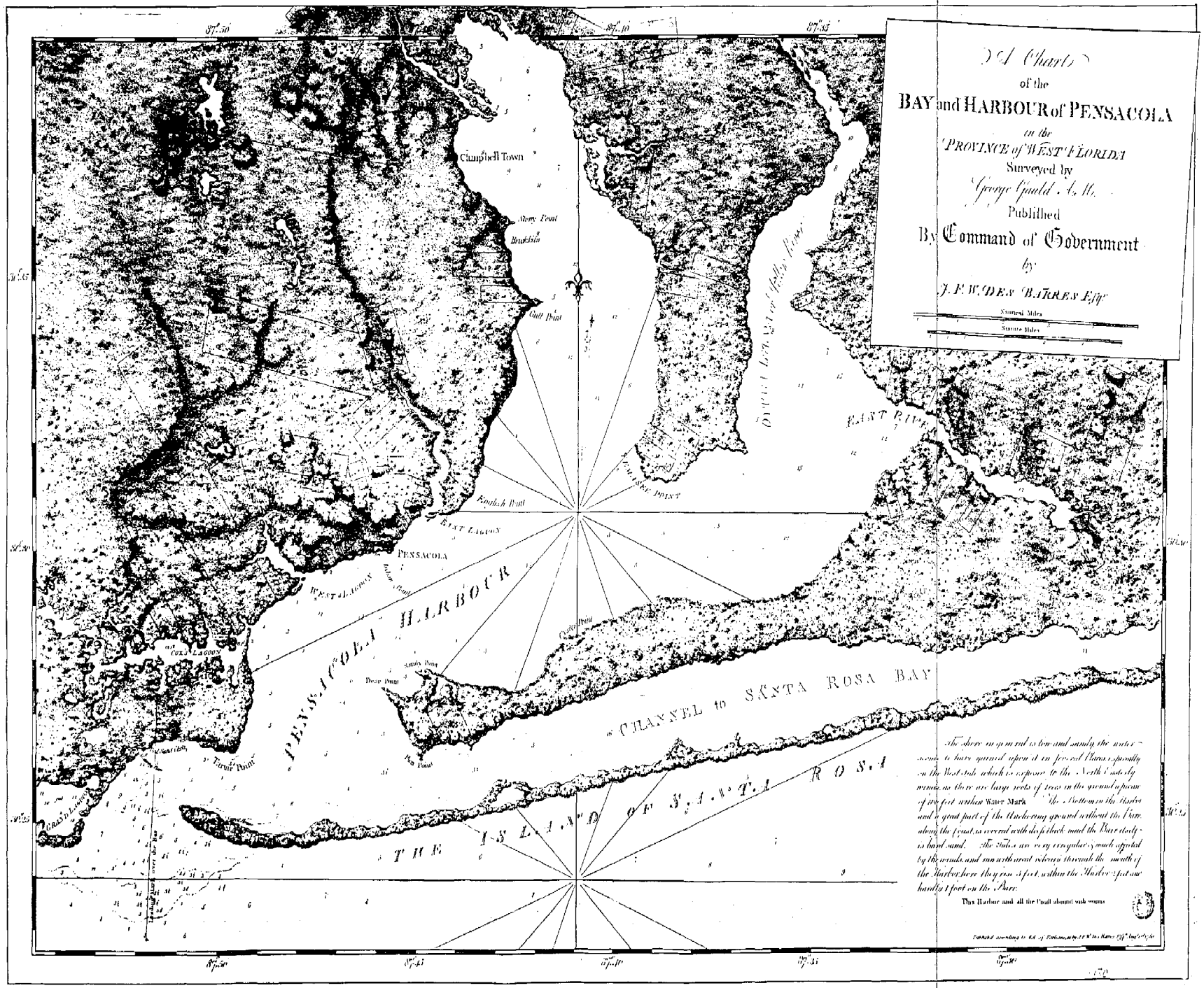

Figure 4.2. George Gauld's 1780 Survey of Pensacola Bay.

Pensacola never became the center of trade hoped for by the British Crown. English navigation laws allowed English vessels to trade with Spain, but Spanish law insisted on the use of Spanish ships. British merchants were understandably reluctant to risk losing their vessels to the Spanish. Some commercial intercourse did occur between the Spanish and the British in Pensacola but this was sporadic and limited in scale (Surrey 1916). British naval units often turned back Spanish vessels attempting to enter Pensacola since this violated the English Navigation Laws against foreign bottoms carrying trade goods into British ports. The only trade with other English colonies was conducted by a single packet that ran between Pensacola, Jamaica and Charleston (McGovern 1974:70, Wright 1974:9).

West Florida had no trading commodities to offer except for deer hides acquired from the local Indians (Wright 1974:24). Timber in the area was ignored, as was any attempt to cultivate the hard scrabble soil surrounding the port. Although the Governor of West Florida praised both the harbor and the location of Pensacola at length, the city remained a dilapidated village, outside of the commercial arteries of the British Empire.

When the Revolutionary War broke out in the northeastern colonies, Pensacola remained relatively unaffected. However, in 1779, Spain declared war on England and Pensacola was suddenly considered a key position again. By this time the British were involved in fighting not only the northern colonies, but were planning to open a campaign in the south, at Charleston, South Carolina. The demands of these operations precluded any hope of reinforcements for Pensacola. General John Campbell was put in command of the defense of West Florida. He naturally centered this defense around Pensacola (Parks 1981:20).

Buttressing the land fortifications were several small warships, detached from the squadron under the command of Admiral Sir Peter Parker. In 1778, Parker sent *Sylph*, *Hound*, and *Stork* to Pensacola. These were all designated "sloops" and carried fourteen guns apiece. Unfortunately for the British, a severe hurricane struck on October 9, 1778. All vessels then in "harbour were either lost or driven ashore, except His Majesty's sloope of war Sylph." (Starr 1976:124). There is no record of the number of merchant vessels lost or of any salvage attempts. In 1780, a small convoy arrived from Jamaica, consisting of four supply vessels and two warships; *Hound* and *Port Royal*. Whether this *Hound* was the same vessel present during the hurricane is not clear. The sloop *Stork* is also mentioned as having sunk by this time, indicating that she may have been salvaged after the October storm (Servies 1982:3). Several of the armed merchant vessels present were pressed into service to guard the entrance to the bay. These merchantmen, probably under contract to the Crown, were used at the discretion of the local commander. This was a standard practice that the British employed throughout the war (Morris 1990:23,37).

By 1780, the naval defense of Pensacola was limited, at best. Although the British defenders were hoping for additional naval forces, only one vessel, HMS *Mentor*, arrived in Pensacola. *Mentor* had been purchased in Jamaica to augment Parker's command, and he had sent the 24-gun warship to West Florida (Servies 1982:34). Thus Pensacola was defended by a scratch naval force and a small land force, comprised of the 60th Regiment of Foot, loyalist units, and German mercenaries. General Campbell built fortifications around the town and positioned some of his troops and artillery in outlying redoubts. Following British defensive tactics of the day, he supported his land fortifications with warships holding station near shore to provide fire support (Morris 1990:37).

The Spanish governor in Louisiana, Bernardo de Gálvez, was given orders to attack West Florida within a few weeks of the declaration of war. Striking first at British settlements

along the Mississippi, Gálvez then seized Mobile and made preparations to assault Pensacola. Although a Spanish naval contingent sailed to Pensacola to support the assault, the attack never materialized. It would be delayed by storms and logistics until February, 1781 (Johnson 1981:27).

At that time Gálvez sailed from Havana with 7,000 troops and 38 ships (Servies 1982:21). Arriving off Pensacola, Gálvez landed his troops despite intense shell fire from *Mentor* and *Port Royal*. Nine days later his fleet forced an entry into the bay, driving the small, under-gunned British force up the bay. *Mentor*, having given several of her guns to the land fortifications, sailed up the Blackwater River where she capsized in a sudden squall (Servies 1982:23). With the bay side of his defenses exposed, Campbell was in dire straits. An explosion in a powder magazine on March 8 signalled the end for the British. The following day the town and garrison surrendered to the Spanish (Rush 1966:83).

In 1783, with the Revolution over and the treaty ratified, Florida was returned to Spain. The British departed from Pensacola, citizens and soldiers alike. The Spanish reclaimed the port and planned to make it a military trading post. Until this time the splendid natural harbor had been ignored and the promise of a major trading center went begging. The only maritime activity beyond limited trade was the use of present-day Gulf Breeze as a careenage. Both the Spanish and the British had used this small cove to careen and refit vessels, since deep water ran almost all the way up to the beach. Beyond this, however, the other physical characteristics of the bay had been overlooked and underutilized.

The Second Spanish Period 1783-1821 (Figure 4.3)

After 1783 the Spanish garrison consisted of a mere 460 soldiers; town residents numbered less than 300 (Tebeau 1971:99). By 1805, the population had risen to slightly over 1,000 residents (McGovern 1974:92-93). Surprisingly, given the nature of Spain's trade policies, British merchants were allowed to trade in Pensacola. The Spanish government was quite relaxed in its attitude towards trade practices in West Florida. Not only were the British allowed into Pensacola, but, by Royal Cédula, trade was permitted with the French as well (Clark 1970: 224-225; McGovern 1974:103).

Through Pensacola, British merchants gradually established a steady trade with local Indians, who provided both meat and hides in return for English goods. Timber and naval stores were still ignored, perhaps due to a lack of manpower to harvest these products. Fishing continued to be for local consumption only, and agriculture was almost nonexistent. The Spanish continued to treat Pensacola as a minor outpost, and during the period of their second occupation the town and port never realized their potential.

France sold Louisiana to the United States in 1803, effectively ending French influence in the continental United States. Although Florida was not mentioned specifically in the treaty, President Jefferson endorsed the view that the purchase included the land from the Mississippi River to the Perdido River. In 1810, Americans seized Baton Rouge from the Spanish. In 1812 President Madison claimed possession of West Florida, east to the Perdido. By 1812 war was again about to impact Pensacola.

With the outbreak of hostilities between Britain and the United States, Spain was placed in a difficult position. Although technically neutral in this conflict, Spain was an ally of Britain against Napoleonic France. Andrew Jackson, the U.S. Commander in the Gulf, had

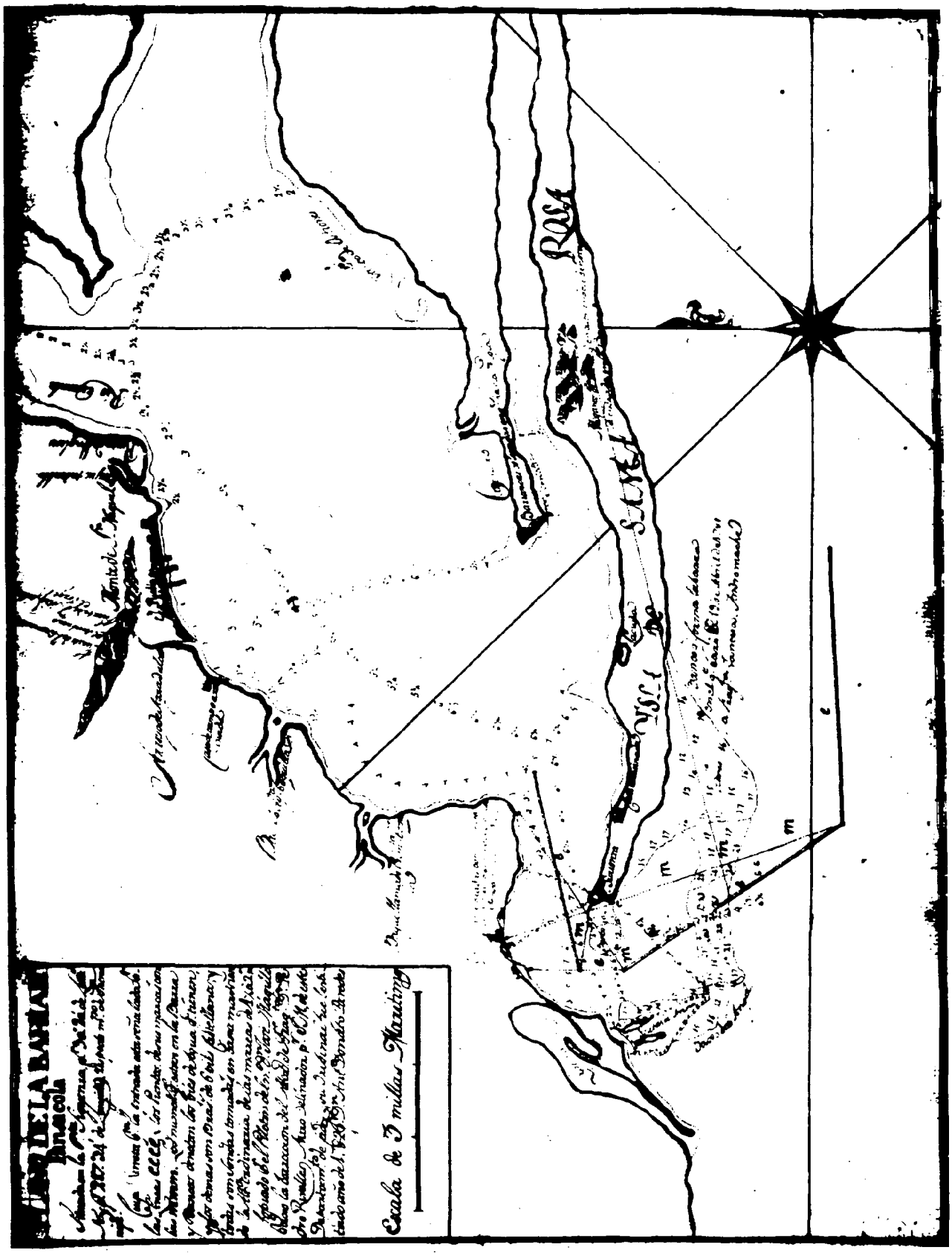

Figure 4.3. Paredes' 1782 Plan of Pensacola Bay.

the strategic goal of seizing all of Florida (Tebeau 1971:104). This was a popular sentiment at the time, and Jackson planned to be the battlefield executor of this desire.

In August of 1814, in cooperation with the neutral Spanish, the British landed Royal Marines at Pensacola. Jackson forced these troops out by November, but did not stay in Pensacola, concentrating his forces in Mobile and New Orleans. When the war ended in 1815, the Spanish were still in Pensacola. This would quickly change. The Spanish Empire was crumbling, and Spain's army could not meet the demands made on it. There were armed revolts against the Spanish crown in Latin America, and troops could not be maintained in Florida to guard the border with the United States.

In 1819, the Adams-Onis Treaty was concluded. Spain renounced all claims to West Florida and ceded East Florida to the United States. When the treaty was ratified three years later, the United States officially took possession of Florida as a whole (Tebeau 1971:114-115, 117).

The Early American Period 1821-1861 (Figure 4.4)

With the ratification of the Adams-Onis treaty, Pensacola became an American port. Although seized by Jackson in 1818, it was not officially made a United States possession until July 17, 1821 (McGovern 1974:106). Pensacola was by 1821 still only a backwoods port; the few existing buildings were in disrepair.

The 1820 Spanish census had listed 800 residents in or around Pensacola. By 1830 that number exceeded 1,000 (Tebeau 1971:134). When the U.S. took possession, port facilities were non-existent. Vessels stood off the town and off loaded into lighters, which was a time-consuming and inefficient method. Soon after U.S. occupation, a 1000-foot wharf was completed, allowing deep draft vessels to offload directly (Doherty 1959:339,343).

Commercial ventures were slow in coming to Pensacola. Cotton never really became as big an export as the locals had hoped, and other commercial endeavors were unspectacular. Pensacola lacked a major waterway connecting it to the interior (Thurston 1972:106-107). Upland products, however, could still be brought down the myriad small rivers and bayous that branched off into the hinterland. The lack of a major river artery was not as damaging as it would first appear. Neither is it accurate to say that the lack of river connections left Pensacola without a back country. The Escambia River connected with the Alabama cottonfields. An area stretching nearly one hundred miles eastward and extending far into southern Alabama was accessible to Pensacola through the Escambia river, Choctawhatchee River, Yellow River and a number of lesser streams (Thurston 1972:107). However, contemporary sentiment was expressed by the *Pensacola Gazette* in 1835: . . . "we lacked what was then infinitely more important, a navigable river to connect us with the interior." (Martin 1974:168).

Grandiose plans to solve this problem included canals and railroads. Unfortunately, these plans did not come to fruition for some time. An inland waterway system was over a century away and a railroad did not become reality until after the Civil War (Pearce 1980:24).

Despite the perception of being handicapped by the lack of a major river, Pensacola slowly grew in the Territorial and Antebellum periods. Trade was primarily coastal; although steam vessels were by 1822 a viable means of transportation, most commerce was conducted

by coastwise schooners. A single steamship, *Fidelity*, offered packet service to New Orleans. This packet service however was not economically sound and quickly disappeared. Although steam navigation reappeared in 1848, coastal schooners were the predominant vessels of the time. The only foreign trade recorded was an occasional trading voyage to Havana (Thurston 1972:108,127-128).

Unquestionably, the predominant export from Pensacola was lumber. After being virtually ignored for two centuries, the lumber industry turned Pensacola into a major seaport. Western Florida was rich with yellow pine, live oak, and cedar. Neither the Spanish nor the British had harvested the timber that abounded around Pensacola, despite both being maritime powers in need of ship's timbers. By the 1830s, large quantities of timber were being sent down the rivers draining into the bay as log rafts, to be loaded aboard coastal and ocean-going merchant vessels.

The Blackwater River was also the site of an early industrial complex at Arcadia. A wooden railway, drawn by mules, was used to haul timber from Arcadia to Bagdad, below Milton, for river shipment to Pensacola (Phillips 1989:18). These towns were the most significant of the upland timber ports and continued to grow in importance. By 1842, between fifteen and twenty mills were operating on or near the Blackwater River (James 1989:13).

In addition to the lumber trade, brick making also became another commercial venue during this period. Some eleven brick yards were in operation in the Pensacola Bay area during the nineteenth century. The largest were the Bonifay (1807-60), Noriega (1810-30), Gonzalez (1838-77) and the Bacon & Abercrombie (1857-60) brick yards. Bacon & Abercrombie held important contracts with the government to provide bricks for coastal fortifications being constructed around the Gulf. Most of the bricks produced in Pensacola were consumed either by the local population or by the Army. Shipments were also made weekly to New Orleans (Lazarus 1965:76-79).

Lumber, however, was the staple. Not only was lumber shipped around the rim of the Gulf, but it was also sent abroad (Eisterhold 1970: 147-148). The primary coastal carriers of this commodity were lumber schooners, design-dedicated for carrying timber. Usually fitted with bow hatches for easy loading, these vessels delivered wood to ports on the eastern seaboard and worked the Gulf from Apalachicola to New Orleans. Larger vessels were employed in the transoceanic lumber trade. Of some 4,000 vessels cleared to carry lumber to foreign ports in the Antebellum period, not one was listed as a schooner (Eisterhold 1970:151).

Along with timber produced by the forest tracts around Pensacola came huge quantities of naval stores, as well as shingles and staves. These items also were shipped both domestically and abroad. From 1821 through 1858, nearly 162 million feet of lumber was exported from Pensacola for domestic consumption (Eisterhold 1970:166). However, the biggest boost to the growth of Pensacola did not come from civilian industry.

On February 25, 1825, Congress passed a bill authorizing the construction of a navy yard at Pensacola (Pearce 1980:5). After an on-site inspection by Captain W. Baimbridge, plans were drawn up to construct a new fort on the western end of Santa Rosa Island to protect the entrance to the bay (Pearce 1980:9). Construction of the yard had begun by 1826, when Commodore Lewis Warrington was named the first Commandant of the Pensacola Navy Yard (Parks 1986:54). From this point forward Pensacola's fortunes were tied to the military's presence in the port.

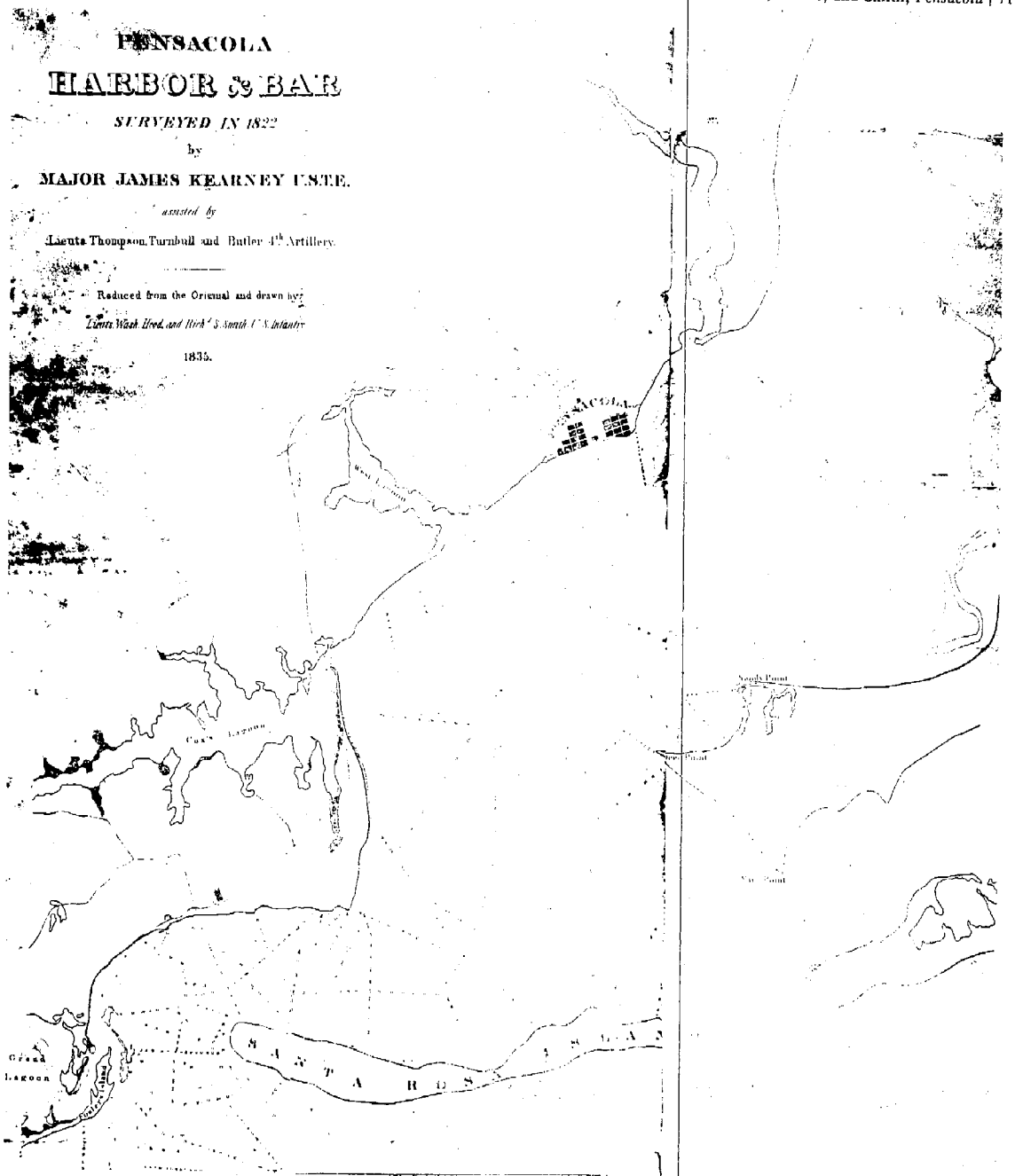

Figure 4.4. 1835 Territorial Map of Pensacola Harbor.

As the Navy's need for live oak for shipbuilding increased, the Secretary of the Navy called for the "establishment of reservations in Florida and Louisiana for its [the live oaks'] protection and cultivation" (Keller 1972:12-23). The Naval Live Oaks Reservation, consisting of some 340 acres of land on the Gulf Breeze peninsula to be used solely to cultivate the live oak tree, was purchased in 1828 (Parks 1986:54; Joy 1988:27).

By the 1830s, U.S. Naval presence was firmly established in Pensacola. From 1829 to 1859, the United States Army began constructing fortifications at three areas deemed necessary to protect the harbor. Fort McRee and Fort Pickens were built on the points of land flanking the entrance to the bay. Fort Barrancas was built to protect both the harbor entrance and the Navy Yard (Coleman and Coleman 1982:33-34). When the channel entrance was inspected by the Army Corps of Engineers, the Army pointed out the need to dredge the bar at the pass to make Pensacola a truly useful navy base (Pearce 1980:26,30-31).

War with Mexico broke out in 1836; however, Pensacola did not play a major role in this conflict. Although the harbor was excellent, facilities at the base could only effect minimal repairs and reprovision ships blockading the Mexican ports. As a navy base it was inadequate at this point in time.

In the years that followed, the yard was improved with a wet basin, a railway and a floating dock. Two vessels, *Pensacola* and *Seminole*, were constructed at the yard between 1857 and 1859. By the time the Civil War broke out Pensacola had grown to be a fair-sized port with a modest naval presence. The bar was still undredged and facilities at the base, though improved, were still far from elaborate. In 1861, Florida seceded from the Union and war came again to Pensacola.

The Civil War, 1861-1865 (Figure 4.5)

When the Confederates seized the Navy Yard and Forts McRee and Barrancas, the Union forces in Pensacola fell back to Ft. Pickens on Santa Rosa Island. All of this transpired without bloodshed.

However, Pensacola became the site of the first Civil War casualties in Florida. On September 13, 1861, a raiding party of marines and sailors from the *Colorado* attacked and burned the blockade runner *William H. Judah*, which was tied up at the Navy Yard. The schooner was being armed as a raider, but was cut out and destroyed before she could be completely armed (Woodstock Papers 1887). In this action, three U.S. Marines and one Confederate sentry were killed, as the first blood spilled in Civil-War era Florida (Bonney Letter 1861, Woodstock Papers 1887).

In October, the Confederates attempted to storm Ft. Pickens. Elements of the 1st Florida and 10th Mississippi Regiments were ferried to Santa Rosa, but were repulsed (Pearce 1980:75). This was the last southern attempt to gain control of the entrance of the bay. Union shell fire from Pickens and a small blockading squadron damaged vessels and facilities at the Confederate-held yard.

In February 1862, Southern forces, under General Braxton Bragg, abandoned the city. What they could not take with them they burned, including the steamer *Fulton* which was still on the ways for repairs. This scorched earth policy was not confined to Pensacola. On the Blackwater River, at Milton, two gunboats were under construction. One was being built

at the Howard yard, and the other at the Ollinger & Bruce yard. Both of these vessels were burned, as was a drydock at the Ollinger & Bruce Yard (Woolsey 1989:14-30). Both yards were also put to the torch, along with most of the useable timber and equipment at the nearby lumber yard. The operation was completed by May, and the Confederates quit the area.

Union forces immediately occupied the Navy Yard and were greeted by almost total devastation. None the less, Commodore David Porter pointed out that Pensacola still offered "more facilities for repairs than could be found anywhere else [on the Gulf Coast]" (Pearce 1980:80). Although never a major yard, by September 1862, Pensacola was serving as home port and supply center for Admiral David Farragut's West Coast Blockading Squadron. While no more actual combat took place in Pensacola, the Union did lose the frigate *Preble* when a careless corporal started a fire aboard her in 1863, resulting in her complete loss (OR Series I Vol 20:162-163).

Maritime Industrial Expansion, 1865-1906 (Figure 4.6)

Pensacola's maritime activities had increased during the Civil War due to its role as a supply depot. Following the war, however, the port experienced a decline as military budgets were cut back, and the port and yard fell into disrepair. By 1870, even the drinking water was unfit at the yard, and vessels could not resupply (Pearce 1980:95).

Despite stagnation at the yard, the port proper slowly began to revive, once again on the strength of the lumber industry. In addition, several railroads were constructed to bring the timber to Pensacola. By 1875, lumber being shipped to foreign and domestic ports was generating over two million dollars per annum (Thurston 1972:214-215). For one three-year period, 1875-1877, the U.S. Army Corps of Engineers listed over 590 vessels carrying lumber to foreign ports (U.S. Army COE 1877:411). Schooners still bore the brunt of the coastal trade and were able to go further inland to load. Deeper, ocean going vessels still loaded at the port. Lumber for these massive vessels came by railroad, log raft, and barge. Eventually the barge trade became the primary means of getting lumber to market. Barges were often converted schooners or square riggers. As the viability of using available schooners diminished, barges would be design-dedicated for this task. As steam navigation improved, it became economically sound to tow several barges with a steam tug rather than to use schooners. Barges were employed in the coastwise trade and to bring large quantities of timber to port for transoceanic vessels (Hutchins 1969:564-565).

Although other commodities were shipped from Pensacola during this time, they were insignificant in amount when compared to the timber industry. By 1885, the Army Corps of Engineers reported that Pensacola was the most significant port on either the Gulf or Atlantic coasts between Philadelphia and the Rio Grande (U.S. Army COE 1885:1322). Deep-draft vessels could be accommodated at one of several long piers built by the city.

Following the Civil War, Pensacola became the first city in Florida to develop a commercial fishery. Although the red snapper fishery had operated before the war, it was not until after the conflict that the industry really took on economic significance.

In the 1840s New England fishermen had begun to head south to fish the Gulf during the winter. They pursued snapper, a species known to local fishermen but not exploited to any great extent. Slowly, the popularity of the red fish grew. The industry was interrupted by the war but quickly resumed. Vessels fishing offshore for snapper used live wells to deliver

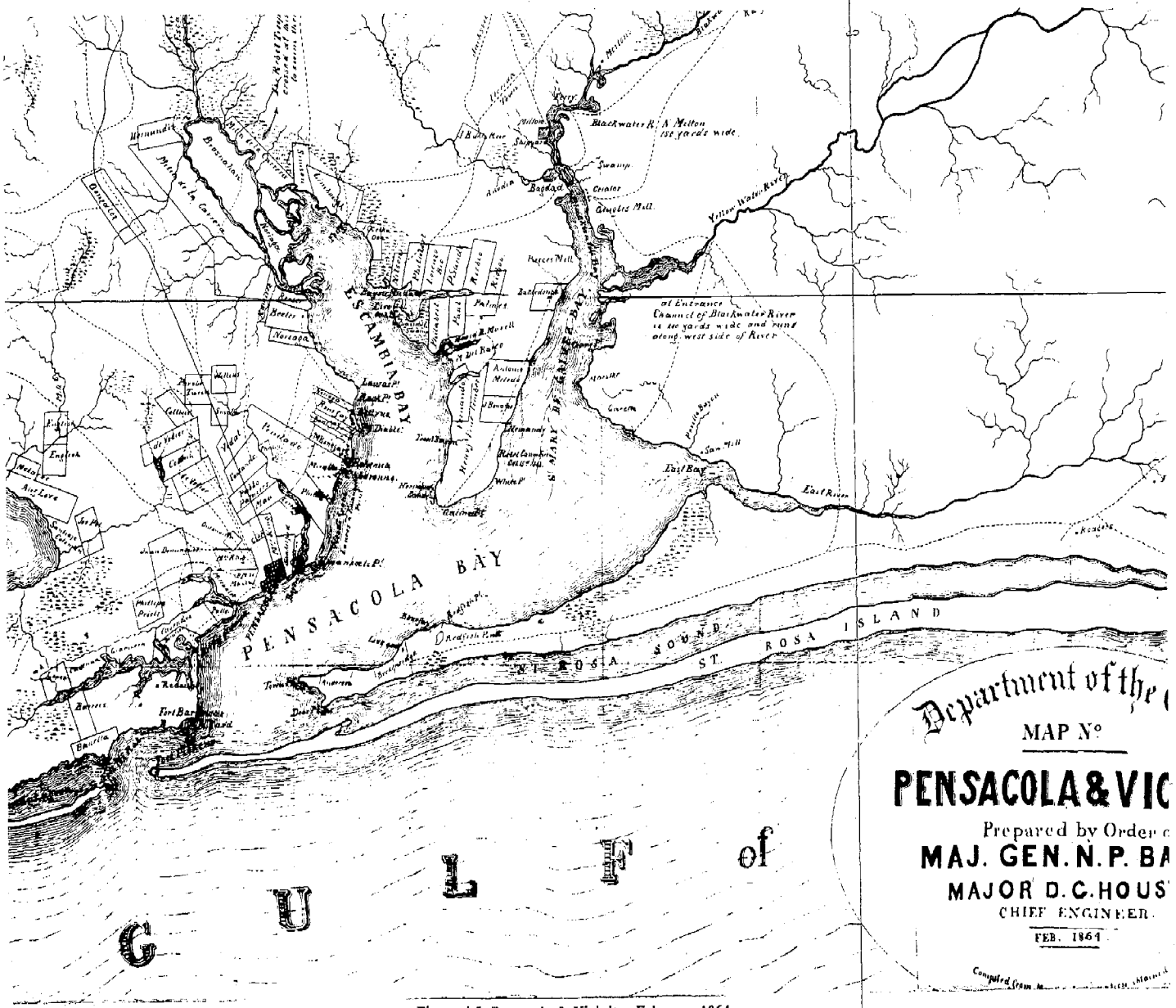

Figure 4.5. Pensacola & Vicinity, February 1864.

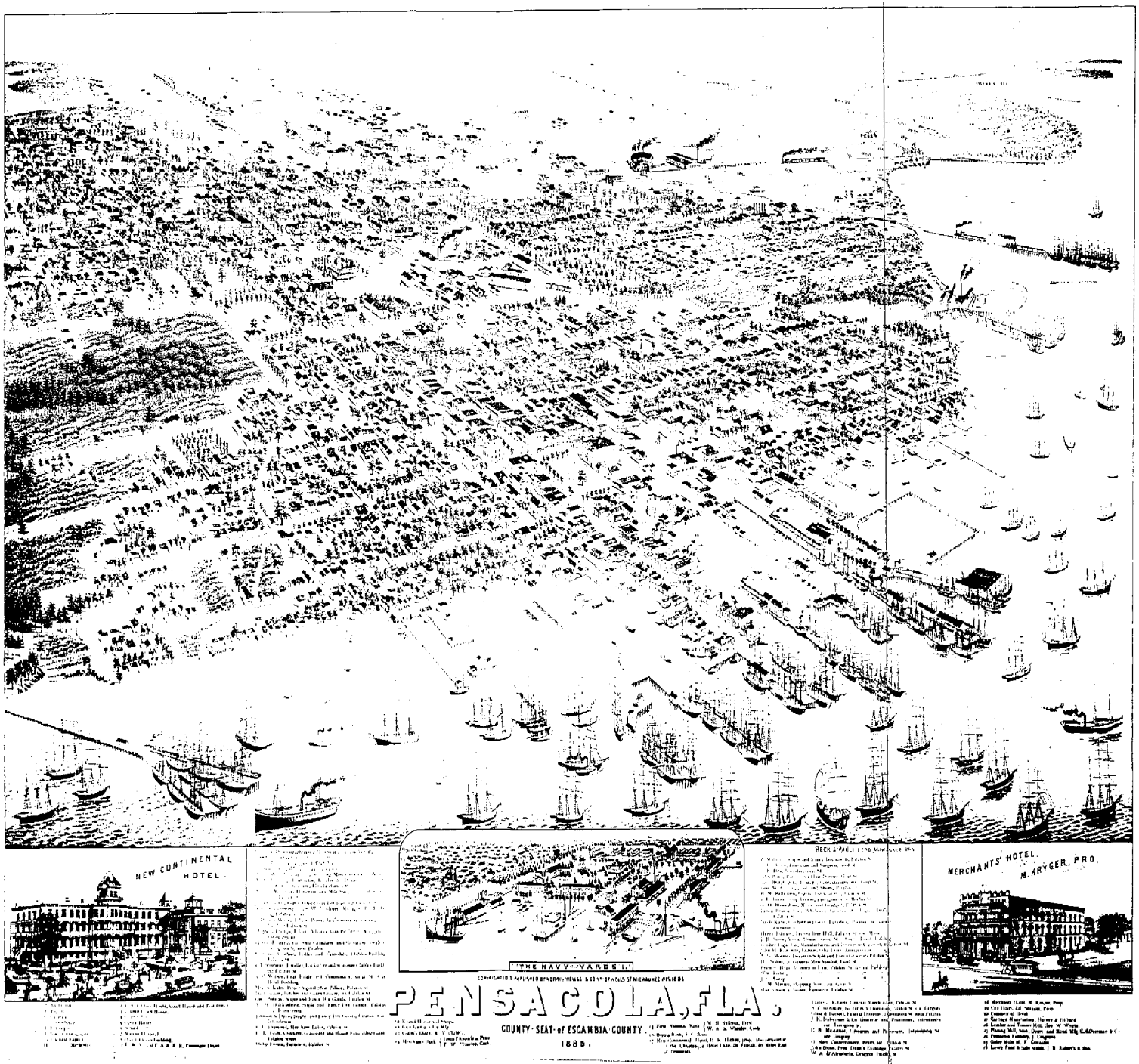

Figure 4.6. Pensacola in 1885.

the catch to market alive. As the only port facility with wharves located in salt water, even boats from New Orleans and Mobile brought their catch into the port of Pensacola for landing (McNeil 1977:7). These vessels reflected a Yankee heritage of design and function; their hull plans influenced subsequent designs built in Pensacola and the surrounding area for years afterward.

In 1896, over a million pounds of snapper passed through Pensacola. Of the 42 vessels in the fleet at this time, 35 were locally owned (McNeil 1977:14,25). The key to the success of the snapper industry was to ship the catch to other markets by railroad. Although some fish went north by ship, packed in ice, the railroads allowed the fishery to flourish as it never had before.

The expansion of the fishing fleet also prompted a need for newer and larger shipyards. The Pensacola Marine Railway Company constructed a facility in 1889 to repair and refit the snapper fleet. The marine railway was located in Old Navy Cove on the Gulf Breeze peninsula, a protected area of deep water once used by both the colonial Spanish and British vessels as a careening ground (Joy 1988:23-28).

Old Navy Cove was also the site of a yellow fever Quarantine Station in the last quarter of the century. During declared epidemic seasons, all vessels entering Pensacola Bay were required to stop, offload ballast and cargo, and to be fumigated with sulfur fumes before heading into port (Davison 1876, Joy 1988:27).

Toward the latter part of the 19th century, coal became a major cargo. Carried by rail from mines in Alabama, coal was shipped from Pensacola to other Gulf ports. By 1872, Pensacola was connected by rail to several major cities in the north (McNeil 1977:7). Short haul railroads not only brought lumber to port, but allowed goods coming into port to reach a large inland market cheaply. Eventually, the Louisville & Nashville Rail Road established a coal terminal in Pensacola (Tebeau 1971:282-283).

In addition to the contribution of railroads to Pensacola's growth, the federal government made several improvements to the harbor. In 1877, the Corps contracted with George Legallis to remove four wrecks from the entrance to the harbor: *Convoy, William Miles, Ada*, and *Nettie* (U.S. Army COE 1877:409-412). The shoal at the entrance to the pass, which was a primary obstruction to navigation, was finally dredged in 1882. Maintenance dredging was required in subsequent years to keep the channel clear; this is an ongoing process that still occurs on a regular basis.

The combined effects of the rail system and harbor improvements finally made Pensacola the major port its discoverers had always envisioned. By 1899, more than $14 million in exports passed through the port (Thurston 1972:216).

Early 20th Century Period, 1906-1945 (Figure 4.7)

Pensacola's period of economic growth was interrupted by a major hurricane in 1906 that totally destroyed the waterfront and the Navy Yard. Numerous vessels were sunk and driven ashore, and it was over a year before the port was back in full operation. The Gulf Marine Railway in Old Navy Cove was destroyed and never rebuilt. Among the vessels that succumbed to the disastrous storm was the famous *Cutty Sark*, which was then Portuguese owned and named *Ferreira*. She was refloated and repaired. Despite this setback, in 1911 the

Pensacola Journal stated that Pensacola was the premier port on the Gulf, based on exports and vessel visitation. However, this distinction was not to last.

Along with natural catastrophe came a slow demise of the timber trade. Forests that had fallen to the woodsman's axe had not been replanted, and the seemingly inexhaustible supply of timber was suddenly looking very scarce. Although there were still acres of untouched woodland above Pensacola, the distances involved in getting the lumber to port made harvesting these tracts economically prohibitive.

By 1911, the Naval Yard had ceased operations. After a brief resurgence during the Spanish American War, the Yard slid back into decline. In 1914, however, the Secretary of the Navy announced that Pensacola was the site chosen for a new "aeronautic center," a decision that ultimately turned Pensacola into a major naval base and training facility (Pearce 1980:132).

On February 2, 1914, Lieutenant John Towers and Ensign G. de C. Chevalier made the first flight from the Pensacola Naval Air Station. By 1916, there were approximately 900 employees staffing the base, 400 civilians and 500 military personnel (Ellsworth 1982:92). Pensacola gained a new importance as the entire nation focused its attention on a new era in naval history, the birth of naval aviation.

World War I served to stimulate Pensacola's economy and the demand for naval aviators. The Pensacola Shipbuilding Company hired more than 4,000 new employees and held government contracts valued at over $15 million dollars. Local shipbuilding was primarily for the merchant marine service, which was federally subsidized (Ellsworth 1982:96). Although immediately after the war a recession took hold, by the mid-twenties the port and air station again recovered, on a somewhat limited basis (McGovern 1976:30).

In 1921, USS *Massachusetts* was brought to Pensacola for an army artillery experiment. Sunk outside the channel entrance, she was shelled by a variety of guns mounted on railroad cars as part of a new coastal defense testing program. The first aircraft carrier, USS *Langley*, was stationed at Pensacola from 1923-1924. As the importance of naval aviation grew, the port slipped in significance and the level of trade dwindled.

Although the lumber industry experienced a mild resurgence during the war, it declined again when the war ended. Through the 1920s, the Pensacola waterfront wharves were still privately owned. The City of Mobile began to construct public docks and develop a system of interior freight connections. While Pensacola authorities struggled with financial difficulties, Mobile quietly outpaced Pensacola in gaining trade (Ellsworth 1982:108,109).

After World War I, the local fishing industry suffered; as catch prices fell, more fishermen quit their trade to take advantage of higher wages offered by the merchant marine (McNeil 1977:36-37). Depletion of red snapper resources and fishing restrictions also hampered the commercial fishery (McGovern 1976:30). Snapper were pursued farther and farther offshore. Eventually, fishing vessels went as far as the Campeche Banks to fill their wells. This long voyage necessitated building faster, more seaworthy boats that were heavily influenced by Gloucester-built vessels brought from New England.

Snapper fishing peaked in 1923; contemporary newspaper accounts called Pensacola both the "snapper capital of the world" and the "Gloucester of the South." But, as the Great Depression caused a decrease in the market for expensive seafood, the industry declined in

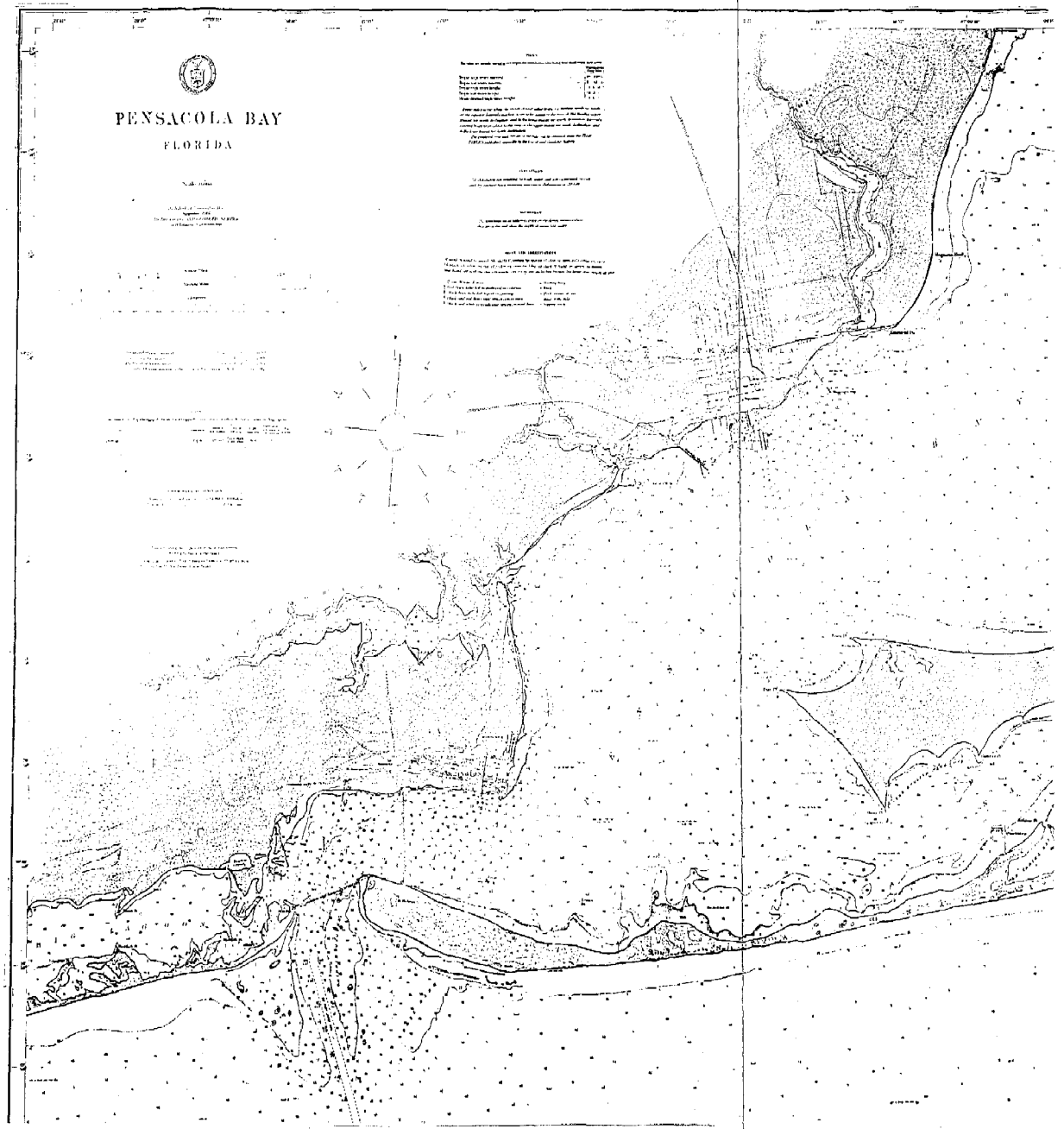

Figure 4.7. 1914 Geodetic Survey Map of Pensacola Bay.

the 1930s. Hampered by over-fishing and greater production costs, the final blow to the snapper industry came when available manpower was significantly reduced by the onset of World War II (McNeil 1977:40-46).

During World War II, Pensacola's economy boomed as the demand for aviators soared. As in the early part of the century, world war stimulated the city's economy. Pensacola's contributions to the war were as a major Gulf petroleum port, and as the center of naval aviation training. To a lesser extent, Pensacola's shipyards flourished during the war (McGovern 1976:157). In 1943, a port authority was finally commissioned in Pensacola (Port of Pensacola 1981:28).

Late 20th Century Period, 1945-Present (Figure 4.8)

The economy slowed after World War II, but has been steadily rebuilding. By 1957 the Port Authority had acquired existing docks and was planning the construction of new ones. Fire, and the loss of a prime cargo source in Cuba, due to Castro's revolution, slowed progress. In 1969-1970 the City of Pensacola took over port operations. By 1970 a new terminal was completed (Port of Pensacola 1981:39-51). Ironically, the port began to import South American hardwood. Petroleum products, including liquid sulphur, provided the mainstay of its exports. Currently, Pensacola functions as a barge port for coastwise and waterway trade with limited deep-water visitation. The Port of Pensacola is again operating in the black.

The snapper industry, suffering from depleted stocks offshore, is now a recreational fishery with only a limited commercial season. Shrimp have replaced redfish as the principal seafood export. Almost all of the shrimp that come through Pensacola go out by rail.

The Naval Air Station is the backbone of the city's economy, and until this year was the homeport for the USS *Lexington*, the oldest aircraft carrier still on active duty. The *Lexington* has been decommissioned, and will be replaced by another carrier, USS *Forrestal*, as Pensacola becomes one of the principal strategic home ports for the U.S. Navy.

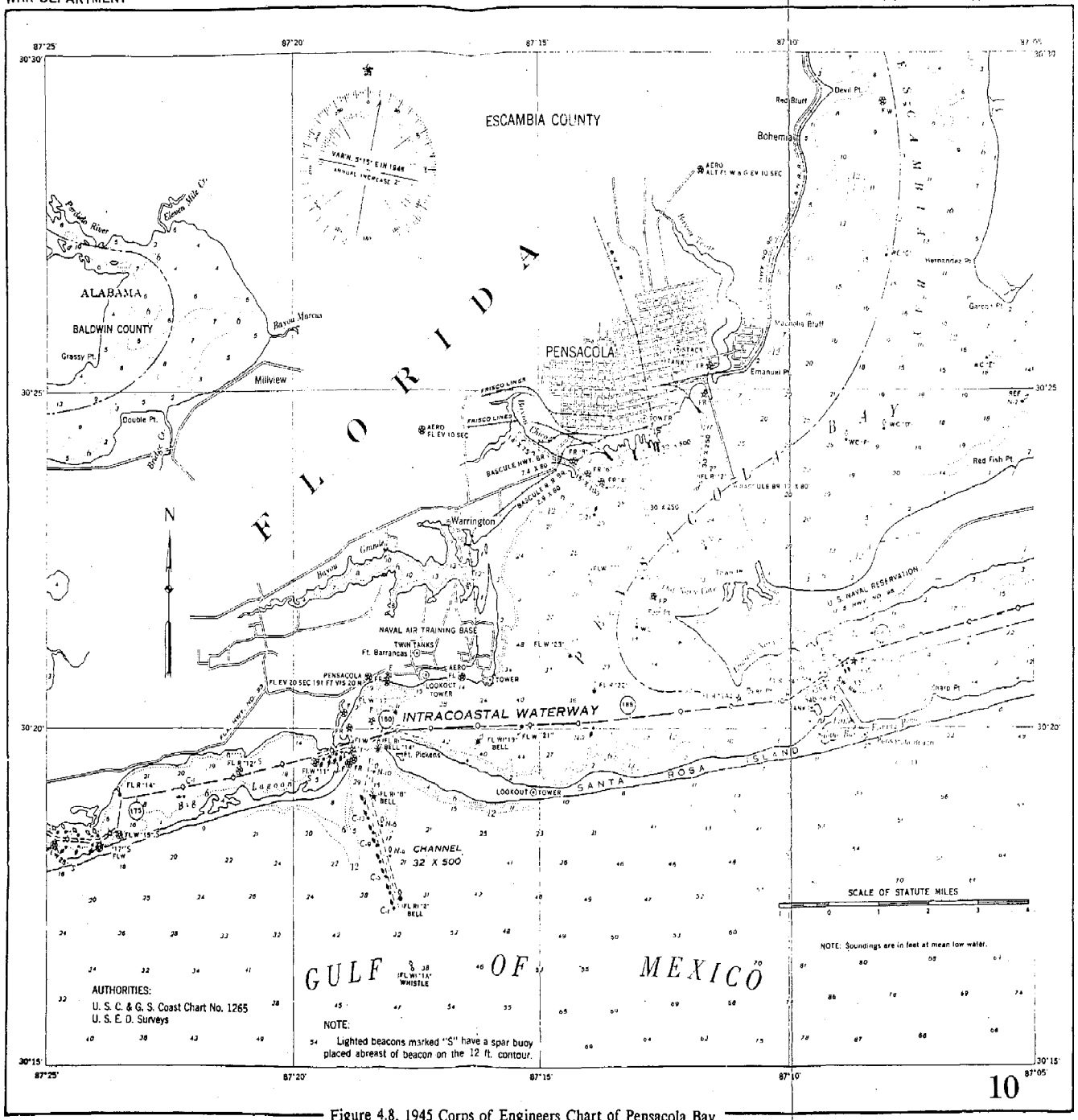

Figure 4.8. 1945 Corps of Engineers Chart of Pensacola Bay.

CHAPTER 5. SUMMARIES OF PREVIOUS WORK

Introduction

Until recently, there has been little formal investigation of the submerged cultural resources in the Pensacola Bay area. In the past, most studies were conducted to satisfy government agency requirements for investigation of areas about to be dredged, constructed upon, or established as National Seashore land. A few underwater sites were located and reported. Since 1987, five sites have been located, documented, and studied to varying degrees. Two sites were mapped by contract firms, and three vessels were recorded by students and professional archaeologists acting under the direction of the Florida Bureau of Archaeological Research. One of these sites, a British Colonial vessel (8SR782), underwent complete excavation. The following chapter will summarize, in chronological order, the previous work conducted in and around the Pensacola Bay area.

1973 National Park Service Preliminary Reconnaissance

The National Park Service conducted a preliminary reconnaissance survey of the Gulf Islands National Seashore in the vicinity of Santa Rosa Island and Perdido Key in 1973. The survey was initiated to "generate data to support management, protection, and utilization of shipwreck sites threatened by increasing public use of submerged park lands." A proton magnetometer was employed to conduct remote sensing in offshore areas of the park where public use was the most frequent. The survey recorded "18 potential submerged cultural resources," but most of the material generating the magnetic signatures was determined to be buried under bottom sediments. A few targets were located and investigated; most proved to be 19th century in origin. One of the targets was thought to be associated with an 18th-century Spanish wreck shown on a mid-19th century chart, but was not investigated further (Lenihan 1974).

1973 Gulf Islands National Seashore

Pursuant to the establishment of the Gulf Islands National Seashore in 1971, the Department of Anthropology, Florida State University, was contracted to conduct an archaeological survey of the National Park Service holdings along the Gulf coast between Mississippi and Pensacola. Part I of the ensuing report by Louis Tesar dealt with the Florida portion of the survey, primarily the Naval Live Oaks Reservation on Gulf Breeze peninsula, Santa Rosa Island, and the area around Ft. Barrancas (Tesar 1973). Tesar described the following shipwreck sites on land and in shallow water:

> 8ES99 Tugboat *Sport* Wreck: The tugboat *Sport*, which was wrecked during the 1906 hurricane, is located 3.9 miles west of the Entrance Gate [to Ft. Pickens] in the shallow water just off Santa Rosa Island on the bay side. The remains of this metal hull are exposed above the water level near the beach (Tesar 1973:126).
>
> 8ES100 Wreck Scatter: The wreck scatter which represents 8ES100 is located near the shore in the area SSW of the concession stand. This site is represented by three concentrations of ship's timbers. The most intact section was shown

to the field investigator by Norm Simons who had located it some time ago. It is located about 150 yards from the beach and 50 yards from the fence. There is the possibility that this site represents scatter from the breaking up of the Norwegian bark, *Catherine*, which was wrecked on August 7, 1894 on the Gulf side of the Island near the old Life Saving Station (Tesar 1973:126).

8ES101 *E. W. Fowler* Wreck: The wreck of the *E. W. Fowler* (8ES101), which is located in the nearshore tidal area due south of Fort Pickens, represents a snapper smack owned by E. E. Saunders and Co. of Pensacola, Florida. It was fully loaded with red snapper when it sank in 1961-62. Portions of this wreck are exposed above the waterline (Tesar 9173:127).

8ES24 Ship Keel Site: shipwreck located 6.6 miles east of the Pensacola Beach water tower . . . first described by Simons and Lazarus, who reported it to be "about 60 yards south of S.R. 399, about 200 yards west of ES5 between first and second row of dunes back from Gulf. Keel structure with ribs but planking missing, square spikes, some bronze, small brass nails. Ship is 50 ft. long and inverted. Revisited by Simons and Tesar, all that remained was part of the rail and decking exposed in the wave washed area of the eroded beach embankment. Vessel was decked with 4 inch cypress and burnt to the deck line, evidence of amateur excavation (Tesar 1973:133).

8ES50 Pura Pendejada Site: remains of a shipwreck located 10.3 miles east of the Pensacola Beach water tower, wreckage on top of a small dune located 20 feet north of S.R. 399, scattered over an area which extended some 80 feet WNW of this dune. In April of 1973, the site was totally excavated and removed by unknown persons, who apparently used a one-ton truck. The wreck was fastened with brass and iron spikes, and assumed to date sometime between the late 1800s and early 1900s (Tesar 1973:134).

8ES52 The *Isabelle* Wreck Site: located on the Gulf side of Santa Rosa Island, 10.2 miles east of the Pensacola Beach water tower, 0.1 miles WSW of ES50, and 0.1 miles E of ES53. Part of the deck, side, mast, and iron pintles were exposed. Timber appears to be yellow pine, and charred wood of the deck and mast give impression that the vessel met disaster by fire. Amateur excavation noted. Identified as *Isabelle* by Sandra Stairs, *Pensacola News-Journal* Staff Writer ("Ghosts of 'Isabelle' Haunt Navarre Beaches," Sec. C of *Pensacola News-Journal*, April 2?{ask Tesar}, 1973), built 1892 in East Boothbay, Me., wrecked January 5, 1946 (Tesar 1973:135).

8ES53 Fichtner's Ship Ballast Site: located 10.1 miles east of Pensacola Beach water tower, represents granite ballast rocks covering an area about 100-120 feet NW-SE by 40 feet NE-SW in the nearshore area located due south of the telephone pole with the three condensers. Northwestern part of the site is within 40 feet of the beach and in 4-5 feet of water. Likely ballast rocks are from ES52 *Isabelle* site (Tesar 1973:137).

ES56 Wreck Scatter Site: most probably represents storm scatter from ES50, 52, and 53 sites; located between SR 399 and Sound and between 10.1 to 10.3 miles east of the water tower, 40-50 feet north of the outer ring of the bomb target (Tesar 1973:138).

During the survey of these ship-related sites, Tesar gathered data on Pensacola shipwrecks, which he incorporated into a chapter in his report (Tesar 1973:161-168). Data came from the "File of Pensacola's Ship Wrecks" in the archives of the Pensacola Historical (Society) Museum courtesy of G. Norman Simons. The list included 62 wrecks and 11 strandings. Tesar noted in his report that during the course of his survey he observed or heard about much unauthorized wreck salvage from numerous sources. He recommended that some consideration should be given to protection and management.

1979 National Park Service Magnetometer Survey of Perdido Key

In conjunction with the Mobile District, U.S. Army Corps of Engineers, the National Park Service carried out a second magnetometer survey in the vicinity of Perdido Key in 1979. The purpose of the survey was to relocate four potential submerged and buried targets revealed during a previous reconnaissance in 1973. Over a period of two days, anomaly clusters at three targets were relocated and buoyed, and their locations established using transits from shore. Visual inspection by divers established that the targets were still buried (Deren 1979; Floyd 1979).

1986 U.S. Army Corps of Engineers Navy Homeport Remote Sensing Survey

In March 1986, the U.S. Army Corps of Engineers, Mobile District, conducted a remote sensing survey of the Pensacola Harbor channel and turning basin in front of the Navy Yard during a two-week period. A total of 173 magnetic anomalies were located. Fifty-six of these anomalies were associated with side-scan sonar targets. Upon evaluation, twelve of these targets were selected for additional investigation and further identification (U.S. Army COE 1986).

1987 Tidewater Atlantic Research Investigation of Anomalies for U.S. Navy

In 1987, Tidewater Atlantic Research (TAR) was subcontracted by Turner, Collie and Braden, Inc. to identify and assess sonar and magnetic targets acquired by the Mobile District, U.S. Army Corps of Engineers, during a remote sensing survey of the Pensacola Harbor channel alignments in 1986 for the U.S. Navy Strategic Homeporting Project. Twelve target sites had been recommended for investigation by archaeologists of the Mobile District. Investigation of the targets was carried out by U.S. Navy personnel from the Experimental Diving Unit, based in Panama City, and archaeological supervision was provided by TAR staff.

Seven targets relocated by the Corps, and two targets identified by local divers, were examined. Of these targets, four proved to be modern debris and navigational reference buoys, two were identified as iron anchors unassociated with additional cultural material, and two targets produced no evidence of cultural material. Only a site identified by a sport diver, and thought to be the remains of the *Convoy*, proved to be a shipwreck. A preliminary site plan, video tape, and still photographs, were made to document the site, which had been extensively disturbed in the 19th century, according to both historical and archaeological evidence.

Tidewater Atlantic Research recommended that no further investigations of the identified targets were necessary, except for considerations of future impact to the *Convoy* site. The *Convoy* site was revisited and evaluated by the Pensacola Shipwreck Survey staff in 1991. Excerpts from the TAR report on the *Convoy*, including a reproduction of the site map, are included in Chapter 8 of this report. The TAR report also included a well-researched historical narrative of activities in Pensacola Bay, as well as a list of ship losses compiled from archival sources (TAR 1987).

1988, 1989 Blackwater River Bethune Schooner 8SR985

In February 1988, Mr. Warren Weeks of Milton directed staff of the Florida Bureau of Archaeological Research (BAR) to the site of an abandoned and submerged vessel in Morton's Basin on the Blackwater River. Preliminary investigation determined the vessel to be a well-preserved 19th-century schooner of significant historical and archaeological value. In April, BAR personnel and local volunteers conducted further exploration of the site to obtain data on basic features and their dimensions, and to document these with video. After removing vegetation and silt from the main deck, they discovered an articulated hull with two sets of standing rigging remains, a large wooden windlass in the bow, and a bilge pump in the stern. The site was assigned a Florida Master Site File number (8SR985) and named after the upland property owners, Mr. and Mrs. John Bethune.

A thorough documentation of the schooner took place in July 1989 under the direction of David R. Baumer, a graduate student in East Carolina University's Maritime History and Underwater Archaeology Program, with the assistance of local volunteers. Detailed measurements of hull dimensions and associated features allowed Baumer to produce a scaled plan of the vessel and its hardware (Figure 5.1). The overall length of the schooner was found to be 96 feet; her extreme beam, 25 feet 11 inches; and her draft was estimated to have been 6 feet 9 inches. Based on the survey data, Baumer gauged the vessel's tonnage to have been 93.2 tons.

Oral and written histories were collected during the project; these helped to reconstruct the crucial role of the Blackwater River in West Florida's industrial boom, especially in lumber and brickmaking. They failed, however, to provide a positive identification for the vessel, which Baumer characterized as a light-draft, bluff-bowed, two-masted, coastal centerboard schooner, dating from the period between the 1830s and the 1870s. A possible candidate, *Hornet*, was recorded in 1866 as having been sunk in the Blackwater River. This identification is questionable, since that vessel's registered dimensions and tonnage were slightly less than those of the Bethune Schooner. Baumer concluded that the schooner is approximately 90 percent intact, readily available for study, and represents an extinct watercraft type once common in North American river and coastal commerce. He recommended that archaeological investigation of the hull be continued. Baumer also recommended that the Bethune Blackwater Schooner be nominated to the National Register of Historic Places.

Based on his report, the nomination was prepared by Barbara Mattick of the Florida Bureau of Historic Preservation, and submitted to the National Register Advisory Council, which voted for its placement on the Register in May 1991.

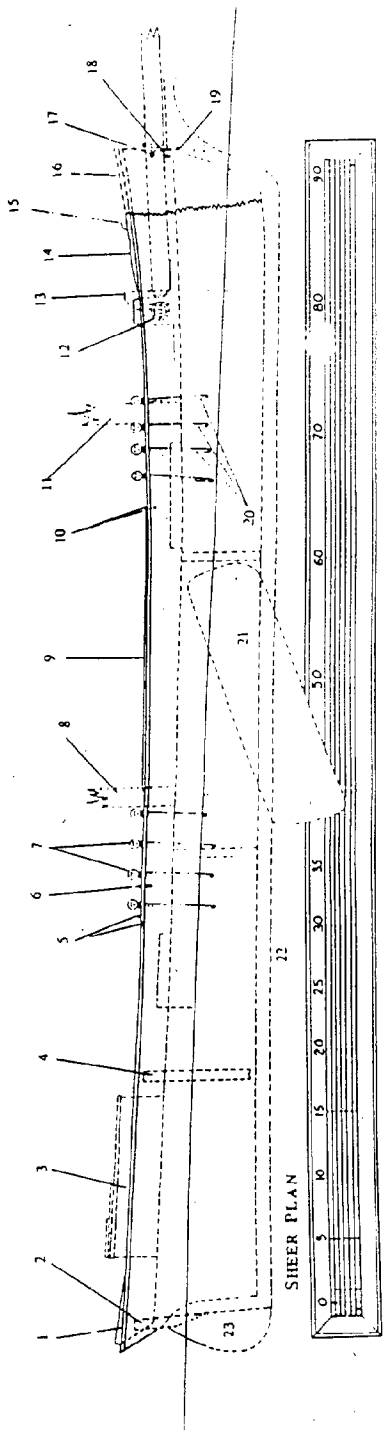

Figure 5.1. Plan Drawing of 8SR985, Bethune Blackwater Schooner.

1988, 1989 Deadman's Shipwreck 8SR782

In 1988, the Institute of West Florida Archaeology at the University of West Florida (UWF) contracted with the City of Gulf Breeze to conduct a survey of Deadman's Island. This work revealed, among other discoveries, the remains of a late 19th-century marine railway, and, nearby, evidence of the well-preserved hull of a wooden sailing ship eroding from the beach in shallow water (Joy 1988). Dr. Judy Bense contacted the Florida Bureau of Archaeological Research (BAR) in Tallahassee, and a joint investigation of the site was conducted in August 1988 with the help of students and local volunteers. Initial mapping indicated that a large portion of one side of the vessel, from the keel to the turn of the bilge, was present under the sand in barely three feet of water. Its construction appeared to be colonial, with ceiling planking fastened by treenails to hand-hewn frames. The absence of ballast and a mast step assembly suggested that the vessel had been stripped and abandoned. A small test excavation unearthed English wine bottle glass, gunflints, lead pistol shot, and cast-iron swivel gun shot. From beneath the inner planking came a pewter uniform button with the insignia of the 60th Regiment of Foot. These clues suggested that the ship was British, had been armed as a naval vessel, and was associated with an infantry regiment stationed at Pensacola between 1776 and 1781 (Bense 1988b).

The findings caused a stir in the Pensacola area, since they represented the earliest remains of a ship to be documented in West Florida. Due to the threat of further erosion and the site's accessibility and articulated nature, it was decided that further investigation of the vessel would be an ideal opportunity to train students in underwater excavation and naval architecture, while at the same time developing public appreciation for the maritime resources of Pensacola. Accordingly, a field school was planned for the summer of 1989 to accomplish three objectives: excavation and recovery of data from the site; field and laboratory training of college students; and public involvement in marine archaeology. The project was sponsored by BAR, UWF, and the City of Gulf Breeze.

The field school attracted ten undergraduate students from the Universities of West Florida, Florida, Miami, and Alabama, as well as from Trinity University. Instruction and supervision were shared by Dr. Roger C. Smith of the Bureau of Archaeological Research, Robert Finegold of East Carolina University, and Marianne Franklin of Texas A&M University. The instructional portion of the school was divided into formal classroom lectures, field workshops, and laboratory classes. A vacant waterfront restaurant was transformed by students into a headquarters and laboratory, and at Deadman's Beach, they established a base camp adjacent to the site. Daily routine divided students into two groups, field and laboratory; the groups were switched at noon, so that activities and training were equally divided between the two work areas, which operated simultaneously each day. In addition, students were given weekly research assignments to combine field and archival data in a written form, which could be used in the final excavation report (Smith in press). From the beachhead, students surveyed in primary datums on the wrecksite, which was overlain with an underwater grid for excavation. Each 5-foot square of the grid was assigned a two-student team, within which they were assigned the responsibility to record its artifactual and architectural contents. An initial loose layer of sand overburden was found to contain intrusive materials associated with 19th-century activities; a second layer within the vessel itself, consisting of consolidated sand, shell, and silt, contained a variety of materials associated with the vessel's function and the activities of her crew. Aside from additional military paraphernalia, glass and ceramics, organic materials, such as plant remains, rope, wood, and leather, were surprisingly well represented on the shallow-water site. The contents of each square were recorded, bagged, tagged, sorted, drawn, and conserved by the students.

A mosaic of the shipwreck's surviving structural components was pieced together from measured grid drawings to form a site plan. An additional structural plan was drawn as a basis for a digitized computer-drawn sketch of the timbers in two dimensions (Figure 5.2). Curvatures of surviving hull frames were recorded to experiment with computer-generated shapes that might supply a three-dimensional image of the original vessel.

During excavation and recording, it soon became apparent that the ship had been in the process of careening on her port side before she was abandoned. An organic deposit of peat, leaves, branches, cut wooden slats, and tar and pitch surrounded the hull. Tarred hemp rope was found along portions of the outboard edge of the keel, and may have aided in the operation.

The exact identity of the Deadman's Shipwreck remains inconclusive; at least two likely candidates, HMS *Florida* and HMS *Stork*, are recorded as having been abandoned at Gulf Breeze in 1778 and 1779 respectively. At the conclusion of the project, the site was backfilled and sandbagged in an attempt to slow natural erosion. A 30-minute video documentary was produced for local viewing by volunteers from footage obtained during the field school. The City of Gulf Breeze received a brochure and permanent public exhibit, which was opened in the local community center in April 1990. The site was also the topic of a University of St. Andrews masters thesis by Robert Finegold.

1989 Blackwater River, Old Bagdad Lumber Mill

In October of 1989, Stephen R. James, Jr. and James Duff of The Underwater Archaeological Consortium, Memphis, Tennessee conducted a reconnaissance-phase submerged cultural resources survey at the site of a proposed pier at the confluence of the Blackwater River and Pond Creek, adjacent to the site of the old Bagdad Saw Mill. The investigations were conducted at the request of Blackwater Prestressed Concrete Company in accordance with permit compliance requirements associated with the proposed construction. The investigation, which included a magnetometer survey, underwater visual inspection, and archival research, concluded that the area within the proposed project boundaries did not contain any significant historical cultural resources. Four magnetic anomalies were encountered, but only one of these was located within the project area boundaries. Underwater investigations of the targets revealed that three were composed of ferrous fasteners associated with the saw mill, while the source for the fourth was undetermined. This unidentified anomaly was from a single point source and, like the other three, was considered nonsignificant (James 1989).

1989 Investigation of Jack's Wreck (8ES1900), Gulf Islands National Seashore

A shipwreck site located under the sands of Johnson's Beach, in the Perdido Key portion of the Gulf Islands National Seashore, was investigated in March, 1989, by students of the University of West Florida's first underwater archaeology class. Locally known as the "Snapper Wreck," the site lay buried under six feet of sand, about fifteen yards above the high water mark. The wreck had periodically been uncovered during winter storms, and the wreck's location had been marked by park rangers with a metal stake.

The Park Service contacted the University to suggest that investigation and recording of the site might be an appropriate teaching tool, and might also result in collection of data

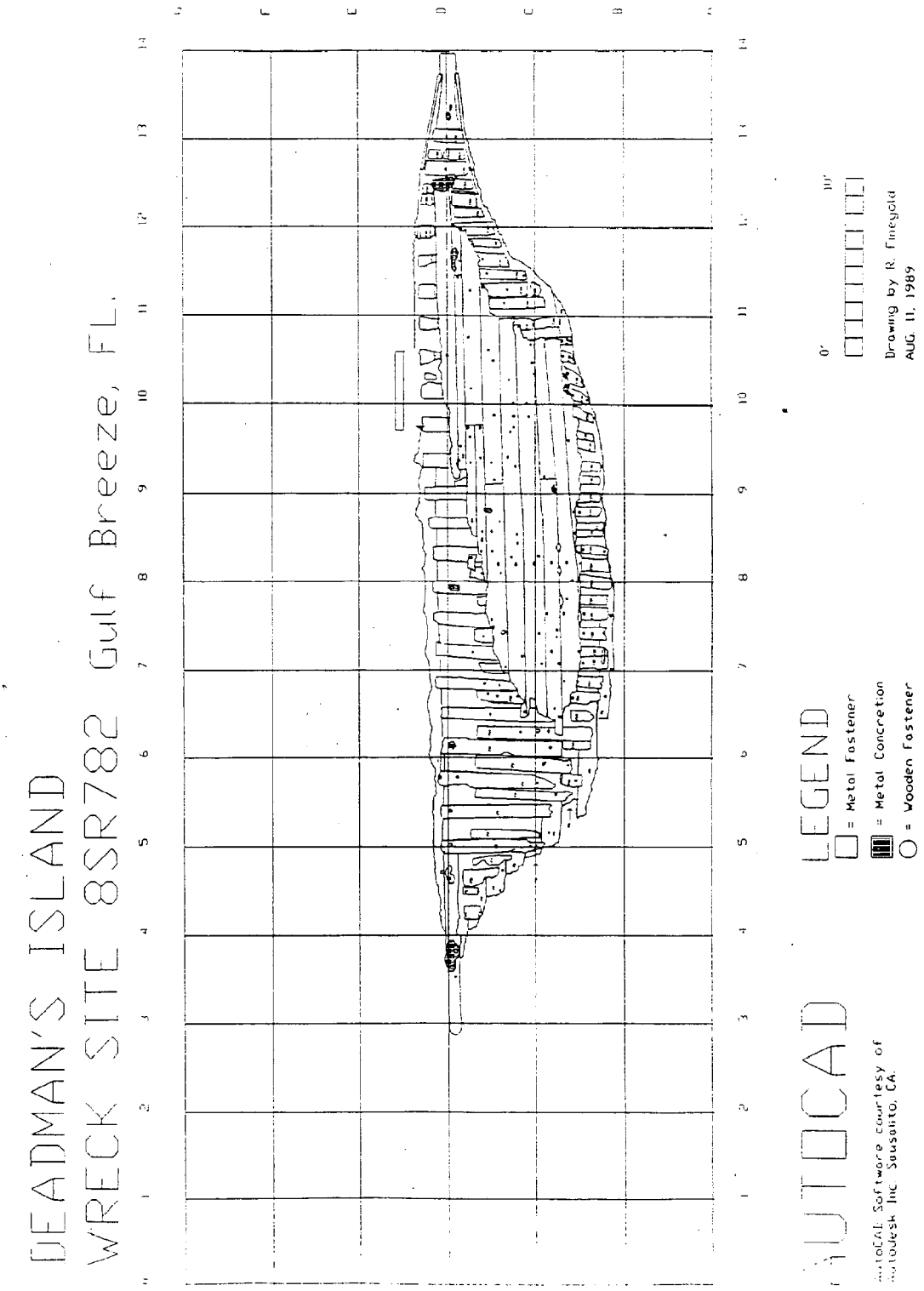

Figure 5.2. Site Plan of 8SR782, Deadman's Island Shipwreck.

useful to the Seashore. On a Saturday in March, a team of 46 students under the direction of Roger C. Smith, commenced to excavate a trench over 50 feet in length and 10 feet in width, uncovering a heavy longitudinal structural component with two riders, fifteen paired frames, and sections of outer hull and ceiling planking. Students were divided into four groups to complete the following tasks: measuring and recording; sketching a site plan and ship sections; video recording and photography; and recording artifacts and collecting wood samples. During examination of the hull timbers, students noticed the name "Jack" had been carved into one of the ship's frames, prompting the site to be given a new name.

The work was summarized, including a site plan drawing, in a 1991 report by University of West Florida student Michael Hoyt Williamson (Figure 5.3). The site was added to the Florida Master Site File and assigned the number 8ES1900. Archival research and oral histories produced one likely candidate for the ship's identity: *Lucky Strike*, a 77 -ton fishing vessel built in 1924 and abandoned in the vicinity of Johnson's Beach in March, 1958. Further investigation of the site and additional constructional data on local fishing craft might help to substantiate this identity (Williamson 1991).

1990 Bronze Howitzer and U.S. Army Corps of Engineers Survey

On February 27, 1990, during dredging operations to deepen the entrance channel to Pensacola Bay for the Navy Homeport Project, a bronze artillery piece became lodged in the pump of the dredge *Carolina*. It was removed from the pump and dredging resumed. Recognizing the historical importance of the piece and its potential association with an unrecorded shipwreck site in the path of the dredging operations, one of the dredge crewmen immediately sought to inform the local media of the discovery. He subsequently appeared on evening television news broadcasts with photos he had taken of the artillery piece (his identity was disguised, since he feared termination by the Great Lakes Dredge Co.).

On March 1, Mobile District Corps of Engineers archaeologist Dottie Gibbens and Florida state underwater archaeologist Roger C. Smith boarded *Carolina* (which had been moved to another dredging location) to examine the piece. They identified it as a mid- to late-18th-century howitzer. A broken anchor of undetermined age was also noted on the dredge, as was a trash dumpster filled with broken ship's timbers. The howitzer and anchor were transferred to the Corps Panama City office for safekeeping, and later released to the Florida Division of Historical Resources to begin conservation treatment. Meanwhile, the State Historic Preservation Office, at Smith's recommendation, requested that the Corps relocate the area of the seabed from which the howitzer was removed and resurvey the location with magnetometry and sonar to determine if any additional artillery or ship-related materials were present. It was also requested that the Corps assemble a diving team to assist in the search. The Corps responded by contracting with Geddes Diving Service, and a four-day visual and magnetic search of the seabed location provided by the dredge contractor was conducted in late March. Modern materials, such as chain, a piece of wood with galvanized screws, a metal engine plate, and the top from a Cheese Whiz container were encountered, but no ship fittings, planking, ballast, or ordnance was found. The Corps concluded that the bronze howitzer was an isolated occurrence (U.S. Army COE 1990a, U.S. Army COE 1990b).

1990-91 Navy Yard Caisson (8ES1897)

During renovation in 1990 of the principal pier at the Pensacola Naval Air Station

to accommodate a larger aircraft carrier for the Navy's Strategic Homeport Program, a large submerged object was encountered by dredging activities to deepen the slip. The dredge operator, after pulling up several copper-sheathed timbers, made a dive on the site and requested the assistance of divers from the Navy, who reported that the object was over a 120 feet in length and 50 feet wide. The dredging contractor, PCL Civil Constructors, Inc., contacted the Navy, which called the U.S. Army Corps of Engineers, Mobile District, who had surveyed the area prior to the dredging operation. Dottie Gibbens of the Corps contacted state underwater archaeologist Roger C. Smith, who made a dive on the site and confirmed the presence of a potentially significant historical resource. On his recommendation, the State Historic Preservation Office requested that dredging cease and an archaeological investigation site be conducted to determine its identity and significance.

PCL contracted with Panamerican Consultants, Inc. of Tuscaloosa, Alabama, which conducted a Phase One assessment of the submerged structure in December, 1990 (Mistovich et al. 1991). Archaeologists quickly located the timbers exposed by the dredge, as well as a large mound of pedestaled ballast or rip-rap type rock. Hydraulic probing encountered a dense clay that precluded planned test excavation with conventional tools, however the southwestern side of the coppered structure with 90-degree corners at both ends was exposed. Copper sheathing was removed for examination, but contained no manufacturer's markings. Samples of recovered rock were identified as furnace slag. Hydraulic jetting and removal of stones by hand revealed that the interior of the structure was filled with clay and sand concreted into an impenetrable mass. The southwestern side of the structure was composed of 35-foot long, handhewn timbers, edge-fastened one atop another with iron drift pins. The interior was lined with 15-inch wide by 3-inch thick vertical planks. To expose the opposite end of the structure, the dredge was brought in to remove heavy rocks on the northeastern side. Similar timbers were encountered, confirming the length of the structure to be 150 feet.

In conjunction with the field work, Panamerican consulted various archival sources, offering hypotheses that the structure in question might represent either a dry dock door, a ship lift section of a dry dock, a section of a floating dry dock, or a ship camel. An 1853 map of the Navy Yard also showed the remains of a sunken caisson at the same location in question. The possibility that the structure might be vessel-related was eliminated. Government records concerning the Navy Yard revealed details of a caisson constructed and sunk intentionally during a wharf-building program in the early 1830s. Panamerican archaeologists felt that the structure most likely was the remains of this caisson. Based on the dimensions of the caisson and the composition of its fill, they observed that the structure could not be removed in a way that would not result in substantial adverse impact. At the conclusion of the Phase One investigations, they recommended that several options be pursued.

After review and consultation by the Navy, Corps of Engineers, and the State, Phase Two investigations consisting of more in-water evaluation and intensive historical research were approved. It was also agreed that, after sufficient documentation, the structure would be removed while monitored and recorded by a marine archaeologist. Production of a scale model and accompanying interpretive brochure also were approved as components in a mitigation plan for the site. Phase Two was conducted early in 1991, and involved further excavation to document construction details (Figure 5.4), monitoring and recording of the caisson's removal, collection and conservation of artifacts, and the construction of a scale model for exhibition. Additional detailed archival material was collected relating to the history of this early naval experiment in wharf-building, involving construction of a unique caisson/cofferdam (Mistovich et al. 1991).

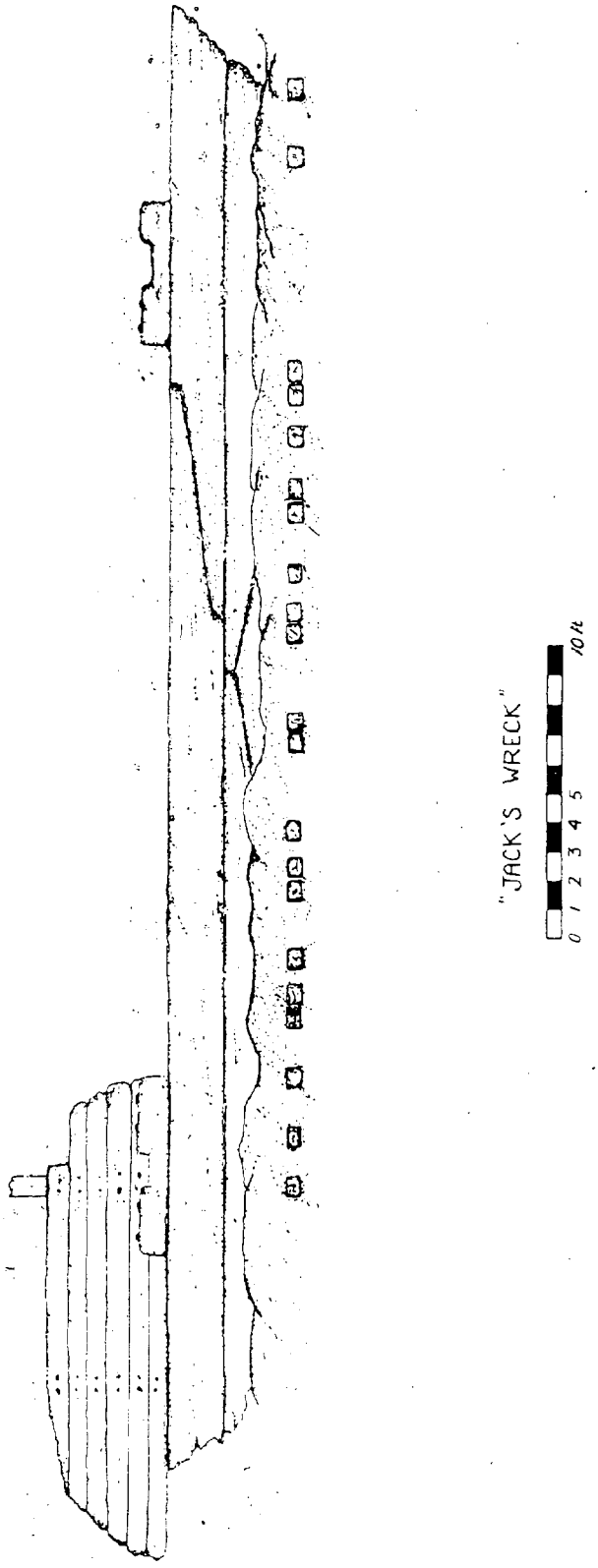

Figure 5.3. Site Plan of 8ES1900, "Jack's" Wreck.

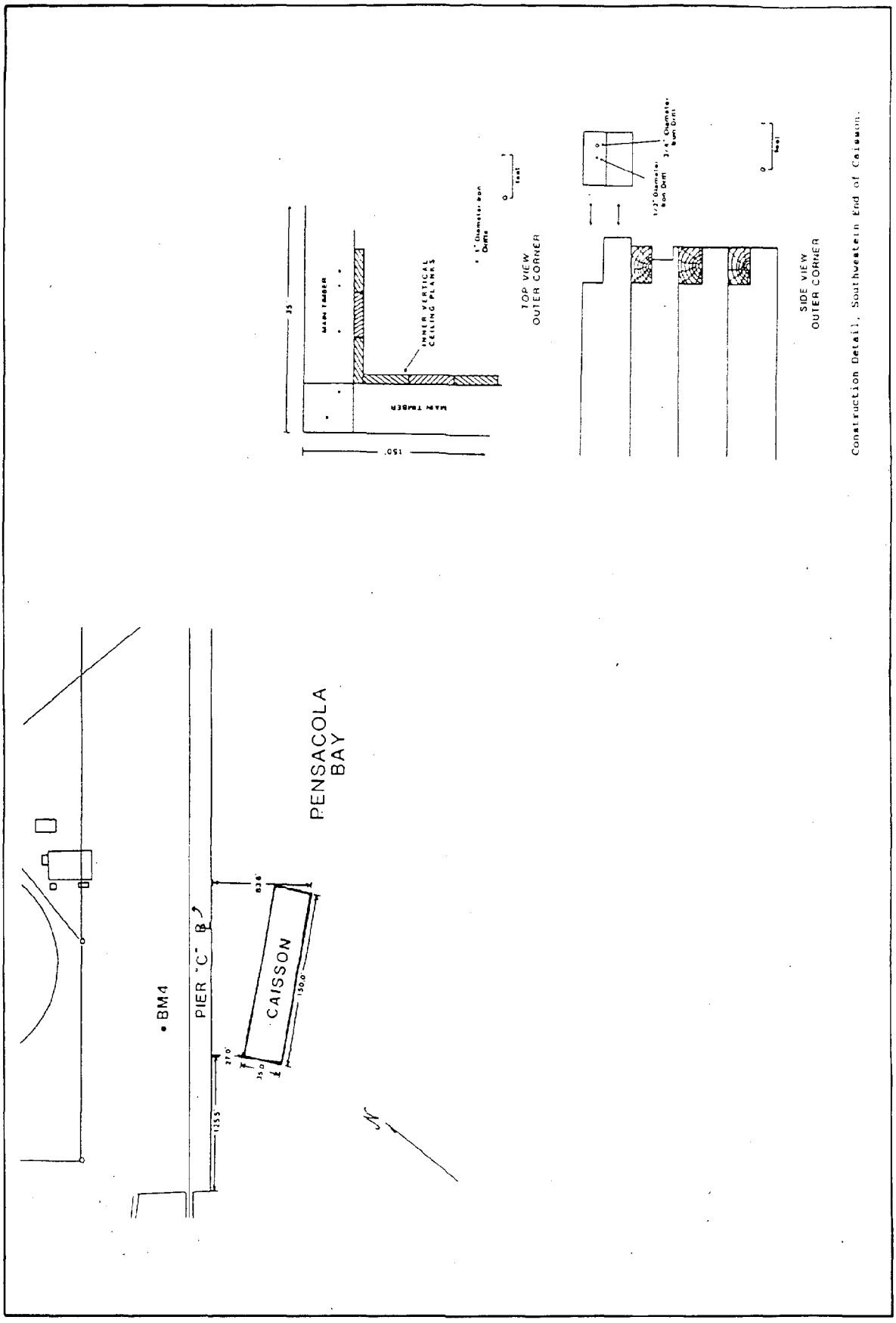

Figure 5.4. Site Plan & Construction Detail of 8ES1897, Brodie's Wharf Caisson.

CHAPTER 6. SHIPWRECK ARCHAEOLOGY

Introduction

The study of shipwrecks is part of a growing discipline variously called maritime archaeology, marine archaeology, or nautical archaeology. These specialized terms refer to the scientific investigation of wrecked or abandoned watercraft and their cargoes in an effort to better understand human activities in the past. Shipwreck sites offer insights into the history of technology (the evolution of shipbuilding and nautical technology), the history of commerce (the study of shipping and maritime enterprises), social and cultural history (examination of personal possessions and shipboard items), as well as many other clues to life on board a floating microcosm that represented a larger society in a maritime context.

Archaeologists view shipwreck sites as sudden and cataclysmic events frozen in time; as single accumulations of associated cultural material in a closed context, wrecksites often are compared to time capsules containing hidden relics of past lifeways. Given an ideal set of depositional factors, i. e., underwater burial in soft and stable sediments, preservation of even organic objects is often quite good. Hence, from whatever theoretical approach, it can be agreed that historic shipwrecks represent significant irreplaceable cultural resources, if properly protected, managed, studied, and interpreted.

Shipwreck Deposition and Preservation

Both the location of a shipwreck and its degree of preservation are dependent upon environment. Tides, currents, winds and weather must be taken into consideration. Ships may wreck in rough or calm weather, on the shore or on reefs, and in shallow or deep water.

Ships may be abandoned due to irreparable damage or lack of upkeep. The reason for wrecking will determine the orientation of the vessel and associated material upon the bottom. Whatever the environment, there are certain factors that govern the distribution of materials that comprise the shipwreck. Generally, heavier material such as ballast, cargo and machinery will weigh down the hull it rests upon. In soft sediments this will cause this section of the wreck to sink down, and cover up with sediments, protecting the hull against further deterioration. Even in areas with harder bottoms, these heavily weighted areas will be less likely to float away upon breaking up, and may eventually produce a buildup of trapped sand or sediment carried by the current. Left uncovered, upper structural areas usually deteriorate, either collapsing or being swept away. A scatter pattern may have been caused during or after a ship wrecks, and may be interpreted to determine more information about the wrecking process.

Differing chemical and biological underwater environments cause different reactions. In warm salt water, exposed wood will be eaten by marine borers (*Teredo navalis*). In salt water, metal will encrust with calcareous marine growth, which can produce a perfect mold of the deteriorated metal object. Metal near wood generally preserves the wood adjacent to it. In some fresh water environments, metal fasteners deteriorate and the hull may disarticulate. Tannic acid in fresh water tends to preserve wood and organic material. Sediment grain size and deposition affects the hull protection, and therefore, the degree of preservation. Varying combinations of these factors will affect the deposition and preservation of a wrecked vessel, and these processes must be recognized for better

understanding of a shipwreck as an archaeological site.

One other factor that may influence the deposition of a wrecked ship should be recognized: salvage. Valuable and necessary objects are often retrieved from ships immediately upon their sinking. Teams of free divers were sent out on expeditions to recover lost property since the earliest times. With the invention of the diving bell in the seventeenth century came the technology to perform extended underwater salvage work. Any type of attempted salvage will affect a shipwreck to different degrees, whether it may be a number of missing bronze fasteners taken home by a sport diver, or a whole hull blown apart, either in search of treasure or to clear a navigational channel.

Pensacola as a Wreck Repository

All of the influences cited above have come into play in Pensacola. Wrecks are situated in a variety of environments, both fresh and salt water, on bottoms of coarse grained sand and in deep soft silt. The reason that ships sought Pensacola's deep and protected Pensacola Harbor is to some extent the same reason that a number of wrecks have been well preserved. In addition, the history of salvage in Pensacola Bay has been limited. Distant from the documented trade route of the treasure ships, Pensacola has been spared attempts at salvage work by treasure hunters. Yet salvage has impacted the shipwrecks in the area on three different levels.

Since the construction of the Navy Yard in the early 1820s, the harbor entrance channel was cleared and maintenance dredging was performed. Contractors were hired by the government to remove wrecked ships noted as obstructions. In 1877 and 1879 George W. LeGallis of Warrenton, Florida removed portions of four hulls that impeded navigation (U.S. Army COE 1879; TAR 1987:31). In the 1960s Navy divers removed the mast from the *Preble*, lost in the bay in 1863, because local fishermen kept reporting that it snagged their nets (Capt. Jeff Clopton 1991, personal communication). Today NOAA notes channel obstructions on navigational charts, and the Corps of Engineers continues to have the channel cleared.

Since Scuba gear became easily accessible, salvage on a smaller scale has also affected ships wrecked near Pensacola. Sport divers have often located and frequently revisited known shipwrecks, often taking home parts of these wrecks for their collections. A number of the more recent wrecks offshore, including the *Massachusetts*, have been impacted by local divers who made their living collecting brass and bronze fitting to resell in the 1940s and 1950s (Various local residents, personal communication). Until the recent past, this was an accepted, if not entirely legal, practice. Today legislation protects these wrecks. In Pensacola, an increasing public knowledge about the importance of historic shipwreck sites, has led sport divers to better respect the integrity of these sites.

Laws Protecting Shipwrecks: Florida's Historic Preservation Laws and Policies

Since the passage of the National Preservation Act of 1966, the State of Florida has placed increasing importance on preserving the state's limited historical and archaeological resources. The Florida Historical Resources Act, enacted in 1967 as Chapter 267 of the Florida Statutes, establishes various programs and policies to encourage public and private entities to protect and preserve historic resources for the public welfare and for future generations.

The Division of Historical Resources was created within the Department of State to administer Florida's historic preservation policy. Major goals of the state's historic preservation program are to identify, register, protect, and preserve the significant historic resources of the state. These include prehistoric and historic archaeological sites, historic shipwrecks and related artifacts, historic buildings, and other structures and objects.

The Florida Historical Resources Act states that all treasure trove, artifacts, and such objects having historical or archaeological value which have been abandoned on state-owned submerged lands belong to the state. The title to such property is vested in the Division of Historical Resources of the Department of State for purposes of management and protection.

Florida has numerous significant shipwreck sites dating from the early 16th century onwards. The approximately 300 shipwreck sites which have been identified and are recorded by the state are believed to represent only about 10 percent of the total number of shipwrecks in Florida's waters. Of those, the small percentage of shipwrecks from between the 1500s and the mid-1800s are considered to have historical significance. An even smaller percentage of these, mainly from Spanish fleet disasters, have been found to contain treasure trove in the form of gold and silver bullion and specie. Commercial salvage, both with and without the permission of the state, has taken place on a number of Spanish "treasure" galleon sites. This has led to the false public perception that most shipwrecks in Florida contain objects of high monetary value, and that commercial returns justify their salvage.

In the absence of law to the contrary, Florida, like most states, historically assumed jurisdiction of the management of shipwrecks submerged in the state's waters. Since the 1930s, the state has permitted shipwrecks to be salvaged or explored under contracts with the state. Since 1967, this program has been administered by the Department of State, Division of Historical Resources. Two rules in state law have direct bearing on historic shipwrecks and other archaeological sites.

Chapter 1A-31, F.A.C., establishes procedures for the exploration and salvage of historic shipwreck sites under contractual agreements with private parties under certain guidelines. The rule provides that no person may conduct operations to explore, excavate, or salvage archaeological materials from shipwrecks without a written agreement with the Division of Historical Resources. The Division may not enter into such an agreements unless it determines that the applicant seeking the agreement is professionally qualified through demonstration of archaeological ability, to conduct such salvage activities.

The rule also states that all archaeological property salvaged is the property of the Division. The Division may pay for the salvage in accordance with the terms of the contract. Generally, the terms have permitted salvors to retain 75 to 80 percent of the artifacts salvaged. The Division is also required to supervise the salvage through proper documentation of all salvaged artifacts. To protect the interests of the state, the Division is to limit the number of contracts for salvage to a number which the Division can properly supervise.

Chapter 1A-32, F.A.C., provides procedures for archaeological research of state-owned or state-managed archaeological sites. Any archaeological research of such sites must be permitted by the Division in accordance with the rule. The rule establishes criteria imposed by the Division for institutions seeking research permits. Only institutions and archaeologists meeting the criteria may conduct archaeological research on state-managed sites, and all artifacts remain in the custody of the state.

Penalties are provided for violations of the rules in accordance with Ch. 267, F.S. Persons must obtain written permission from the Division to explore, salvage, or excavate sites located on sovereignty submerged lands. Any person who violates the provisions of the Historic Resources Act is guilty of a misdemeanor punishable by a fine not exceeding $500 or by imprisonment in a county jail for a term not to exceed 6 months or both. The act further provides that the Division may institute an administrative proceeding to impose an administrative fine of not more than $500 a day on any person or business organization that, without written permission of the Division, explores, salvages, or excavates treasure trove, artifacts, or sunken or abandoned ships located on state-owned or controlled lands, or on state sovereignty submerged lands (F.S., Chapt. 267.13).

Controversy regarding the Florida's management of historic shipwrecks resulted in court decisions that had national implications. Beginning in 1979, a series of federal admiralty actions to claim historic shipwrecks were filed in federal courts in Florida. Federal admiralty law, a product of several hundred years of maritime cases, traditionally provides incentives for vessels to come to the aid of distressed vessels by awarding part of the cargos saved as a result of the assistance. The law was designed to save lives and merchandise in marine peril, and to return salvaged goods to commerce.

Prior to 1979, admiralty law had not generally been applied to historic shipwrecks. In that year, a treasure salvage company, Cobb Coin, filed an admiralty action in federal court in which it sought ownership of a Spanish galleon that wrecked in 1715 in Florida's sovereign waters. The state filed a counterclaim, and lengthy litigation ensued in which the original admiralty action was extended to include other shipwreck sites in state-owned waters. In 1983, the litigation was concluded by an out-of-court settlement in which the state agreed to recognize admiralty claims on certain wrecksites. Cobb Coin agreed to conduct salvage of these sites under certain archaeological guidelines drafted by both parties.

As a result of this case, the state's ability to manage its shipwrecks was undermined by salvors continuing to file admiralty actions in federal courts. This occurred not only in Florida; the Florida case affected every state's claim of title to historic shipwrecks. After several attempts to enact law clarifying state jurisdiction over these resources, Congress finally passed the Abandoned Shipwreck Act of 1987. The federal act awarded title to historic shipwrecks to the United States, then immediately transferred that title to the individual states in whose waters the shipwrecks are submerged. The act clearly exempted the management of historic shipwrecks from federal admiralty law, and granted ownership and regulation to the states. In accordance with the act, the National Park Service of the U.S. Department of the Interior issued guidelines in 1990 to assist the states in developing programs to manage historic shipwrecks.

It should be noted, however, that Florida has one of the longest-standing programs of underwater archaeology and historic shipwrecks in the country. In fact, several of the Abandoned Shipwreck Act guidelines are based on management policies that have been explored in Florida. These include the establishment of a shipwreck advisory board (no longer in operation); the designation of shipwreck reserve areas in which no salvage is allowed (there are four in Florida); the creation of underwater shipwreck parks (three such parks have been developed, see below); cooperation with recreational divers and fishermen; encouragement of research projects (there have been three university field schools); private sector recovery of shipwrecks consistent with historic preservation standards; and a program of inventory and assessment of underwater resources (which has been limited by funding and personnel).

In 1990, Florida Secretary of State Jim Smith appointed a Reserve Area Task Force to address certain issues regarding historic shipwrecks. The task force, composed of persons representing the state, commercial salvors, sport divers, and historians, was charged with considering the future status of shipwreck reserve areas that were established by the Governor and Cabinet in 1968 for protection from commercial salvage. The task force's consideration of how shipwrecks should be handled in reserve areas, however, led to issues reflecting on the state's historic shipwreck program in general. Thus, the task force is currently considering the criteria and procedures for making future decisions about commercial salvage in state waters.

Florida's Underwater Archaeological Preserves

The establishment of underwater shipwreck parks is a relatively new management tool for state archaeologists, who must combine a preservationist approach to historic sites with the benefits of public use and public interpretation. Only three other states, Michigan, Vermont, and now North Carolina, have similar preserve programs. Aside from a strong interest among the sport diving community and waterfront charter industry for shipwreck preserves, there is a growing awareness in Florida that the sites of sunken ships are historical landmarks that reflect the state's long maritime heritage.

Similar to parks on land, the underwater preserves are open to the public free of charge, and are accompanied by interpretive literature that explains the sites' historical context and archaeological features. The first preserve was opened in September 1987 on the site of the *Urca de Lima*, one of the ships of a Spanish Plate Fleet that wrecked on the east coast of Florida in 1715. Situated in 12 feet of water north of the Ft. Pierce Inlet, the shipwreck park allows snorkeling and diving visitors to view part of the sunken remains of one of Florida's most famous maritime disasters.

The site was recommended by the St. Lucie Historical Commission to become a park because it is the most intact and easily accessible of the 1715 fleet shipwrecks. Lower hull planking of the ship still protrudes from the sand where part of the vessel came to rest between two shallow reefs, some 200 yards offshore. The ship's remains are partially camouflaged by submarine growth, revealing a subtle outline of what once was a large sailing ship. To mark the location of the *Urca*'s grave, a mooring buoy attached to a large cement block was placed on the site with the assistance of a local marine contractor. Embedded in the cement mooring clump is a bronze plaque donated by an area dive shop, which designates the wreck as a State Underwater Preserve, in conjunction An illustrated brochure, relating the history of the 1715 fleet and the *Urca de Lima*, is distributed by the Department of State to provide visitors with an interpretation of the site.

The first underwater preserve was a successful experiment. By placing the wrecksite in the public's trust and encouraging its responsible use by local diving charter groups, an awareness of shipwrecks as historic sites rather than salvage opportunities began to prevail. A second preserve was proposed from among the shipwreck sites of another Spanish convoy disaster, the New Spain fleet that wrecked in a 1733 hurricane along the Florida Keys.

As early as 1964 the state officials had heard arguments from the Monroe County Advertising Commission and the Florida Keys Underwater Guides Association that measures needed to be taken to preserve the 1733 shipwreck sites from salvage for use as diving attractions. But at that time, recommendations for historic preservation of the sites were not

acted upon. In 1988, a survey of the 1733 wrecksites using university students in cooperation with local waterfront organizations was devised to study potential candidates for a second underwater preserve. Eleven sites were studied for their ability to meet criteria for a recreational park. The wreck of the *San Pedro* near Islamorada was chosen for its accessibility (in 18 ft. of water), underwater features, and proximity to state parks on Indian and Lignumvitae Keys. The wrecksite consists of a large pile of ballast stones which covers portions of the ship's lower hull timbers. Natural resources are abundant on the site, and include a vast variety of corals, crustaceans, mollusc, and many types of fish. This combination represents one of the oldest artificial reefs in Florida's waters.

From this research was generated a proposal for a new park, which included recommendations for a cooperative effort between government, private industry, and the public. The proposal generated tremendous local response in the Islamorada area. A "San Pedro Trust" was organized through the Chamber of Commerce to act as a non-profit support organization to oversee cooperative projects which included enhancement of the site by replacing cannons and an anchor; an underwater plaque to mark the site and acknowledge sponsors of the park; placement of moorings on the seabed to protect the site and surrounding grass from anchors; a brochure directing the public to the site; and production of an annotated site plan to guide visitors through the cultural features and marine biology of the site.

The *San Pedro* preserve, which opened in April 1989, proved to become an extremely popular destination in the Florida Keys among tourists, youth programs, educational organizations, and local divers. The site is passively managed in cooperation with the Department of Natural Resources; little maintenance is required other than monitoring of the mooring buoys and periodic cleanup, both accomplished through assistance from local charter operators. By placing a historic shipwreck in public view, in public trust, and by explaining its archaeological value to the public, the site becomes important for everyone to preserve. Thus, the *San Pedro* probably is the best protected shipwreck site in Florida today.

To solicit nominations for candidates for a third state underwater archaeological preserve, the Division conducted an intensive mailing campaign during the winter of 1989-1990 to hundreds of dive shops, clubs, and related organizations throughout the state. The resulting input produced several nominations in various parts of the state. These were investigated and ranked according to criteria similar to those used on the 1733 sites. The most promising candidate proved to be the well-preserved remains of a coastal steamboat, named the *City Of Hawkinsville*, in the Suwannee River. During the fall of 1990, the site was studied, mapped, and researched.

Lying in shallow water on the west bank of the river near Old Town, the hull of the sunken steamer is virtually intact with her bow pointing upriver. From the stempost, one can swim along the entire deck of the vessel to her stern paddlewheel, exploring numerous deck fittings and steam machinery along the way. The main propulsion system, consisting of two enormous horizontal piston engines, each of which drove a long Pitman arm connected to the paddlewheel, is easily recognizable along with its rods and gears. Perhaps the most dramatic features of the wreckage are the four iron sprockets and their wooden spokes that comprised the large paddlewheel that pushed the *Hawkinsville* up and down the Suwannee.

The *City of Hawkinsville* is a surprisingly intact survivor of late 19th-century coastal steamboat technology. She was the largest and the last steamboat to be stationed on the Suwannee River. Originally built in Georgia in 1896, the *City of Hawkinsville* was 141 feet long, with two decks, a single smoke stack, a square stern, and a molded bow. She was a post-

hurricane newcomer, brought into the river to assist a booming lumber industry. Official registry records indicate that she was in service until May, 1922, when she was abandoned.

As with previous preserves, a formal proposal for the *Hawkinsville* was prepared for public distribution, and was submitted to the commissions of Dixie, Gilchrist and Suwannee counties. Citizen support groups were formed to assist in preparing the site with mooring buoys, an official plaque, and brochures. The third preserve is scheduled to open to the public in the Spring of 1992.

The use of the designation of a historic shipwreck as an underwater park, is one method of insuring its preservation. This option, and many others, may be utilized as part of a comprehensive submerged resource management plan designed for Pensacola (see Conclusions, Chapter 9).

CHAPTER 7. METHODOLOGY

Description of Tasks

Eight tasks were outlined in the original Coastal Zone Management proposal. These tasks were described as follows:

Task 1. Assemble background research on Pensacola ship losses, hurricane activity, geographical, hydrographic, and environmental changes, locations of maritime and industrial activities, regional oral histories, etc. This will be accomplished by a search of literature, charts and maps, aerial photos, etc. in conjunction with local volunteers. Input from other state and federal agencies will be solicited to help gather information.

Task 2. Locate and record sites reported by fishermen and sport divers. This will involve field investigations using local volunteer divers to relocate and extract data from reported sites and to plot their locations.

Task 3. Develop computer data base files of information on individual sites and site complexes based on Tasks 1 and 2. This data will be tied to a master chart of the Pensacola Bay system showing known sites in conjunction with historic activity areas to develop a predictive model of site patterning in the region.

Task 4. Based on the results of Task 3, conduct remote sensing of selected areas in the bay and rivers to locate anomalies that may represent previously unrecorded cultural resources. This will involve the use of electronic instrumentation, such as sonar or magnetometry, in conjunction with a computerized positioning and plotting system to produce a systematic and controlled survey.

Task 5. Interpret remote sensing survey data and investigate selected anomalies to determine their nature. Subsurface anomalies will be tested by limited coring with minimal site or environmental disturbances.

Task 6. Arrange inventory of sites into a classification scheme according to factors such as condition, age, nationality, historic significance, environmental situation, etc.

Task 7. Develop management options from classification scheme. These options will closely follow Abandoned Shipwreck Act guidelines, as well as existing management policies of other federal and state agencies. They will take into account public access for recreational exploration; public interpretation through publications and museums; public education through volunteer training programs and amateur research permits; establishment of underwater parks, preserves, and other archaeological designations; and access to certain sites for commercial salvage.

Task 8. Improve public knowledge and recognition of submerged cultural resources through lectures, presentations, popular publications, media cooperation, etc., in conjunction with existing local organizations. Prepare and distribute final report and management plan to Department of State, Department of Environmental regulation, Coastal Zone Management Program, and other agencies.

Data Acquisition

The first step in establishing the shipwreck survey was to assemble and organize into a manageable resource the many sources of information about Pensacola's maritime past. This included compiling information on area shipwrecks from both historical accounts and descriptions of previous work. These sources served as a cornerstone for the data base that was created. Additional information was acquired through historical accounts, archival sources, private collections, shipwreck summary reports, and navigational wreck and obstruction data bases. Information on wrecks that were reported by local informants, as well as shipwrecks that were discovered using remote sensing technology were added, and the data base was updated throughout the project.

Sources of Background Information

Archival Sources

A number of public and private archival sources of information contain charts, maps, photographs and primary documents describing Pensacola and the vessels that plied her waters. Preliminary research on specific vessels and vessel plans took place in the National Archives in Washington, D. C. Additional information was gleaned from a number of repositories, listed as follows:

The **Environmental Protection Agency**, located on Sabine Island at Pensacola Beach, has a small research library which contains valuable information. In addition to reports on Pensacola, the bays, the barrier islands and the Gulf, the library also contains some very interesting primary documents such as William Henry Davison's 1876 diary of life as the port inspector at the Quarantine Station in present-day Gulf Breeze.

The **Escambia County Archives** are located in the Clerk of the Circuit Court's Office in the Escambia County Judicial Building. The archives contain the record of any and every vessel ever involved in litigation since the American occupation of Pensacola (1821-present).

The **Fort Pickens Library**, administered by the National Park Service, is located at the Gulf Islands National Seashore. The library houses a number of documents relating to the Fort, its construction, and its occupation from 1834-1947. These documents often mention vessels that were observed and lost during this period.

The **John C. Pace Library** at the University of West Florida has three sections that provide a wealth of background material. The Reference section contains a large collection of maps and charts of Pensacola and the bay area. The Special Collections Department contains personal papers and business records of a number of families that were instrumental in Pensacola's growth and the development of a maritime economy, including the lumber, fishing, shipbuilding and shipping industries. This department also houses the *Official Record of the Union and the Confederate Navies in the War of the Rebellion*, the *Woodstock Papers*, and several other sources on the Civil War years in Pensacola. Special Collections also includes maps and charts of the region drawn as early as the 16th century, and photographs of the area dating from the 1850s to the present. The U.S. Documents section contains the 1877 and 1879 U.S. Army Corps of Engineers *Annual Reports of the Chief of Engineers* which describes the salvage work of George Legallis who removed wrecks and obstructions from the Pensacola Harbor entrance.

The **Pensacola Historical Museum**, currently located in Old Christ Church in downtown Pensacola, has a research library section. The museum collection contains maps, charts, manuscripts, photographs and newspaper clippings depicting historic Pensacola and its maritime heritage. The library staff has also created a shipwreck file that lists most of the previously known wrecks to have been reported in and around Pensacola.

Private Collections

Several area residents allowed the survey staff to study their family documents and photographs. These documents include a Captain's logbook and a collection of shipyard records. Copies of turn-of-the-century photographs show ships during their operating careers that were later recorded by the Pensacola survey staff as wrecks.

Shipwreck Summary Reports

In addition to summaries of local shipwrecks published in previous archaeological reports, two other sources were used to create and update the data base of ships reported as lost in Pensacola. A manuscript in progress by local maritime historian William Mills Jr. contains historical research as well as listings of wrecks discovered in the area. Another wreck list compiled by Mr. Larry Broussard, an amateur historian and sport diving enthusiast, is on file at the Pensacola Historical Museum.

Wreck and Obstruction Data Bases

Hard copies of the National Oceanic and Atmospheric Administration's *Automated Wreck and Obstruction Information System* and the United States Coast Guard's data bases on wrecks and navigational obstructions were checked for any information contained on historic shipwrecks in the Pensacola area.

Sources of Local Information

A great deal of information on Pensacola area shipwrecks was obtained from local residents, charter boat captains, sport divers, fishermen and personnel of the Florida Marine Patrol. At the project's inception, a form was printed up that explained the survey goals and solicited information from the general public. This form was distributed to local dive shops, bait & tackle stores and marinas. As the project began to take shape, local newspapers printed articles and staff members gave public talks at area historical and archaeological society meetings. Often at these meetings, area residents would share their stories and discoveries with survey staff members. All shipwrecks that were reported were added to the data base, and investigated and evaluated on a priority basis.

Field Work

The field season took place between February and September of 1991. Sites were located, assessed, and evaluated on a priority basis dependant upon several logistical factors, including the weather, equipment availability, and volunteer participation.

Positioning

The position of all shipwrecks located both inside and outside of the bay were

recorded using a SI-TEX LORAN C EZ-97 receiver. LORAN, an acronym for long range navigation, is a government maintained system used for coastal navigation. A series of land base stations transmit low frequency (100 Khz) pulses. A group of at least three base stations makes up a chain. These chains send out pulses at measured intervals that are then received by a shipboard transceiver. The transceiver analyzes the time differences of the pulses received from the different base stations, and locates the ship and its receiver relative to these stations. Geographical positions derived with LORAN C are called lines of position (LOP) and are measured in microseconds. Some navigational charts show LORAN LOPs in addition to latitude and longitude. LORAN C units do convert LOPs to latitude and longitude, but this is simply an electronic conversion using a mathematical equation within the LORAN C receiver unit. This equation does not completely compensate for land based interruptions of the base station signals. For this reason when using LORAN, latitude and longitude positioning is not as accurate as the use of LOPs. While LORAN C positions are known as accurate to within .1 to .25 nautical miles offshore when using LORAN charts, inshore positioning suffers due to irregular pulse signal transmittal over land and water, instead of just land. While LORAN C positioning is not always accurate for determining geographical position, it is considered excellent for repeatability, or the ability to return to a site. Lines of Position were used for recording the position of all wrecks investigated by the survey staff.

Remote Sensing Methods

Two methods of remote sensing technology were used to survey submerged areas likely to yield shipwrecks within the Pensacola Bay system: magnetometry and side scan sonar. A proton precession magnetometer is used to search for differences, reflecting the presence of metal, in the earth's magnetic field. Ships built with metal fasteners, or carrying ballast, anchors, or armament all produce recognizable magnetic "signatures." Side scan sonar sends out acoustical signals that reflect at different intervals depending upon the location and composition of the materials that they encounter. This reproduces an image of the seafloor called a sonograph. High frequency pulses reflect off of the sea bottom and lower frequency signals tend to penetrate softer bottom sediments. An experienced side scan sonar operator can recognize bottom type, locate anomalies on the sea bottom, and often locate partially buried wrecks by recognizing the acoustic signal patterns produced.

Areas Surveyed

The purchase or rental of remote sensing equipment is relatively expensive and the survey staff had to rely on limited access to borrowed equipment. By necessity, all positioning for survey work was done using LORAN C LOPs. The description of areas surveyed and the survey equipment used is listed as follows:

Old English Cove Side-Scan Sonar Survey

On March 10 and 11 a side-scan sonar survey was completed in Old English Cove on the southern shore of the Gulf Breeze peninsula. The use of a Klein 591 sonar unit was donated by A&A Enterprises, Inc. of Noank, Ct. The unit is particularly useful since it transmits at two frequencies, both 100 kHz and 500 kHz, and allows the operator to view both channel's sonar records simultaneously. This aids in interpretation of the record, particularly when encountering partially buried objects, since the lower frequency signal often detected objects buried in soft sediment. The sonar records were evaluated and promising targets were checked or "ground truthed."

Old Navy Cove Side Scan Sonar Survey

On April 4-9 a side-scan sonar survey was completed in Old Navy Cove on the northwest coast of the Gulf Breeze peninsula, a known anchorage and careenage. The use of a Klein 591 unit was again donated by A& A Enterprises, Inc.. Targets were located, buoyed and ground truthed. Several of the targets were probably buried under the accumulated sediment.

Bayou Grande Magnetometer Survey

On May 18 and 19 a magnetometer survey was completed in Bayou Grande. The use of a Littlemore Scientific proton precession magnetometer was donated by Tidewater Atlantic Research.

Blackwater River Magnetometer Survey

On July 9-12 a magnetometer survey was conducted in the Blackwater River where Pond Creek drains into the main river, just off of the nineteenth century location of the Ollinger & Bruce Shipyard. The magnetometer used was an EG&G G-866 proton precession magnetometer loaned by the Submerged Cultural Resources Unit of the National Park Service.

Hull Recording & Mapping

Site mapping and hull recording were predicated on the significance of the site and the extent of hull remains visible. Hulls were recorded using a centerline baseline and all points were taken from this datum. Triangulation was used to record points on the hull to provide the basic hull shape. Construction details were recorded in measured sketches and then placed in context of the hull proper using the baseline datum. All sites were recorded with a minimal amount of disturbance. One exception was site 8SR983, which was cleared of overburden in four test trench areas to determine the extent of the buried remains of the hull, which was considered very significant because of its age and unique construction features. Sites with little to no visible remains were recorded with features drawn relative to one another. Buried remains were probed with three foot stainless steel rods to ascertain the extent and parameters of the site.

Artifact Sampling & Treatment

The shipwreck survey field procedures were designed to record and assess hull remains in a non-disturbance mode. Artifacts were only recovered for one reason. Diagnostic artifacts discovered that would have lost their contextual provenance or been threatened by erosion or salvage were recovered. All recovered artifacts were given provenance in reference to the site map, hull features or baseline. Simple procedures for the conservation and stabilization of recovered artifacts took place at the survey headquarters.

Data Storage

Incoming information and data generated by the survey were stored in the computer data base. All possible sites were assigned a PSS target number that was then used as the computer file name. A master list was kept and continually updated as to site status. Hard copies of any information pertaining to the site were filed by target number. In addition to

the data base, narrative reports were prepared on each site the survey staff located. Sites were plotted onto a computer-generated master site map, and also plotted by hand onto a set of geodetic survey maps.

The Data Base

The data base program used was dBASE III Plus. Each data base record contained fields designed to store information on the site name, an assigned PSS target number, a general location description, and a specific location using latitude, longitude and LORAN C lines of position. Since the records contained in the data base could be either historical accounts, locally reported sites, or sites discovered by remote sensing, each record was assigned a status field so that sources of information could be differentiated. Arbitrary zones were also assigned to different portions of the bay and offshore so that records could be sorted by their location. Each record contained information on bottom type, water depth and whether or not a site had been ground truthed, and/or surveyed with a magnetometer or side scan sonar. Data records contained a number of fields designed to be filled in with brief answers that could later be manipulated to sort the data base; these fields included LOA, Breadth, Type, Rig, Nation and Time Period. If a shipwreck site had two different types of status, such as a historical wreck report and an as yet unidentified vessel hull, it was assigned two different data base records that were then cross referenced.

Narrative Reports

A descriptive narrative report was prepared for every site located and investigated. These files were written in a word processing format, stored in the computer, and named by target number to avoid confusion. In these reports, sites were both described and evaluated. Each report contained the following sections: Site Number, Site Name, General Location, Specific Location, General Site description, Features, Artifacts, Illustrations, Threats to Site, Assessment, Recommendations, Reporters, and Sources.

Site Maps & Line Drawings

Rough mylar site maps and sketches were prepared for all shipwreck sites located. These sketches were filed in the hard copy site file by target number. When a site was recorded in detail, scale site maps were drawn onto graph paper. When ships lines were recorded they were reproduced in scale drawings, in both pencil and ink. All scale drawings were labeled and stored by name and target number, and cross referenced through the Illustrations section in the target's narrative report.

CAD Mapping

A master file of the Pensacola Bay area was generated in AutoCAD version 10 and stored in the computer. All sites located were plotted onto this chart and identified by target number. Sites can be plotted using either latitude and longitude, or UTM coordinates from geodetic survey maps. Because of the inherent problems previously mentioned when using converted LORAN C latitude and longitude coordinates for positioning, the sites mapped on the computer generated chart are considered as inexact for navigation or relocation. The chart is a record keeping tool and site relocation is dependant upon the LORAN C LOPs listed in each target's data record.

Addition to the Florida Master Site File

All sites that were located by the shipwreck survey staff were reported and assigned numbers to become part of the Florida Master Site File of archaeological sites. All Florida Master Site File Numbers begin with the number 8, followed by two letters used to designate the county. The following numbers are then assigned sequentially within each county as the sites are reported. The Florida Master Site File presently uses a separate form for the reporting of underwater archaeological sites. This form however, differentiates only slightly from the master form, and contains little information on what was found other than the designation "historic shipwreck" (see Chapter 10, Recommendations).

Volunteer Participation

The shipwreck survey utilized volunteer participation in several areas. Local volunteers assisted the survey staff by helping with research, fieldwork, and office work. In addition to the time volunteered by area residents, the survey staff was supplemented by both graduate and undergraduate archaeology students throughout the year. Area businesses also supported the shipwreck survey by providing both supplies and services.

Public Education & Awareness

One of the goals emphasized from the survey's outset was to increase awareness about the archaeological importance of historic shipwrecks in West Florida, while at the same time making the information obtained accessible to the general public. Towards this end, dissemination of information about the project and its goals and discoveries, took place in several venues. Newspaper and local magazines articles were written about the survey and its progress, interviews were given periodically on both radio and television stations, and talks were given updating the information about sites located and recorded throughout the year to several local organizations. A quarterly newsletter was produced which outlined the survey status. The newsletter was sent out to an extensive mailing list and distributed at local talks. The shipwreck survey headquarters was located downtown in the Pensacola Historic Preservation District and was open for the public to visit.

CHAPTER 8. WRECK INVENTORY AND DESCRIPTIONS

Introduction

The Pensacola Shipwreck Survey data base contained 162 possible target sites. During the course of the project field season, 33 of the sites were located, assessed, and recorded. Each site was evaluated on arbitrary criteria established solely for the purpose of this survey. The following points were considered for each site's evaluation:

1. The condition and extent of the hull remains at the site.

2. The hull type and construction methods relative to known contemporary naval architecture practices.

3. The historical significance of the vessel relative to Pensacola's maritime history and the historical significance of the site to the broader historical background of the period.

4. Environmental effects on the site; both threats to the present remains and environmental factors that caused the current state of preservation.

5. Cultural impact on the site; i.e. dredging, construction, looting and recreational diving.

The maritime history of Pensacola has been divided into eight time periods.

1. The First Spanish Period, 1513-1763

2. The British Period, 1763-1783

3. The Second Spanish Period, 1783-1821

4. The Early American Period, 1821-1861

5. The Civil War, 1861-1865

6. The Maritime Expansion Period, 1865-1906

7. The Early Twentieth Century Period, 1906-1945

8. The Late Twentieth Century Period, 1945-Present

These periods generally follow the accepted format of the historical development of Florida. Within the context of these chronological periods the sites located are described and evaluated on the above criteria. Individual analysis of each wreck is contained within each narrative. Broader analyses are addressed in the following chapter.

1. First Spanish Period, 1559-1763

No sites were located from this period. This is the result of several influencing factors. Sites from this period may be under a heavy layer of accumulated sediment. Also, the small amounts of iron likely to be present on these sites would generate a very subtle magnetometer signature, easily lost in the cluttered background of the areas surveyed. Although numerous vessels from this period are known to have been lost in Pensacola, a more intense survey methodology, perhaps with bottom-penetrating sonar, may be required to locate these targets.

Sites from this period would be among the most significant of those in the bay. They include at least eight vessels lost by Luna in 1559, two French ships and five Spanish ships lost in 1719, and a Spanish *felucca* lost in 1722. These wrecks all are historically documented and would be significant in terms of hull construction, their importance to Pensacola's history, and their relationship to the colonization of the Gulf of Mexico. A thorough survey with the appropriate equipment is highly recommended.

2. The British Period, 1763-1783

Two vessels were recorded from this period (Figure 8.1). Deadman's Island Shipwreck (8SR782) was recorded prior to this survey, having been the subject of a University of West Florida field school in 1989 and the topic of a thesis by Robert Finegold (see Previous Work). The second site, 8SR983, was recorded in detail by the PSS staff. 8SR983 was originally found by a local resident, Wayne Farrior, who notified the survey staff. Two additional sites known to have been lost in this period, HMS *Stork* and HMS *Mentor*, were not located. The *Mentor*, reported lost near present-day Milton in the Blackwater River, warrants systematic search.

PSS Site Number: **T123SR**
Site Name: **Town Point Wreck**
Master Site File: **8SR983**

General Location

The site is located in approximately 3 feet of water near Town Point. The bottom sediment was coarse quartzite sand. Underlying this sand lens was a fine gray clay. This layer is located directly beneath the vessel remains.

General Site description. The remains at the Town Point site are those of an 18th-century cutter or sloop. See Figure 8.2 for the site plan drawing and construction details. Vessel remains at the site are 35.7 ft. in length with maximum exposed breadth of 8.5 ft. Most of the starboard side of the vessel is present to slightly above the turn of the bilge. Excavation on site was confined to four trenches, one at the stem, one at the stern, one at the mast step and a longitudinal trench along the port side of the keel. A baseline was attached along the centerline of the vessel remains. The zero point on the baseline was at the stem on the forwardmost preserved surface. The bow trench extended from 0 to 6.1 ft., the step assembly trench was from 16.8 ft. to 19.0 ft., and the stern excavation was from 23.0 ft. to 35.7 ft. The entire starboard frame line was exposed to assess room and space, planking thickness and fastener type. Maximum excavated depth was 2.75 feet. Excavation was carried out with an induction dredge. All major structural members were sampled for wood type identification. The still-articulated remains were keel, stem post assembly, floors, first futtocks, second futtocks, bilge ceiling, exterior planking, deadwood, the knee of the head, the stern post and the mast step. The navigable keel was broken off and lying to port. The vessel remains listed

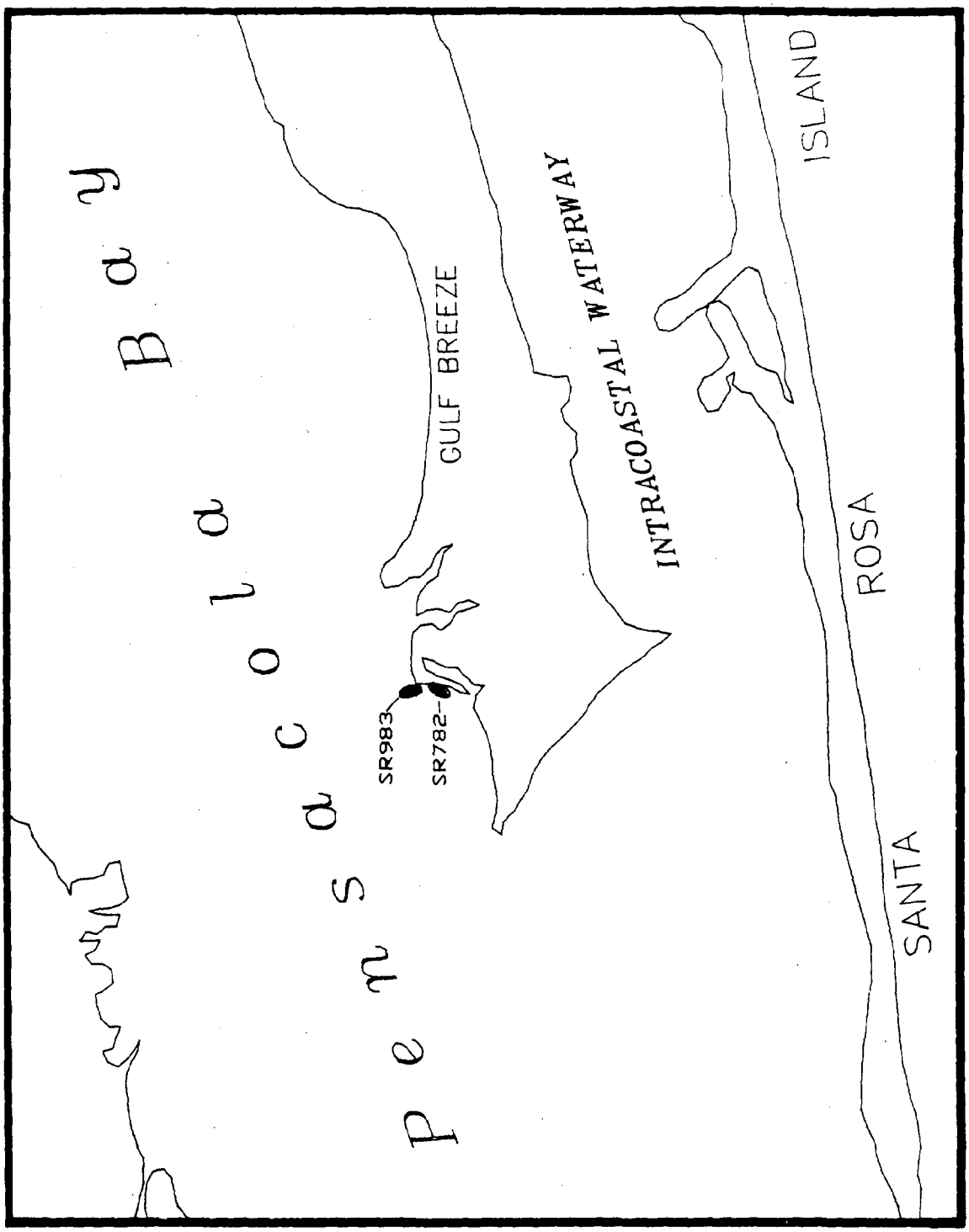

Figure 8.1. Location Map of British Period Sites, 1763-1783.

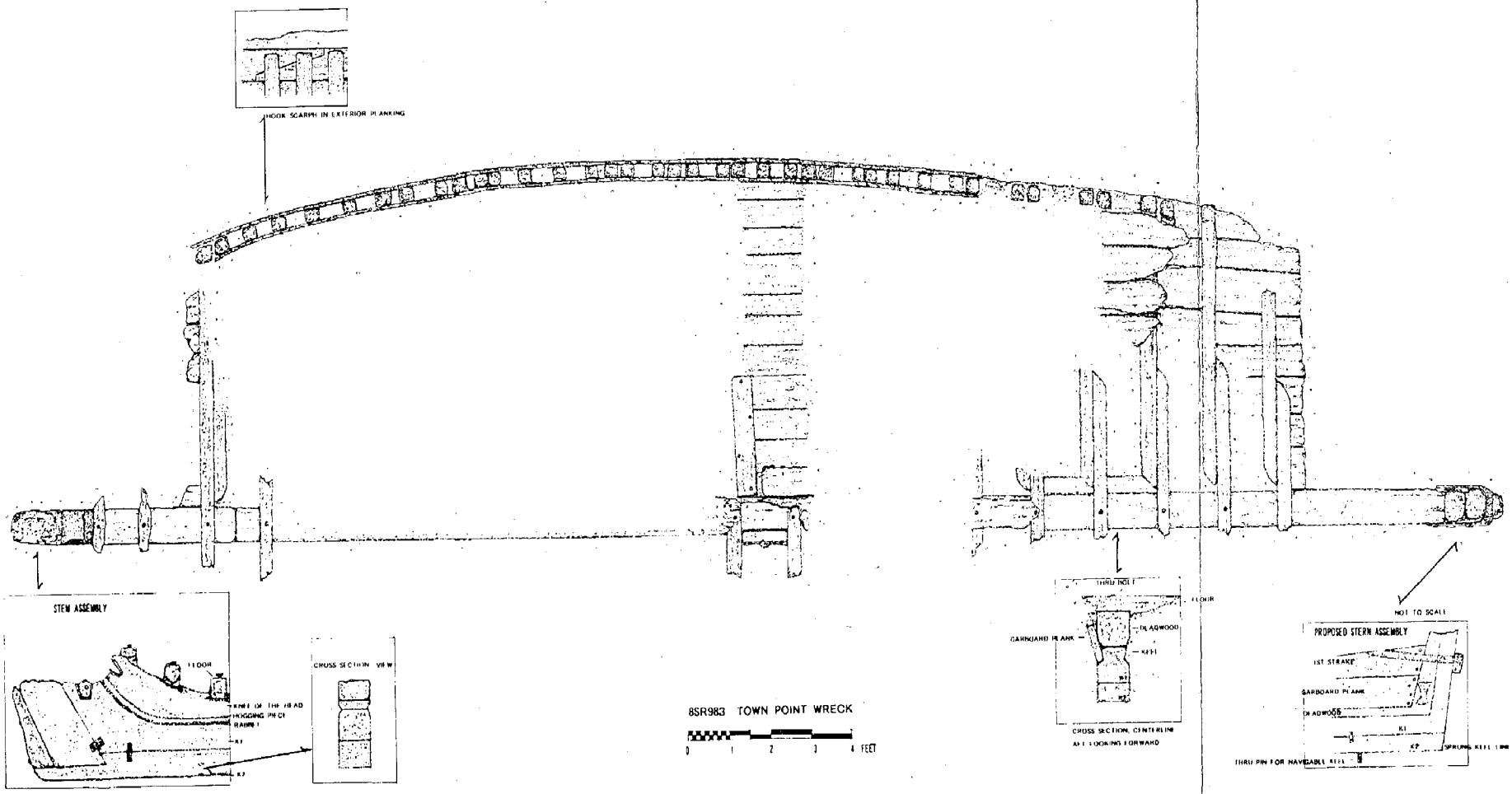

Figure 8.2. Site Plan of 8ESR983, Town Point Wreck.

to starboard approximately 24 degrees.

The preserved length of 35.7 feet includes the concreted gudgeon assembly. The vessel would have had a beam of 14.66 feet. Floors are through-pinned to the keel and are forward of the first futtock in the bow and aft of the first futtock in the stern and amidships. Where the keelson is present, the pins run through the keelson, floors and then into the keel. First futtocks are spiked longitudinally to the floors and do not butt the keel/keelson assembly. Second futtocks are not butted to the head of the floors nor are they spiked on to the first futtock in the two examples uncovered.

The stem assembly is complex and unusual. A cutwater and stem post are scarphed to a two-piece keel assembly backed by the knee of the head. Three frames are also present in the bow on the centerline. The single mast step is a mortise and tenon arrangement and the ceiling and exterior planking is secured with both treenails and iron spikes.

Hull shape is indicative of a square transom and a fairly slack bilge. The stern post assembly is similar to the stem with the keel assembly forming the base for the scarph arrangement with the stern post. Room and space varies from .90 ft. to .60 ft. The average moulded thickness of the frames is .33 feet. The average sided dimension of the frames is .30 feet. In addition to the intact keel assembly, broken off and lying to port, the remains of a full navigable keel were discovered.

Features

Keel: The sprung keel is made of two pieces, K1 and K2. K1 rides atop K2 to form the sprung keel assembly. K1 is a continuous timber from bow to stern and rises at either end to form the base of the stem and stern assemblies. K1 is 34 feet in length. In the bow there is a mortise on the port side. This mortise is .15 ft. deep, .25 ft. wide on the lower edge and .40 ft. wide at the top. A single .01 ft. spike hole is present and heavy iron residue covers the mortise. K1 forms the upper portion of the stem post scarph. In the stern K1 rises to form the lower portion of the outer post. K1 is .75 ft. square in the midships run. K2 is 35.4 ft. in length. Its sided thickness measures .75 ft. with a .50 ft. moulded height. In the bow this forms the lower portion of the stem post scarph. In the stern K2 ends below K1 with a slight rake. Two iron straps were used in the bow to secure these two pieces together. These straps are let into the wood and are secured by a single iron spike (.02 ft. square shank) into each timber. Two of these straps were recorded in the bow and one in the stern.

The rabbet is formed between K1 and a hogging piece in the bow and midships and between K1 and the deadwood in the stern. The hogging piece is .20 ft. by .75 ft. The rabbet in the bow is .15 ft. deep. In the stern the rabbet is deeper and more acute. The lower edge of the rabbet is .15 ft. wide and .25 ft. wide on the rising edge. It is .20 ft. deep.

Deadwood: The deadwood is present only in the stern and ended at 24 feet on the baseline. It is fayed directly onto the keel and was notched slightly to accept the floors. It ends in a flat surface .50 ft. higher than the top of the keel. The five aftermost floors are fastened through the deadwood to the keel assembly.

Keelson: The keelson was badly eroded. It was only uncovered at the mast step over floors 3 and 4. In the stern it was exposed from floor 5 and ended on floor 6. It has a sided dimension of .75 ft. Due to deterioration, no molded dimension could be taken. Where the keelson crossed the floors a through-pin fastened the keelson, floor, and keel.

Stem post assembly: The stem post/cutwater is fayed to the keel in a bird's mouth scarph arrangement. K2 extends all the way forward and forms the base of the scarph. The heels of the cutwater and stem rest on this portion of the scarph. The after edge of the scarph is formed by K1 and K2. The scarph is worked into K2 to form the lower angle and is continued by the forward edge of K1. This angle is approximately 60 degrees. The length of the scarph on the lower edge is 1.75 ft. The stem post is held to K2 by an iron strap, .40 ft. by .20 ft., with a single spike into each timber. A single through-pin apparently runs through the cutwater and the stem longitudinally into K2. The rabbet is formed by the hogging piece and K1. A knee rests atop this assembly with three frames vertically pinned into the keel. The knee extends from 1.6 feet to 5.2 feet on the baseline, giving a preserved length of 3.6 ft. The frames atop the knee are at 1.0, 3.0 and 4.5 ft. on the baseline.

Framing: In the forward section of the vessel, the floors are placed forward of the first futtock. Floor 1 is .30 ft. sided and is centered at 4.65 ft. on the baseline. It is slightly notched over the longitudinal timber beneath it, which is probably the keel, but could conceivably be a section of rising (dead) wood. The first futtock is offset from the starboard keel edge by .10 ft. at the extreme heel. The first futtock is also .30 ft. sided and is spiked longitudinally to the floor.

Floor 2 is centered at 5.9 feet on the centerline baseline. This floor is also .30 ft. sided. Both of these floors are center pinned with drift pins 1.1 ft. in diameter. Both floors are also missing on the port side within 1.0 ft. of the centerline. Neither of these floors show any sign of the keelson or upper molded surface. Space between floors is 1.1 feet.

Floor 3 is centered at 17.3 feet on the baseline and is .35 ft. sided. This member is at the forward end of the mortise for the vessel's single mast.

Floor 4 is centered at 18.7 feet on the baseline and is .35 ft. sided. This floor is pinned below the mortise which has its aft end at 18.8 feet on the baseline. The keelson is present on this floor. The keelson, floor 4 and the keel are pinned together at the forward end of the mortise.

Floor 5 is centered at 23.15 feet on the baseline. Space between frames is 1.1 feet. Floor 6 is centered at 24.6 feet and is .35 ft. sided. The keelson ends here and is through pinned. Floor 7 is centered at 26.1 feet and is .30 ft. sided. Floor length from the centerline is 2.9 ft. The first futtock is forward of the floor and its heel is offset from the keel by .10 ft. It is .30 ft. sided and is longitudinally spiked to the floor.

Floor 8 is centered at 27.7 ft. and is .30 ft. sided. Length from the centerline is 2.95 ft. The first futtock is forward of the floor, offset .10 ft. and longitudinally fastened to the floor. The first futtock is .40 ft. sided and is a repair part added at some time during the vessel's career. The first futtock is 6.0 ft. in length, and extends to the edge of the preserved hull. The second futtock is not affixed to the head of the first futtock and is .30 ft. sided.

Floor 9 is centered at 29.1 ft and is .30 feet sided. Length from centerline is 3.1 feet. The first futtock is forward of the floor and is offset .10 ft. at the heel and is .33 ft. sided. The preserved length of the first futtock is 5.8 ft. It extends to the preserved edge of the hull remains.

Floor 10 is the last floor in the vessel and is centered at 30.6 ft. It is .33 ft. sided and 2.6 ft. in length off of the centerline. The first futtock is forward of the floor offset by .10

ft. from the keel. It is longitudinally fastened to the floor by iron spikes and is 4.0 ft. in preserved length.

Stern Post Assembly: This is the most complex assembly on the vessel. K1 and K2, in conjunction with the deadwood form the base for the post arrangement. Due to the limits of the excavation, thorough examination of this structure was not possible.

Full (Navigable) Keel: Remains of this feature are lying directly to port of the vessel. Iron pins were recorded extending from the bottom of K2. The extensive artifactual material uncovered along with this feature precluded any further examination. Cordage, intact bottles and rigging items were all in the material matrix around the keel.

Mast step: The mast step is a simple mortise located through the keelson (Figure 8.3). Its forward edge is at 17.4 ft. on the baseline and is located over the aft edge of Floor 3. The after edge of the mortise is at 18.8 ft. on the baseline and is over the aft edge of Floor 4. Overall length of the mortise is 1.4 ft. Floor 4 is pinned through to the keel below the mortise. A single support for the mast step is located to starboard of the mortise and is spiked directly to the bilge ceiling. The step support is secured by 4 iron spikes, .10 ft. in diameter. It is 2.5 ft. in length, .5 ft. wide, and .5 ft. in thickness at the inboard edge. The outboard edge is .10 ft. in thickness. This piece runs athwartships. The inboard spike is into the limber strake. At this point a repair plank has been spiked to the limber board. The forward edge of this plank is at 17.9 ft. and it extends aft to 27.45 feet on the baseline.

Planking: The vessel is planked with .15 ft. thick exterior planking and .10 ft. thick bilge ceiling. Planks are affixed with square shank iron spikes (.02 ft. by 2 ft.). Trunnels are also present securing the exterior planking. Eight strakes of the exterior planking are visible in the stern. The seams are payed with oakum. The average plank width is approximately .73 ft. Width varies from .90 ft. to .65 ft. Amidships, there are 11 strakes remaining. The limber strake has been covered with the repair plank mentioned above. The tenth plank outboard from the keel has been displaced upward. Width varies from .85 ft. to .50 ft. The last strake is badly deteriorated and is only .30 ft. wide. A hook scarph is present between two of the uppermost exterior strakes.

Wood Sample Analysis

Eight wood samples were sent to Lee Newsom of the Florida Museum of Natural History for analysis. They were identified as follows:

Knee of the head-*Quercus* sp., white oak group
Keelson-white oak, same as above.
Bilge ceiling plank-white oak, same as above.
Floor-white oak, same as above with very narrow rings.
1st futtock-white oak, same as above but with wider rings in more typical growth.
Stem-*Pinus* sp., section diploxylon. Hard pine group, specifically *Taeda* pines, a group composed solely of New World members, including longleaf (*Pinus palustris*) and the other southern hard or yellow pines.
Outer hull planking-*Morus (rubra)*, mulberry, probably North American red mulberry.
Deadwood-white oak, same as above.
Trunnel-*Chamaecyparis (thyoides)*, white cedar, probably Atlantic white cedar.

Artifacts

The following artifacts were found associated with the hull remains.

123/01-green bottle base, broken (Hume 1980:68, style dates to 1783)
123/02-wooden parrel
123/03-sheathing tack
123/04-Fe fastener-drawn only (Hume 1980:253, most like #6, T-headed wrought iron, "Colonial")
123/05-barrel cask head-drawn & photographed only
123/06-applied string green glass bottle neck (Hume 1980:67, style dates to 1761)
123/07-green glass bottle base (Hume 1980:67, style dates to 1770)
123/08-delft base sherd (Bense 1989a:2, 1600-1800)
123/09-amber glass bottle stopper (Hume 1980:197, resembles 1755-70 type)
123/10-Cu 'horseshoe' button
123/11-ring-metal?-encrusted-very light
123/12-brass/Cu strip
123/13-green glass wine bottle base (Hume 1980:67, style dates to 1767)
123/14-wooden parrel
123/15-wooden brush head & portion of handle (pegged)
123/16-mahogany or cherry yoke/carrying handle

Threats to Site

The site is threatened primarily by erosion, tidal action, and wind and wave effects. It is currently reburied, but will probably uncover and recover as storms pass through the cove. Beachcombers and pot hunters are a potential hazard, should the site's location become known.

Assessment

The vessel at Town Point is a mid to late 18th-century sloop or, more likely a cutter. She is fairly slack in the turn of the bilge and probably had a square transom. The stem assembly is complex and relatively heavy, given the vessel's overall dimensions. The three frames on the knee of the head are interesting, in that they are probably floor members for the bow cants, a somewhat unusual framing arrangement. The first futtock is aft of the floor in the bow. Amidships and in the stern the first futtock is forward of the floor. This is a variation of the accepted convention of first futtock forward of the floor forward of the master frame and after the floor after the master frame. The repair of the limber strake and the replacement of a futtock indicates a well-used vessel. She shows no other sign of repair work.

Hull shape and garboard angle are indicative of a fairly fine bow and a sharp downward turn towards the centerline. The remains of the full keel and the arrangement of

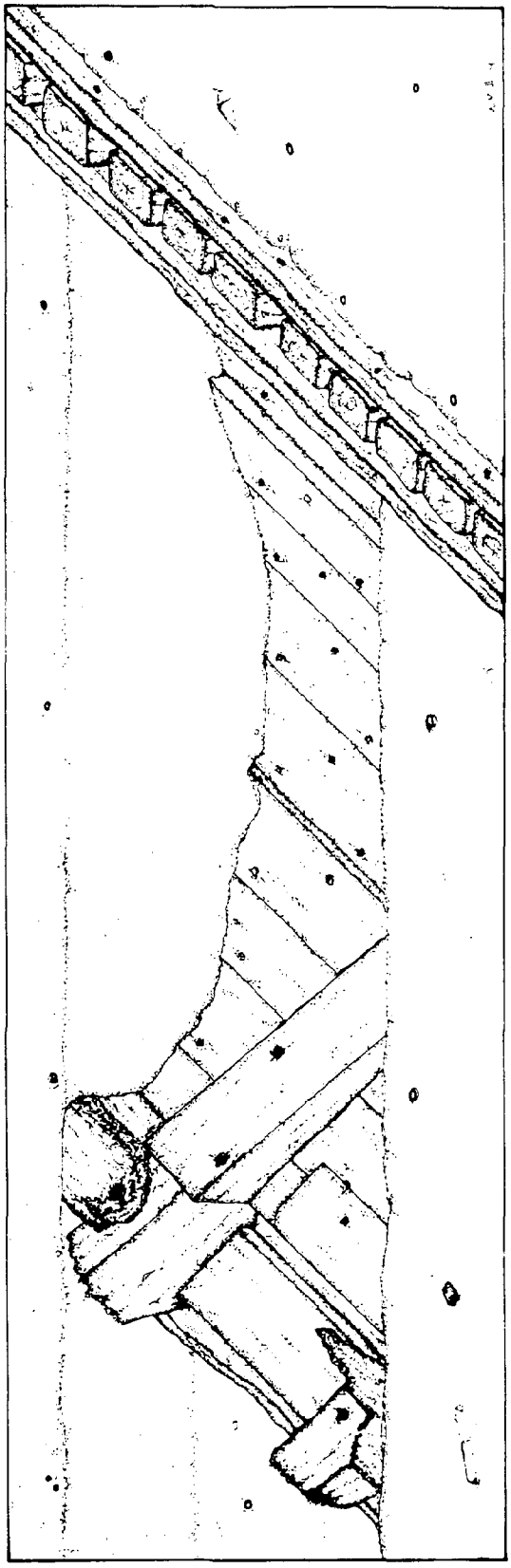

Figure 8.3. Oblique View of Mast Step Trench at Midships, 8SR983.

K1 and K2 are very complex. Since no major excavation was carried out, the details of these features and the stern assembly are still relatively unknown. Both trunnels and spikes are used in planking as well as hook scarps. The mast step is relatively simple, and the mast heel would have rested on floors 3 and 4, or would have been fitted between them and rested on the keel.

This vessel was rigged as a sloop or possibly as a cutter. Artifactual material and construction features indicate the 18th century date ascribed to the site. The construction techniques and design are English, suggesting that the vessel was built by the English or American colonists in the New World. Although Old Navy Cove was a well used careenage during the vessel's period of operation, the presence of the full (navigable) keel on the vessel suggests that she would not have been taken intentionally into such shallow water. Perhaps the vessel was either accidentally driven ashore by storm or by navigational error, or abandoned in deeper water and later driven ashore.

Recommendations

This site should be examined in further detail and completely documented. Due to the fragile nature of the hull remains, it should be protected and access restricted. The site is historically and archaeologically significant, and offers valuable information on small craft construction from the colonial period. Provisions for recording and conservation of artifacts should be made prior to further investigation of the site, due to the large amount of artifactual material encountered among the vessel's remains. Full excavation is recommended.

3. The Second Spanish Period, 1783-1821

No sites were located from this period. Spanish record keeping from this time is sketchy at best. Only two vessels, the *Intrepido* and the *Volador*, are mentioned as lost during this period although undoubtedly there were others (Pensacola Historical Museum Shipwreck File).

4. The Early American Period, 1821-1861

Two sites were recorded from this period (Figure 8.4). 8ES1897 was a caisson, sunk in the 1830s in conjunction with a wharf building project at the new navy yard. The site was documented in 1990 by Panamerican Consultants (see Previous Work). The second site, 8ES1901, is located off of Fort Pickens on the Gulf side of south Santa Rosa Island. 8ES1901 is a heavily constructed merchant vessel.

PSS Site Number:	**T136E**
Site Name:	**Pickens Wreck**
Master Site File:	**8ES1901**

General Location

The wreck is located on the southwestern coast of Santa Rosa Island, in the surf zone, approximately 100 feet offshore. The bottom sediment is white sand and the water depth varies from 2-5 feet depending on tide and wave conditions.

General Site Description

The remains of the Pickens wreck are believed to be those of a 19th-century commercial vessel. Visible remains run 81.8 ft. in length and 28.4 ft. in breadth. Figure 8.5 is a site plan drawing of the exposed remains. The extant portion of the stem assembly protrudes about 2 feet above the sand bottom. Two layers of planking (exterior and interior) survive, both approximately .25-.30 ft. thick. The wreck is oriented along an approximate north/south axis with the bow facing towards shore. A baseline/centerline was stretched from inside the stempost assembly running aft (or south), and all subsequent measurements were made in reference to the baseline. No test trenches were excavated and only the remains that were naturally exposed were mapped. The stem assembly still retains the rabbet cut to receive the exterior hull planks. The tops of sixteen frame pairs are visible to port, along with one cant frame near the stem. The tops of 27 frame pairs are visible on the starboard side, with an 8-foot interruption occurring 17 ft. from the stem.

Remnants of heavily reinforced deckbeams are visible along the starboard side. These deckbeams, spaced about 5 ft. apart, are supported by lodging as well as hanging knees and rest upon the deckclamp. Encrusted remains of chain plates were present along the starboard side of the wreck, beginning 26 ft. from the stem and ending 42 ft. from the stem. Two round timbers protrude from the sand along the vessel's centerline. The first, probably a samson post, is located about 7.4 ft. from the stem. A mast, severely raked, is 26.2 ft. from the stem. Bricks, both yellow and red, were lying just within the hull on the starboard side of the hull, concreted to the remains of the chainplates. Copper sheathing was detected beneath the sediment on the outer hull planking, along with a copper tack.

Features

Fasteners: The hull was fastened with trunnels through the frames to the outer hull planking. The trunnel diameter is .15 ft. Sand cast bronze spikes were used to fasten the outer hull planking to the stem post. A square-shanked, flat-headed copper tack fastened copper sheathing to the outer hull.

Frames: The molded dimension of the frames is about .65 ft. while the sided dimension of each frame averages .6 ft. The frames are in pairs and room and space between pairs averages 2.5 ft.

Wood Sample: One treenail was sent to Lee Newsom of the Florida Museum of natural History for analysis. It was identified as black locust, a common choice for trunnels in the New World.

Brick Samples: Four bricks were removed from the site and shown to David Dodson, a local brick expert. He reported that the bricks were hand cut and fit the size and shape patterns of two early nineteenth century Pensacola brick manufacturers, Bonifay (M. or Emmanuel) or J. Noriega. Both yellow and red brick fragments were found on the wrecked vessel.

Threats to Site

This site is threatened by the extremely dynamic nature of the portion of coastline where the wreck is located. An unusually long period of southwesterly winds caused a washout of the coastline and recently exposed this wreck for the first time in many years. Given the changing nature of this area, the wreck could either be largely uncovered, or

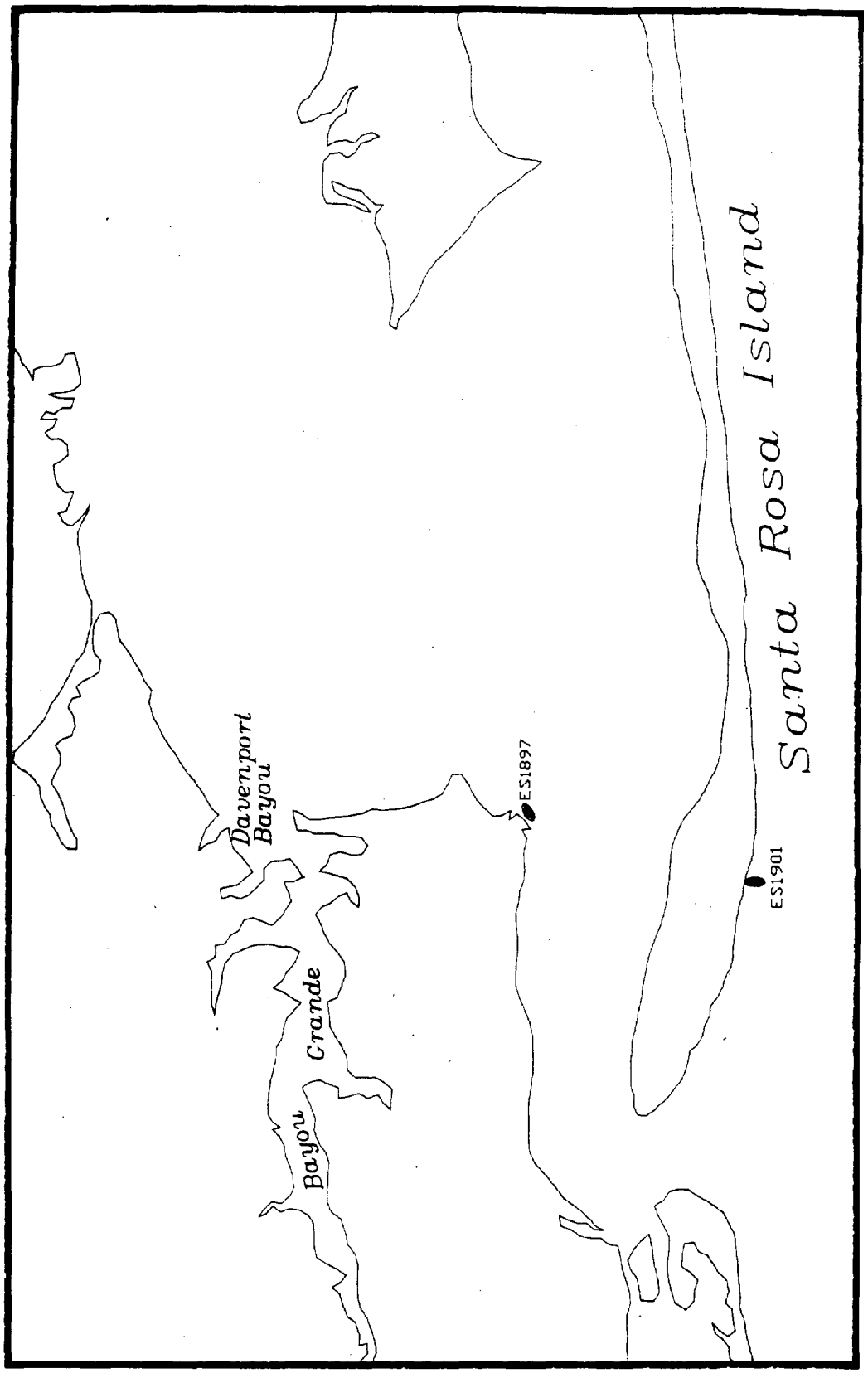

Figure 8.4. Location Map of Early American Period Sites, 1821-1861.

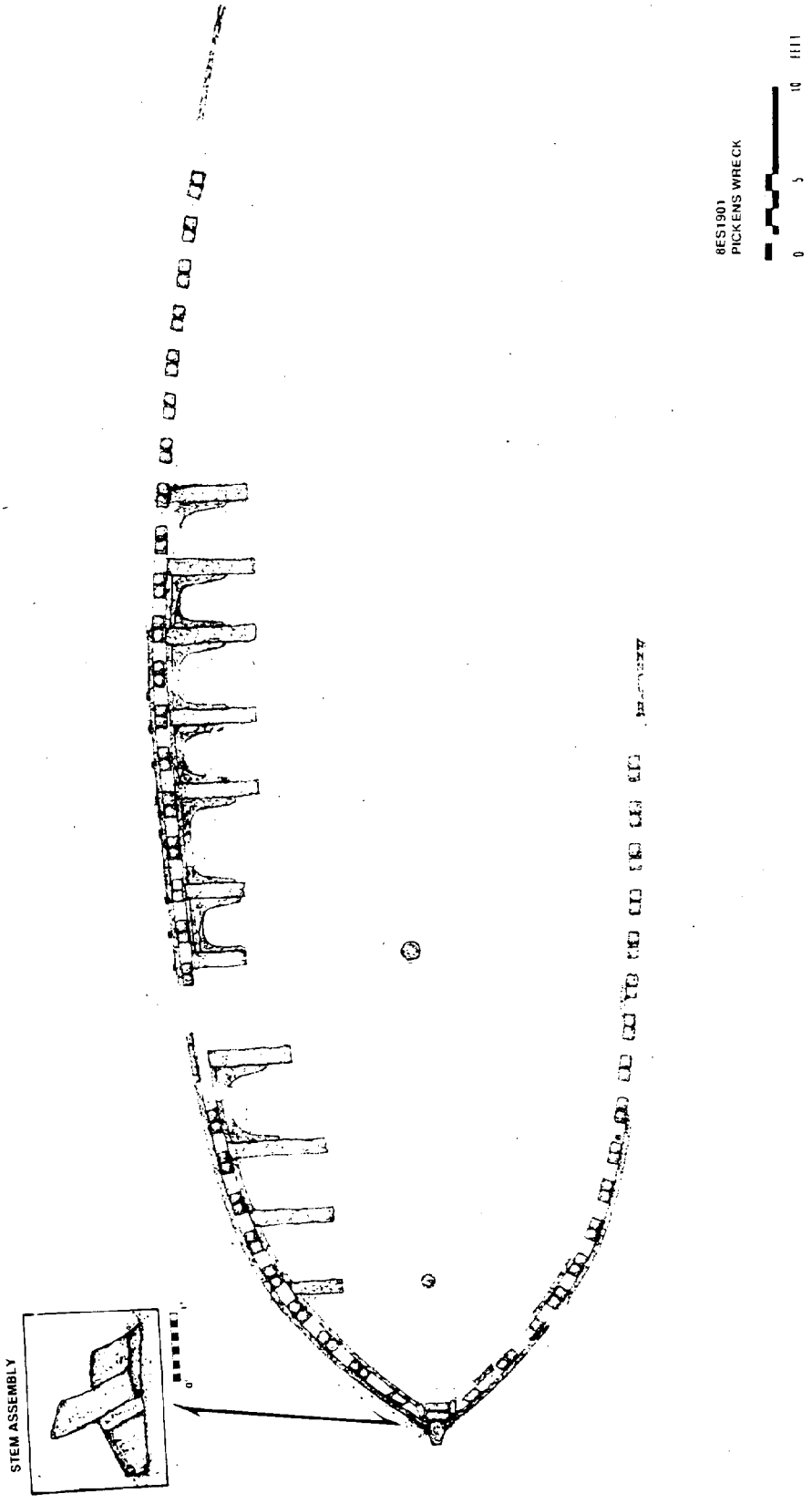

Figure 8.5. Site Plan of 8ES1901, Pickens Wreck.

quickly reburied by natural forces. It is currently being reburied. The wood is in good condition, but will probably erode quickly if left exposed. Also, its proximity to shore, especially at low tide make it easy prey for wreck hunters. Many areas where outer hull planks were fastened to frames show that fasteners, probably bronze, were freshly removed. It should be noted that this site is located within Park Service jurisdiction.

Assessment

The bricks located on the deck could either be part of a hearth or the remains of a cargo. Without further investigation no firm conclusions may be drawn. The sturdy deck construction, suggests that this vessel was built to transport heavy cargo. There is some possibility that this vessel may have been associated with the shipping of bricks crafted in Pensacola. The exposed remains represent the weatherdeck level of the vessel, and the lower hull structure, ballast and perhaps some cargo may remain beneath the sand. The vessel's shape and the use of sandcast bronze spikes suggest that it may have been built in the early 19th century.

Recommendations

The site is in a disturbed zone, and should be recorded in more detail before further erosion occurs if it remains exposed. It is relatively stable when covered. A water induction dredge could be used to test the area and delineate the vessel's actual size and the extant of the remains. Because of its possibly early construction date, the probability that the hull is complete, and because of its location within Park Service jurisdiction, more work on this site is recommended. Also, if the vessel was carrying bricks, it is of interest in relation to Pensacola's early industrial trade history, especially of interest to Park Service archaeologists working on Ft. Jefferson in the Dry Tortugas, which was built with bricks shipped from antebellum Pensacola (See Murphy 1991:596-611 on FOJE 29 "Brick Wreck").

5. The Civil War, 1861-1865

Two sites located in Pensacola bay were recorded from this period (Figure 8.6). Several vessels are known to have been lost in and around Pensacola during the War between the States. The *Judah*, a Confederate privateer, was lost in the first clash of arms in the state (Figure 8.7). This site has not been positively identified, although an excellent magnetometer signature (Figure 8.8) and extensive buried remains are present at the vessel's reported location of loss. This site has been designated 8ES1904.

Immediately adjacent to the site believed to be *Judah* are the remains of the steamer *Convoy* (8ES1372). The *Convoy* was documented in 1987 by Tidewater Atlantic Research. The site was also re-examined and evaluated by Pensacola Shipwreck Survey staff, and is included in this discussion. Although lost after the war, *Convoy* had served as a Union transport and is therefore included in this section.

Also lost by the Union was the frigate *Preble*, which was part of Admiral David Farragut's West Coast Blockading Squadron. Figure 8.9 is an illustration of the *Preble*. She was lost to accidental fire while at anchor in 1863. U.S. Navy divers recovered the mast from the *Preble*, considered to be a navigational hazard, in 1964. The site is currently reported to be completely buried by recent channel dredging and has not been verified by PSS archaeologists.

Other vessels lost in Pensacola at this time include two steam tugs and four vessels used by the Confederates to block the channel entrance. None of these vessels were located during this survey. Reports also frequently mention two gunboats that were being constructed on the Blackwater river at Bagdad and Milton, but were destroyed by the Confederates before they fled Pensacola. Conflicting historical accounts and intensive magnetic interference prevented the location of the remains of either of the vessels. A more systematic survey for these vessels should be conducted due to their importance to Civil War ship design and to Pensacola's maritime history.

PSS Site Number: **T162E**
Site Name: **Groundtruth of *Judah* Site**
Master Site File: **8ES1904**

General Location:

The site is located just to the north of the harbor entrance channel, in 15-20 feet of water. An indigenous clay bottom is covered with an intrusive sandy layer.

General Site Description

The only material remains observed at this site were a wooden timber and a stoneware jug (recovered). Probing with stainless rods indicated structure buried beneath the sand in an area at least 25 feet by 50 feet. The entire site area was a large sand mound rising approximately 2-3 feet from the bottom surface.

Artifacts

T162-01

One artifact was recovered by PSS staff while diving this site. North and west of where the timber structure was found, a stoneware jug T162-01 was recovered. It measures 1.0 ft. tall by .6 ft. wide at the base, which is flat and plain cut. The neck is straight and rimless and measures.14 ft. wide and .1 ft. high. The square shoulders of the jug are tooled. The handle is .2 ft. high. The inside and bottom portion of the jug are glazed with a cream colored bristol slip. Above the shoulders the jug is a dark brown albany slip. Glazing and the squared shape of the jug suggest a date of the first decade of the twentieth century (Greer 1981:76-77).

Also reported are numerous artifacts recovered from the site by local sport divers. Mr. Dick Pace recovered several cast bronze spikes from the site which he allowed PSS staff to record. Two of these spikes measured 7.5 inches long, with square shanks measuring .5 inches at the top and tapering to .25 inches at the tip, with squared heads measuring .75 inches by .30 inches. Another copper spike exhibits the same characteristics, but measures 6 inches long with a .35 inch square shank. Another copper spike is 5.5 inches long with a .35 inch shank. A copper drift pin is some 14 inches long, with an average diameter of .65 inches.

Larry Broussard, a local diver and wreck historian has recovered several artifacts from the site. The artifacts recovered by Broussard include pipes and stems, British Pankhurst china, mini balls and a cannonball. These items have been accessioned and catalogued by the Pensacola Historical Museum.

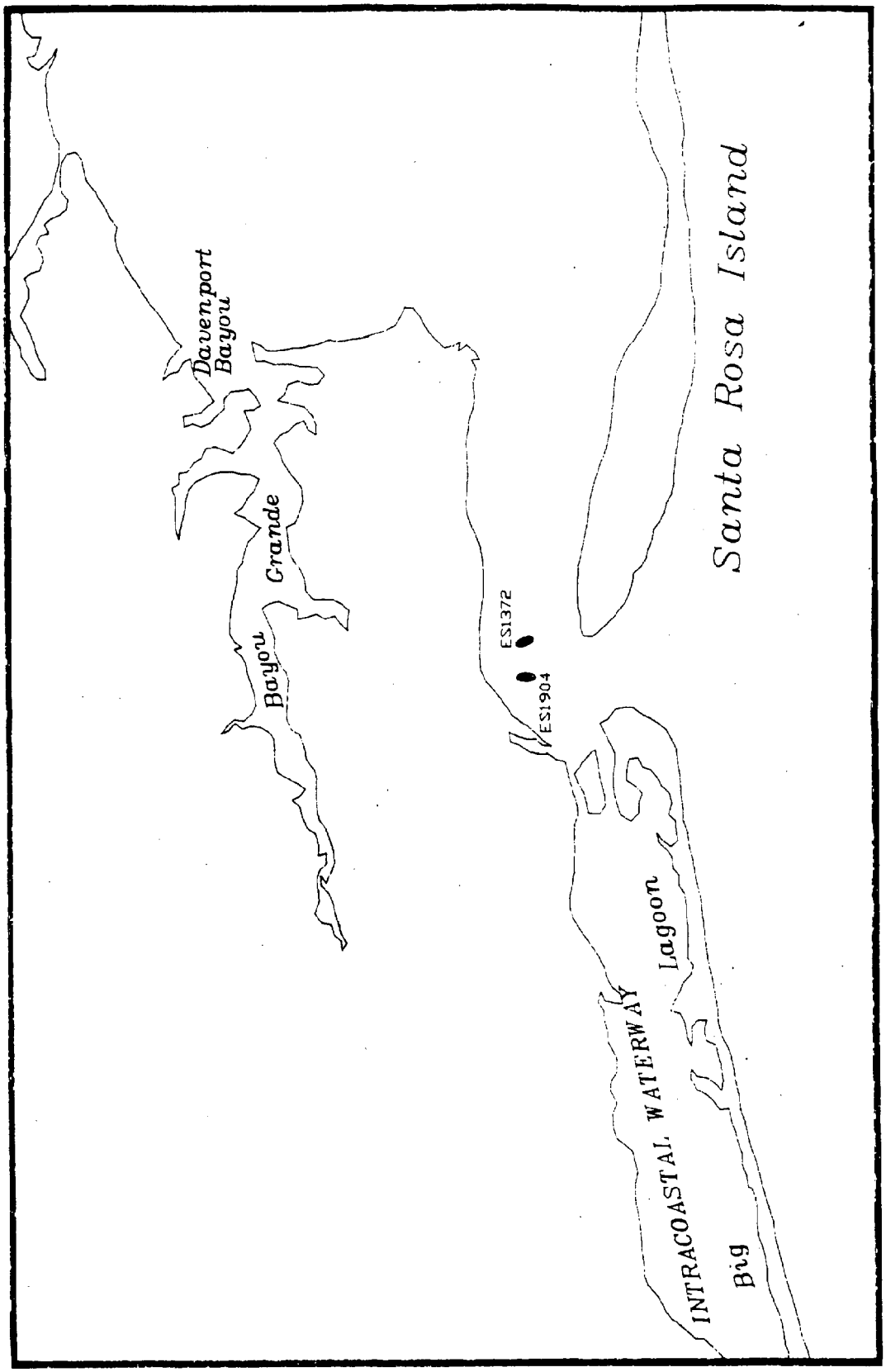

Figure 8.6. Location Map of Civil War Sites, 1861-1864.

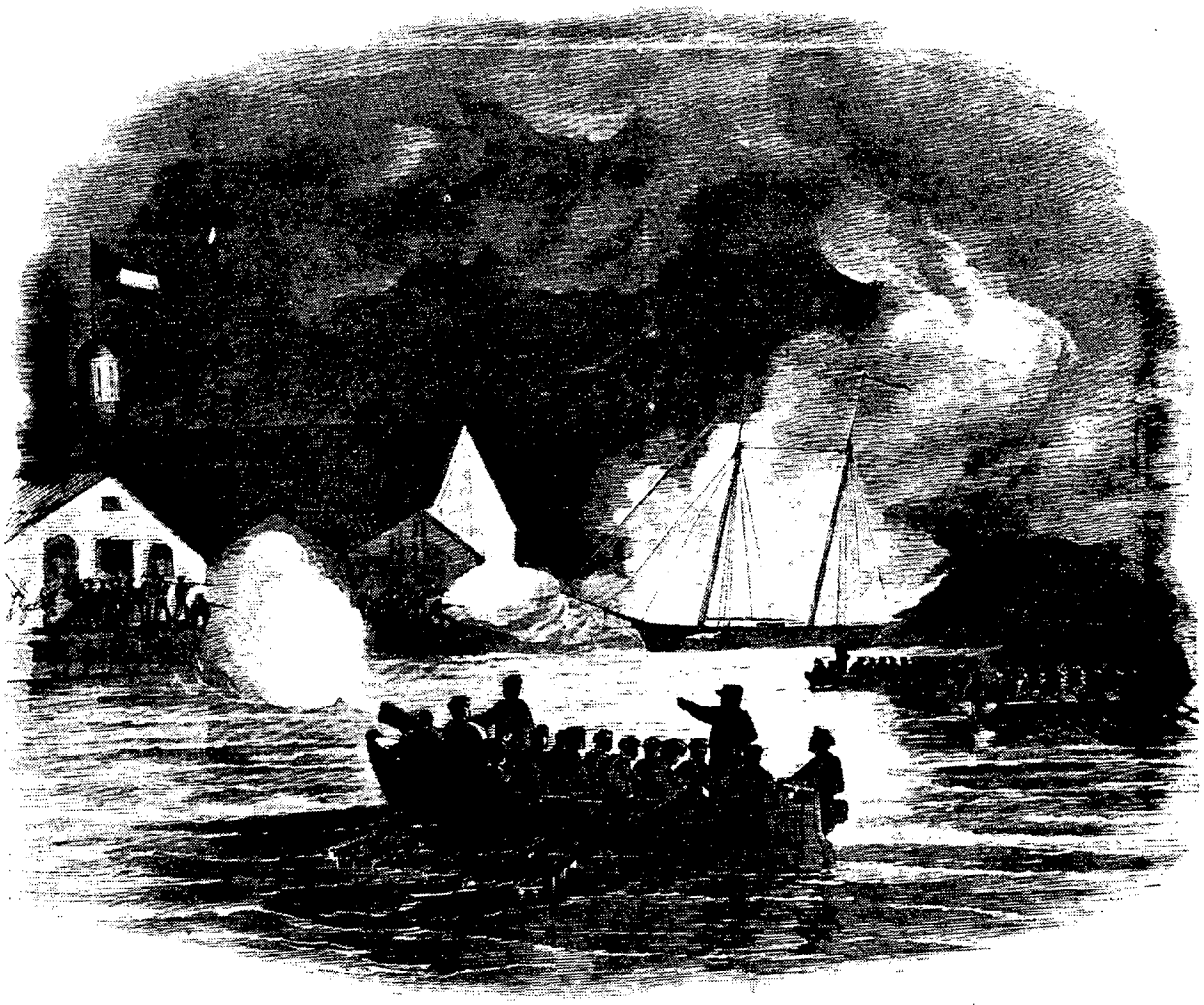

Figure 8.7. Line Drawing of *Judah* Burning.

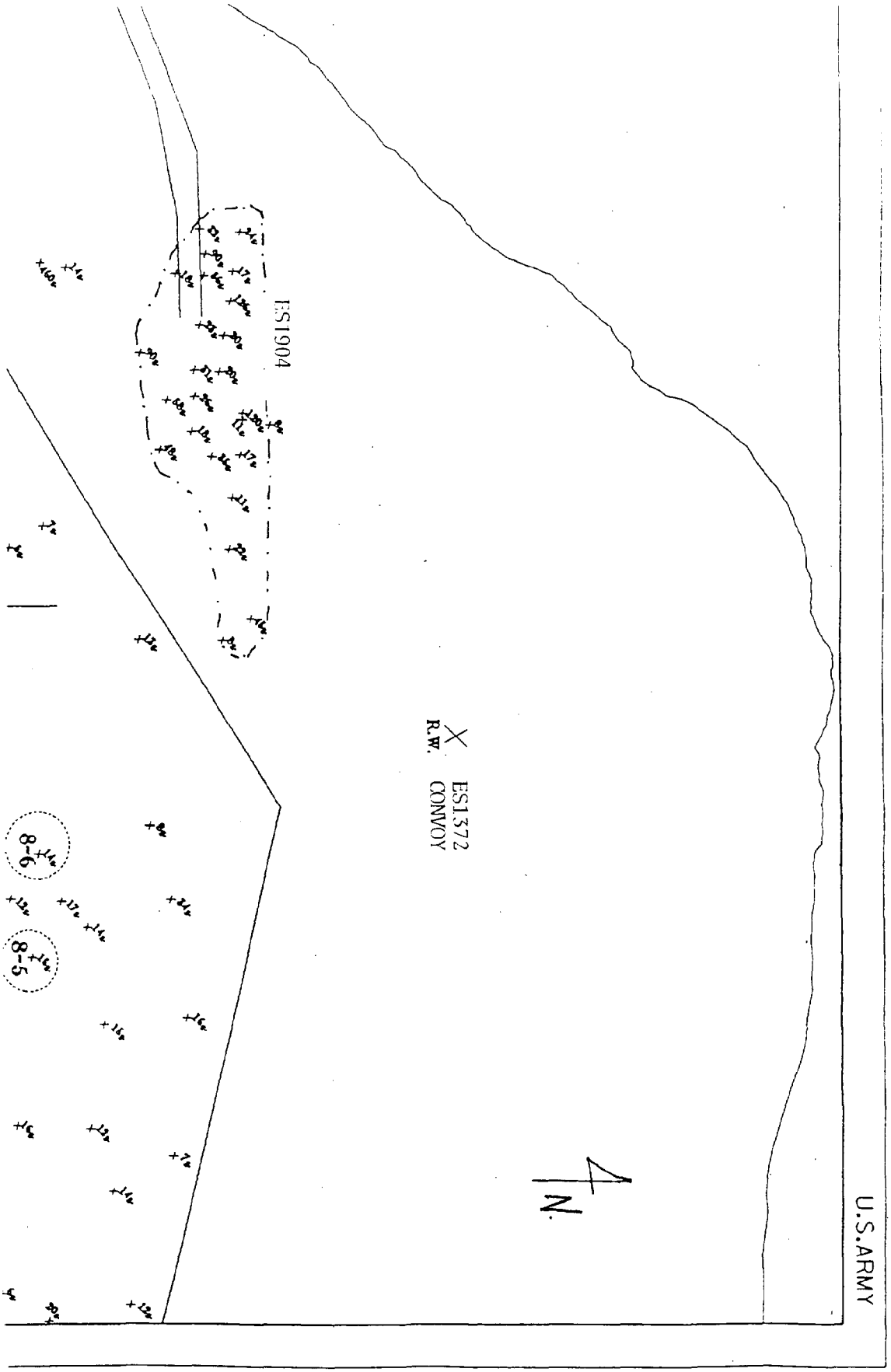

Figure 8.8. Magnetometer Chart of 8ES1904, "*Judah*" Site.

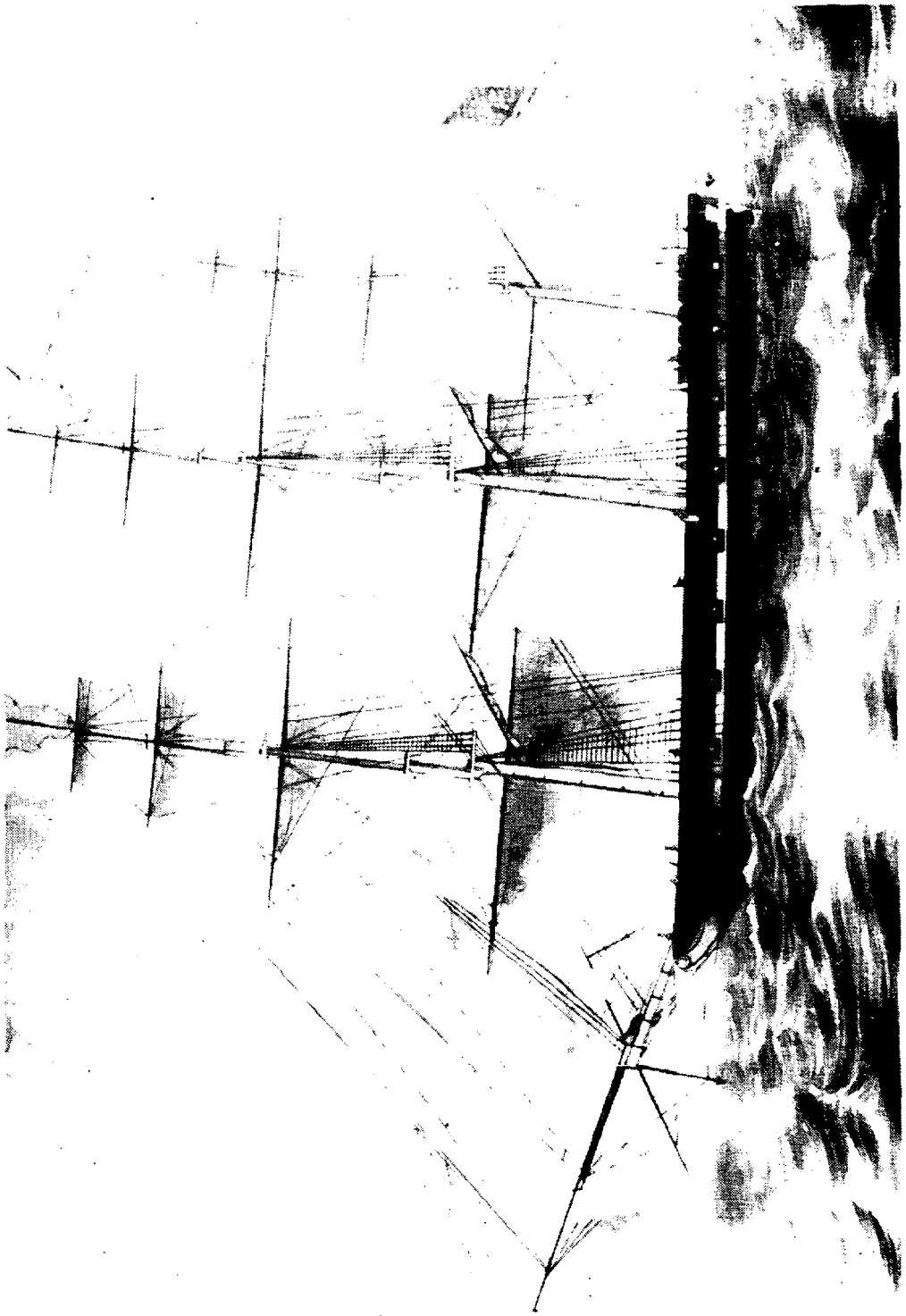

Figure 8.9. Drawing of USS *Preble*.

Threats to Site

Any future dredging to widen and deepen the shipping channel could impact this site. Although looting has taken place at this site, the depth of depositional sand covering the site will probably protect the site from future collectors.

Assessment

This site has been researched and documented by amateur diver Larry Broussard who has recovered numerous artifacts from the site. He has written articles for both academic and the popular press on the "discovery" of the *Judah*. The artifacts he has retrieved are all Civil War era and have been donated to the Pensacola Historical Museum.

In addition to Broussard's work, a Corps of Engineers survey in 1986 generated an excellent magnetometer signature at the precise location of this site. This site was not investigated by the Corps in subsequent field work since it was outside of the area designated for channel dredging (Figure 8.8) (U.S. Army COE 1986, Supplemental Chart No. 2).

The depositional sand covering this site is similar to the sand covering the *Convoy* (ES1372) site. The distance between the *Convoy* site and the buried remains at this site is over 1,100 feet, making it unlikely that artifacts and structure present at this site are part of the *Convoy* site. Both sites are contemporary, but given the fact that the *Convoy* sank in either 1864 or 1867, it may not have contained the quantity of arms and munitions recovered here by Broussard.

Similarities in depositional accretion suggest two separate structures trapping transported sand carried in the outflow water column emptying into the Gulf. At this time there is insufficient data to either confirm or deny that the buried structure at this site are those of the *William H. Judah*.

Recommendations

The magnetometer signature, the extent of buried structure and the Civil War munitions found at this site all make a strong case for this being the *William H. Judah*. The *Judah*, a Confederate privateer, was burned and sunk on Sept. 13, 1861 by a raiding party from the USS *Colorado* (Bonney 1861; Woodstock Papers 1887). This cutting-out action was the first mortal combat between Union and Confederate forces in Florida (Bearss 1957 and 1961). The *Judah* had been hired by the Confederates to run the Union blockade and bring supplies into Pensacola. Once in port, she was armed on the orders of the Confederate General, Braxton Bragg with the intention of using her as a raider. However, the raiding party from the *Colorado* destroyed the *Judah* before her new career could begin.

The significance of the *Judah* to both the history of Pensacola and the Civil War is enormous. Given the magnetometer signature, the extent of buried material and artifacts previously recovered, the potential for this site to be *Judah* is high. These two factors would more than warrant test excavations to positively identify the site.

PSS Site Number: **T024E**
Site name: ***Convoy***
Master Site File: **8ES1372**

General Site Location:

This site is located to the north of the entrance channel to Pensacola Harbor (Figure

8.10). The water depth is approximately 25 feet. The natural bottom is an indigenous clay, but areas surrounding the wreckage have built up deep pockets of intrusive sand, almost 5 feet high in some areas.

General Site Description

The remains of this site are totally disarticulated and widely scattered. The remains observed were charred planks, stud link chain, iron fasteners, copper sheathing, sheathing tacks, coal, iron beams and a portion of the hull. The exposed hull section is probably the remains of the bilge, which supported the machinery space and the coal bunker.

Threats to Site

The only potential threat to this site would be additional dredging to widen and deepen the channel. Although known as a local sport diving location, high currents and poor visibility limit the number of recreational divers visiting the site.

Assessment

This site was extensively recorded in 1987 by Tidewater Atlantic Research (TAR) for the Army Corps of Engineers in connection with the Navy's Home Porting Project. Figure 8.10 is a reproduction of the TAR site map. TAR's assessment was as follows:

> This site consists of the remains of a 19th century steam vessel. The area was searched thoroughly and fragments of hull structure, a paddle wheel, and a variety of scattered artifacts were found. The major concentration of wreckage included a section of hull approximately 50 feet in length and 25 feet in width. Although only partially exposed, the hull section appears to consist of the section between the turn of the bilge that supported coal bunker and the engineering space roughly amidships. Exposed machinery included the remains of a steam windlass, fragments of a boiler, studlink anchor chain, and small fragments of the vessel's steam cylinder or cylinders. Material from the site exhibited evidence of fire on both the hull and associated fastenings. Material associated with the wreck included coal, brass tacks, sheathing, green glass, ironstone fragments, and iron spikes. Mapping confirmed that material associated with the wreck is scattered over a broad area, approximately 140 feet by 50 feet. Closed circuit underwater television was employed to document the wreck and provide details for the site map.

Historical research provides some additional insight into the *Convoy*. According to Steam Enrollment No. 172 filed in New York on September 19, 1862, the vessel was constructed and launched at Williamsborough, New York, earlier that same year by master builder Thomas Stack. According to J.L. Benedict, Deputy Surveyor of the Port of New York, the *Convoy* was built 127 feet in length, 28 feet in breadth, and nine feet in depth with one deck and two masts. The hull was square-sterned with a round tuck, no galleries and no head. The enrollment listed the *Convoy*'s tonnage at 410 and identified William P. Buck as master.

A listing of "Vessels Bought, Sold, and Chartered by the United States" published as Executive Document No. 337 by the 40th Congress of the United States, lists a steamer *Convoy* of 425 and 410 tons as having been employed by the Quartermaster's Department on two occasions. The first contract engaged a 425 ton *Convoy* from 12 January 1863 through 17 May of the same year at a cost of $450.00 per day. C.K. Garrison was listed as the vessel's

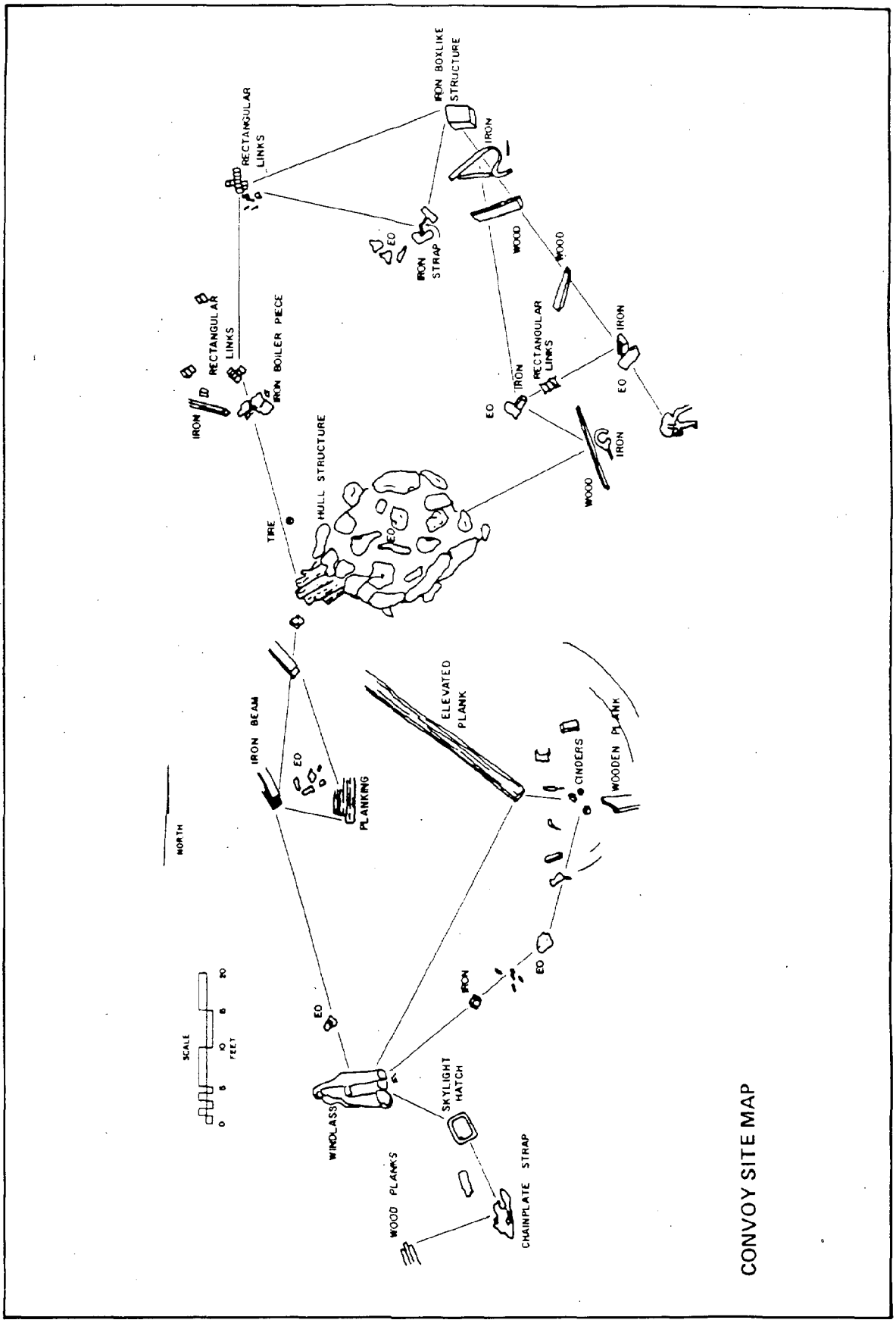

Figure 8.10. Site Plan of 8ES1902, the *Convoy*.

owner of agent. The second contract engaged a 410 ton *Convoy* from 28 May 1863 until 26 June 1863. This contract was for $300.00 per day and was negotiated with Otto Lachenney.

In 1867, a paddle wheel steamer *Convoy* of 375 tons was listed in American Lloyds Register of Shipping. That vessel was also constructed in 1862, in New York and was listed as owned or consigned to the U.S. Government. The ship was surveyed in 1862, in New York and was built of iron and copper fastened white oak. In 1863, the *Convoy* had been sheathed in copper for protection against fouling and teredo worms. The American Lloyds register listed the ship as 180 feet in length, 26 feet in breadth, and 9 feet in depth. The draft was listed as 5 feet. A single deck had been enclosed for river navigation and the steam machinery consisted of a walking beam engine with a 40 inch diameter cylinder and 10 foot stroke. By 1870 the *Convoy* was no longer listed with American Lloyds.

The disappearance of the *Convoy* from the American Lloyds Register was likely related to the loss of the vessel. On 19 December 1876, the United States Engineer Office reported on the "cost and practicality of removing obstructions at the entrance of the harbor of Pensacola, Fla. (U.S. Corps of Engineers, 1877). The steamer *Convoy* was listed as one of four wrecks under consideration. according to the Chief of Engineers, the vessel "burned about the year 1868, and sunk in 12 feet of water one-half mile south of the light-house, with part of her machinery still above water" (U.S. Corps of Engineers, 1877). In a 24 July, 1877 follow up letter from Captain A.N. Damrell to the United States Engineer Office, the *Convoy* was listed as having been lost in 1864. In 1879, the published "Report of the Chief of Engineers" related that a contract for the complete removal of the bark *Ada*, the ship *Miles*, the steamer *Convoy*, and the pilot-boat *Nettle*" had been issued to Mr. George W. Legallis of Warrenton, Florida (Chief Engineer Report, 1877). According to the report:

> On the 11th of November the contractor commenced operations breaking up the hulls and sides by blasting with powder and dualin, and removed pieces to Santa Rosa Island. The engine and machinery and one-half of the hull of the *Convoy* were taken up and removed to Fort Pickens wharf and broken up.
>
> There still remains to be removed nearly all of the ship *Miles* and the boiler and one-half the hull of the steamer *Convoy*, which it is expected will be accomplished on or before the 15th of August next. (Report of the Chief Engineer, 1879)

Additional work at the site is recommended to document the wreck structure and recover associated artifacts should the proposed dredging impact the site (TAR 1987:23-31).

Recommendations

PSS assessment is in complete agreement with the analysis, conclusions and recommendations made by TAR. Not much of the wreckage seems to have deteriorated in the four years since TAR recorded the site, other than the fact that the depositional sand seems to have increased in depth and covered more of the site.

6. The Maritime Industrial Expansion Period, 1865-1906, and 7. The Early Twentieth Century Period, 1906-1945

For the purpose of describing the remaining sites, chronological periods 6 and 7 are combined, since an exact date for each site is not possible. Characteristics of many vessels

built during the late 19th and early 20th centuries were quite similar. Also, the longevity of some vessels' service careers carries them from one period into the next.

A total of 29 sites fall into these periods. Four of these sites are lumber schooners and there are eleven wooden barges. The remaining sites include fishing vessels, a punt, a windlass, a section of drydock, a steel battleship, a steam tug, and possibly, a transoceanic merchant vessel. These sites are located in every type of environment encountered on the survey. For these two periods, sites are grouped by location.

The sites are described in the following order:

Blackwater River

8SR1007	T157 Cedar Wreck
8SR1001	T145 Snapper Wreck
8SR997	T121 Shields Pt #1
8SR998	T122 Shields Pt #2
8SR1011	T133 Shields Pt #3
8SR1012	T134 Shields Pt #4
8SR1008	T159 Milton RR Swingbridge Hull
8SR1010	T148 *City of Tampa*
8SR1013	T144 Barge off Sanborn's
8SR1002	T149 Barge(s) off Dutchman's Cut
8SR1003	T153 Barge at #38 Marker
8SR1004	T154 Barge off Dutchman's Cut
8SR1005	T155 Marquis Basin Barge
8SR1006	T156 Quinn Basin Barge
8SR1009	T161 Baypoint Barge

Bayou Chico

8ES1896	T138 Vessel at Runyan's Shipyard
	T137 Barge (Removed)
8ES1905	T139 Barge off Clopton's
8ES1902	T140 West Leg Barge

Old Navy Cove

8SR1014	T135 Deadman's Punt
8SR996	T104 Centerboard Schooner
8SR1000	T131 Composite Hull
8SR995	T104 *Cabadroca*
8SR999	T128, T129, T130 Marine Railway Debris

Pensacola Bay, Sound, and Offshore

8ES1899	T072 *Rhoda*
8ES99	T077 *Sport*
8SR994	T001 Windlass Site
8ES1903	T141 Drydock?
8ES1898	T003 *Massachusetts*

The Blackwater River

A total of fifteen sites were located and recorded in the Blackwater River. Figure 8.11 shows their general location. Sites in the Blackwater River were located for the most part on the advice of area residents. For this reason, most are shallow water sites that protrude from the water. All sites in the river share the same environment; exposure to water with a high tannic acid content and low salinity, which are two factors that help to preserve wood.

PSS Site Number: **T157SR**
Site name: **Cedar Wreck**
Master Site File: **8SR1007**

General Location:

The vessel is buried about ten feet from the southeastern shore of Wright Basin on the Blackwater River. At low tide the remains are exposed; at high tide the water depth is almost 3 feet. The bottom sediment is sand with no overburden.

General Site description:

A wooden vessel, built largely of cedar, was found lying parallel to the shore with her bow to the east and stern to the west. Relatively little of the vessel is exposed, except for a portion of the port side, extending approximately 27 feet from the stem. A baseline was attached with the zero point at the stem. All measurements were made relative to the baseline. See Figure 8.12 for a site plan drawing of the exposed remains. Only 7 feet of starboard hull structure is exposed. Probing along the vessel's centerline indicated solid wood remains extending at least 70 feet to the west, buried beneath .6 ft. to 2 ft. of sediment.

The vessel appears to have been built like a bateau and may have been poled through the water. No weather deck was evident. It appears that walk planks were laid across the vessel's floors for the crew to walk upon, in place of a fixed deck.

Features

Stem: Several components of the stem structure are partially exposed, these being the cutwater, gripe and stempost. These three components were fastened together with an iron driftpin 1 inch in diameter which had been driven from the interior face of the stempost. The interior of this stem structure is butted on either side by hawsepieces, each of which had an average molded thickness of .7 ft. and a sided dimension of .5 ft. These hawsepieces were fastened to the stem construction with iron pins 1 inch in diameter.

Frames: To starboard, a pair of frames immediately followed the hawsepiece. Each frame had a molded thickness and sided dimension of .5 ft. A space of 1.6 ft. separated this frame pair from the next. While these next frames exhibited the same dimensions as the previous pair, they are separated from each other by .5 ft. The edge of the third and last visible frame on the port side was also spaced a distance of 1.6 ft. from the second pair.

To port, no frames were exposed until a point 19 feet along the baseline. Instead 16 transverse timbers (i.e. running perpendicular to the baseline) were noted. These timbers had a sided dimension of .5 ft.; a molded thickness was unobtainable. These timbers were spaced fairly irregularly along the baseline though they were on the average approximately 1 ft. apart. The port ends of several of these timbers were cut at an angle in order to butt smoothly against curving interior planking.

Five frames were noted on the port side, beginning 19 feet from the stem and continuing to about 26.5 feet along the baseline. These frames averaged .5 ft. square, molded thickness and sided dimension. The frames butted against the forward surface of corresponding transverse timbers.

Planking: The interior and exterior planking was fastened to these frames by means of .5 inch square iron nails. At the stem on the starboard side the exterior hull planking was .15 ft. thick while the interior planking was .18 ft. thick. Exterior hull planking was noted along the exterior surface of the frames and transverse timbers on the port side measuring .3 ft. in thickness.

Walk Planks: Three timbers running parallel to the baseline were noted on the port side. Two of these appear to have been deck planks approximately 8 ft. long and .8 ft. across. These planks began about 8 ft. along the baseline and rested beside one another. The third timber was notched to fit over the transverse timbers and notched to fit around the frames. Measuring .6 ft. in both the molded and sided dimensions, it ran from about 14 feet on the baseline to about 25.4 ft. where it became buried. These timbers probably were walk planks traversed by the vessel's crew. Also, another timber was noted which began near the stem structure and seemed to run parallel to the outer edge of the hull. The timber was about 4.7 ft. long and .8 ft. across and had a notch running across its aft end approximately 1 inch wide. It is not clear whether this timber was a deck plank or a component of some bulkhead arrangement.

Keelson: A portion of the keelson was encountered approximately 7.25 ft. from the inside of the stem structure. The keelson had a molded thickness of .6 ft. and a sided thickness of .5 ft.

Threats to Site

As this site is directly off the bank, it is threatened by any development along the water, specifically the construction of a dock or pier. Also, it is believed that this site becomes completely exposed, and therefore vulnerable, during winter low tides. However, most of the hull is protected by a sand bottom, and the wood is in good condition. The vessel should remain stable if undisturbed. Because of its location, this site is not a likely candidate for vandalism or sport diver disturbance.

Assessment

Because of its relatively sturdy construction, the presence of walk planks, and the hull's construction of cedar, this vessel seems to be a locally built working craft, probably of the late 19th or early twentieth century. It is located in Wright Basin, once used as a storage pond for lumber being transported down the Blackwater River. The vessel may have been used in connection with the lumber industry. Its placement along the basin bank seems to suggest that it was abandoned at the end of its working career. Further investigation of this vessel could provide valuable information on indigenous water craft.

Recommendations

Given the relative uniqueness of this site, a full excavation of the vessel would yield valuable information concerning bateau-like craft. A water dredge would be needed to uncover the remainder of the hull.

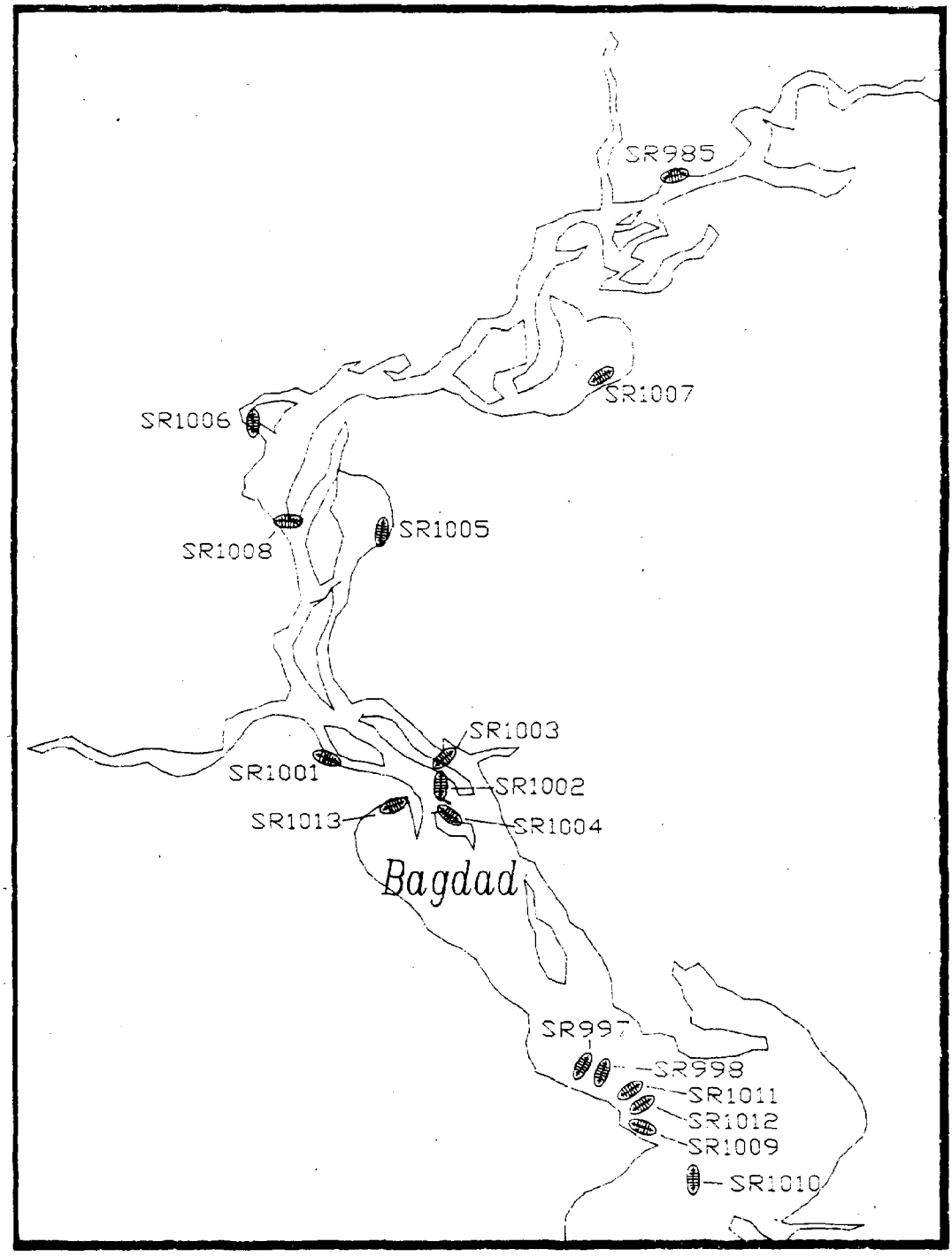

Figure 8.11. Location Map of 19th & 20th Century Blackwater Sites.

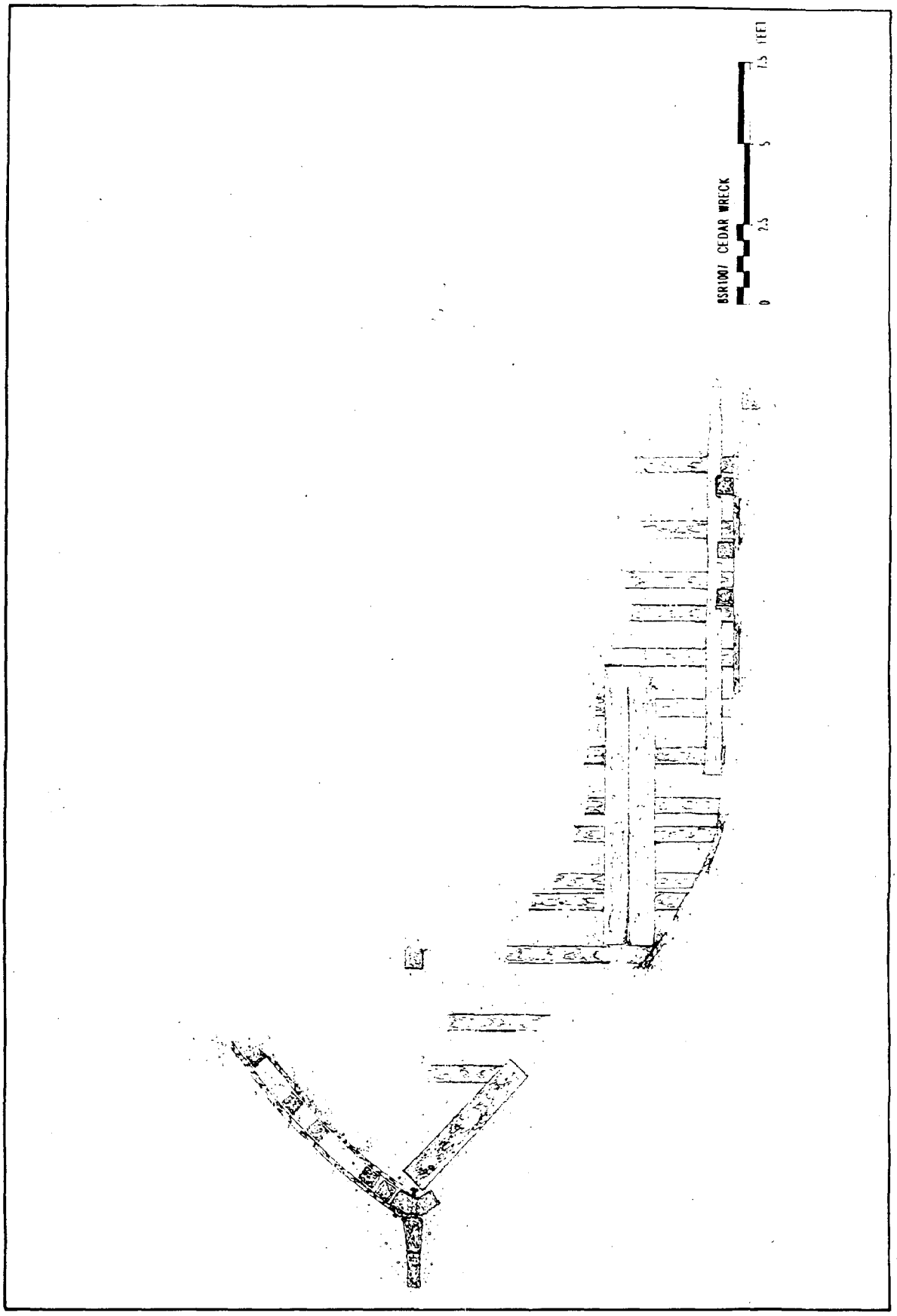

Figure 8.12. Site Plan of 8SR1007, Cedar Wreck.

PSS Site Number: **T145SR**
Site name: **"Snapper Wreck" at Ollinger & Bruce Yard in Bagdad**
Master Site File: **8SR1001**

General Location

The vessel lies above Shipyard Point on the Blackwater River in approximately 15-20 feet of water. The vessel was apparently abandoned near the wharf at the old Ollinger & Bruce Shipyard in Bagdad.

General Site Description

The vessel remains at this site are extensive. The hull lies over on the starboard side with the port side at the chainplates just above the water surface. The hull is 68.0 ft. preserved LOA with approximately a 22 ft. beam amidships. Almost the entire hull is present, from the keel to the weather deck. However the stern is badly damaged. There is no evidence of the transom, stern post or rudder at the site.

Features

The ship is full-keeled and double-framed. Room and space varies from 2.2 ft. amidships to 1.7 ft. towards the bow and stern. Frames are fastened to both interior planking (bilge ceiling) and exterior planking with .10 ft. diameter pins. The bilge ceiling is thicker than the exterior planking.

A single set of mast partners is present, 38.0 ft. forward from the aftermost preserved surface. The partners are in two pieces, split on the centerline. A pump well is slightly forward of the partners. The mast position is located through a raised midships deck. This deck section is approximately 1.5 ft. above the main deck, which starts 13.0 ft. forward of the stern (preserved surface) and ends at 43.0 ft. Deck beams and carlings are present and are articulated on both decks, as is almost all of the deck planking. Deck beams are .70 ft. by .50 ft. The deck planking is spiked to the beam with iron square shanked fasteners. The deck beams are mortised into the deck clamp and held in place with lodging knees that are radially through-pinned.

Three chainplates are present on the port side. They are at 32.5 ft., 36.9 ft. and 39.1 ft. from the stern (preserved). They are simple flat iron straps pinned through the planking into the frames.

Two athwartships bulkheads are present forward of the raised deck, as are two ventilators. A hatch, with its coaming and head pieces still articulated, provides access to the hold created by these two bulkheads. A pair of samson posts or riding bitts are forward of the fore bulkhead. Forward of these, a single vertical timber pierces the deck on the centerline. This piece would have supported the heel of the missing bowsprit. The stem assembly, still fully articulated is comprised of three timbers. The heads of all three of these timbers have been shaped to support the (missing) bowsprit.

In the stern, on the main deck are the remains of an iron square box with a central iron spindle. Attached to this spindle are two articulated iron arms. This piece of hardware could either be associated with the vessel's steering gear or could have been a mechanism used for net handling. Below this feature is the badly distorted and disarticulated stern. Several

pieces of deadwood, tying into the keel structure, are visible. There are mortises in the uppermost section of the deadwood to accept the deck beams. A single heavy timber is present at the weather deck level on the centerline of the vessel.

Threats to the Site

This site is primarily threatened by erosion due to river current and decomposition of the iron fasteners. Laying hard over, the vessel's timbers will gradually disarticulate and fall into the channel. This process is already underway and is evident in the collapse of the deck planks. In addition, the weight of the hull is being borne on the starboard side. This will eventually distort the hull and cause the complete collapse of the vessel structure. This is a slow process and wood will remain in good condition for some time to come due to the environment of the Blackwater River. Low salinity and a high tannic acid content will preserve the wood but the iron will rapidly disintegrate. Due to the low visibility and hostile environment (for diving) little danger exists for vandalism.

Assessment

The vessel at this site is modern. She lies adjacent to the old Ollinger & Bruce Shipyard wharf, south of the old lumber mill, where Pond Creek cut runs into the Blackwater River. Both the shipyard and the mill were active until the yard was moved to downtown Pensacola in the 1920s. It can be assumed that the vessel was not left in a working waterway until after the yard and mill traffic had ceased.

Local information refers to the ship as a "snapper ketch." If this is true, the vessel was probably associated with the Pensacola snapper fleet. Only one mast position was observed, but the position of this mast does not exclude the possibility of a second mast. However, it seems most likely that this vessel was rigged as either a cutter or a sloop. Certainly the evidence of a bowsprit is indicative of a large sail area.

The hull shape exhibits a fine bow and a full midships section running to a broad stern. Due to the destruction of the stern assembly no additional observations were possible on the shape of the after portion of the hull.

The vessel is full-keeled and heavily constructed relative to her overall size, suggesting she was built for work rather than pleasure. The large hold and raised deck are two other features that suggest this wreck was a fishing craft. Figure 8.13 is a photograph of a fishing vessel launched in Milton in 1897. Her lines are remarkably similar to those of 8SR1001. Figure 8.14 shows the *Silas Stearns* at a pier in downtown Pensacola.

This vessel was probably abandoned at the end of a useful service career, post 1920. Her well-preserved hull makes this site significant in terms of naval architecture. The vessel design characteristics are also significant in terms of features incorporated for fishing vessels offshore. Historically, this site is significant to Pensacola's history due to the importance of the snapper industry to Pensacola.

Recommendations

This site should be recorded in detail before any additional deterioration takes place. No excavation is necessary. No artifactual material is likely to be present at the site since the vessel appears to be abandoned.

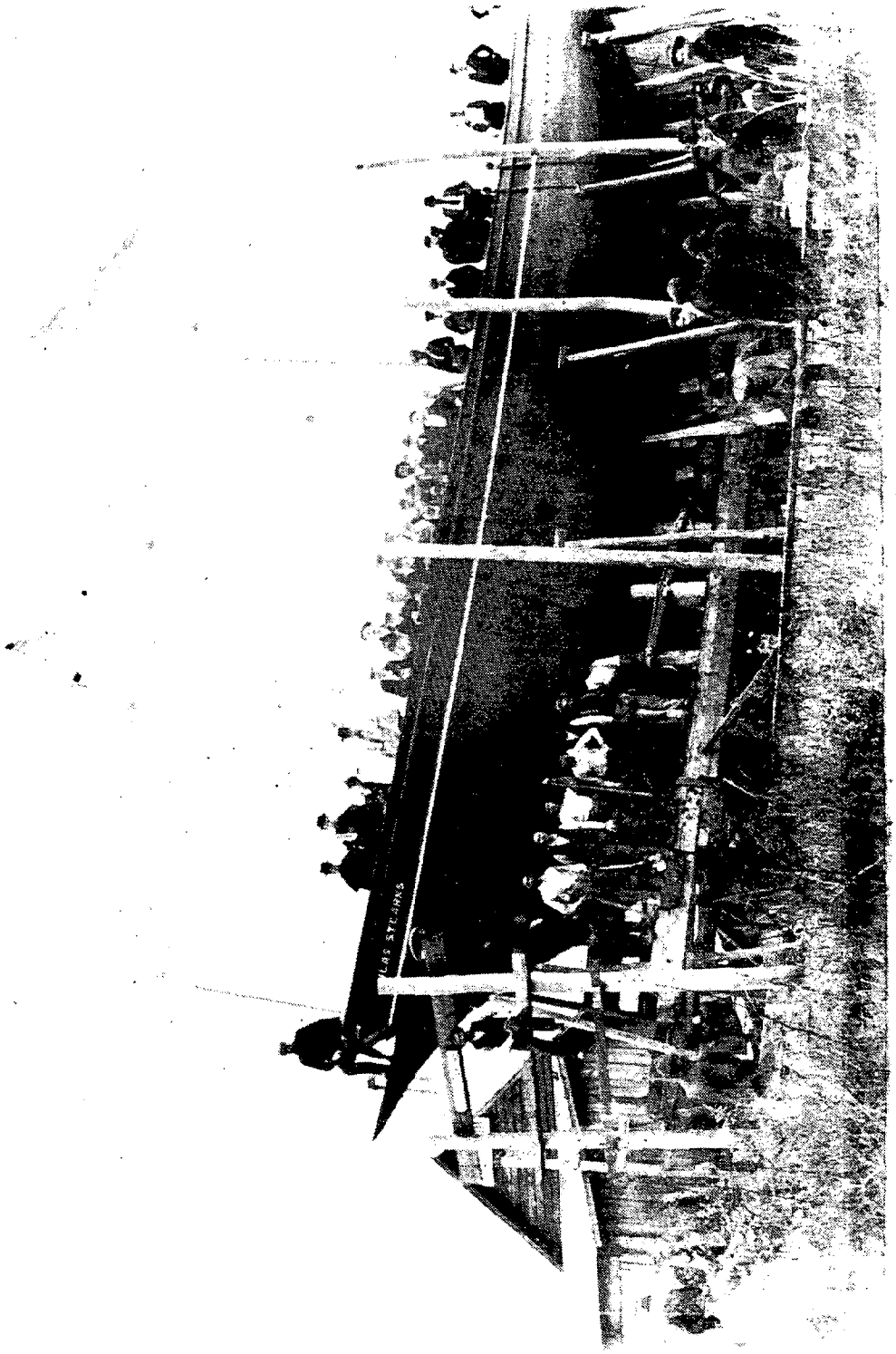

Figure 8.13. Photo of *Silas Stearns* being Launched, 1897.

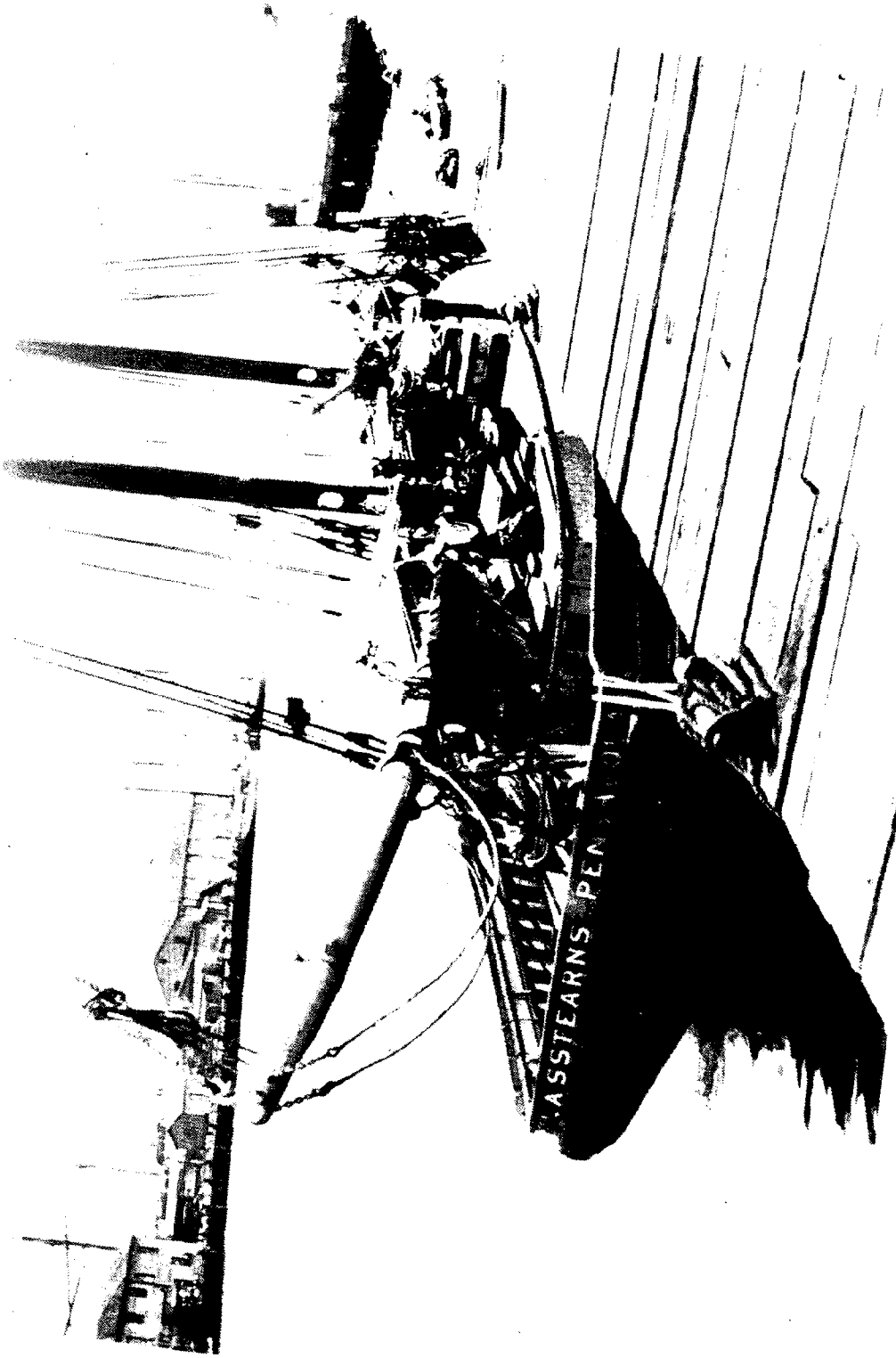

Figure 8.14. Photo of *Silas Stearns* at Dock.

Due to the significance of the Snapper fleet to Pensacola's maritime economy, the documentation of this hull should be undertaken. This would be a relatively easy and straightforward task and could be accomplished in two days or less.

The Shields Point Vessels

Four vessels lie just off of Shields Point in the Blackwater River. Originally schooners, these vessels were stripped and converted to barges. Serving the Aiken Lumber Co., they were abandoned at the end of their service careers. The General Location is the same for all four vessels. Descriptions of the individual hulls will be followed by shared sections on Threats to Site, Assessment, and Recommendations. Figure 8.15 is an aerial photograph of the area. For easy identification survey staff gave each vessel a number. Shields Point #1 is closest to the western river bank, #4 is the farthest east.

General Location

The four vessels at Shields Point, 8SR997, 8SR998, 8SR1011 and 8SR1012, are lying side by side on a sand bar in 8-11 feet of water. The water is clear, but has a high tannic acid content and low salinity. River current speed is 1 knot or less. These vessels lie to the west of the main channel, with their bows pointed towards the shore. Bottom sediment is depositional silt.

PSS Site Number: **T121SR**
Site Name: **Shields Point #1, probably the *Palafox***
Master Site File: **8SR997**

Local resident Gordon Wells identifies this hull as the *Palafox*, a schooner built in Bayou Chico in 1918 for the Aiken Lumber Company. Figures 8.16 and 8.17 are photographs taken of the *Palafox* and her construction.

General Site Description

The hull remains are preserved about 3 feet above the keelson; the weather deck is missing. Stem assembly, transom, rudder, frames, ceiling, foremast & step, mainmast step, mizzenmastand step, exterior planking, and several deck stanchions are still articulated. These remains are in good condition.

The hull is 152 feet preserved LOA with a maximum preserved breadth of 37.9 feet. A centerline/baseline (CL) was established with zero at the stem. All measurements are taken relative to this datum. Figure 8.18 shows the site plan recorded from the hull.

Features

Stem Assembly: The stem was constructed of three pieces; a gripe was forward of the stempost which was backed by an apron. The apron was buttressed by the knee of the head which was overlaid by the forward end of the keelson at 2.5 ft. The stem assembly was longitudinally through pinned with .11 ft. diameter drift bolts. The keelson was secured with a vertical pin. The rabbet was formed by the seam between the gripe and the stem. The gripe was 1.0 ft. molded and .95 ft. sided on the aft surface. The rabbet was inlet here at .25 ft. The keelson was 1.25 ft. sided on average but somewhat narrower at the forward end; approximately 1.1 ft. (This could be a function of design or erosion.)

Stem post: The square transom was set up in the following manner. A vertical member, possibly the upper arm of the stem knee, was at 149 feet on the baseline. It was 1.0 ft. in thick and 1.25 ft. sided. Aft of this, the stern planking was sandwiched between this member and the stern post. The stern post assembly was constructed of an inner and outer post. A four piece rudder was hung at 152 feet. The outer post was 1.25 ft. by .85 ft. The inner post was 1.25 ft. by 1.1 ft. This assembly was all pinned through the planking into the (assumed) vertical knee arm.

Keelson: The keelson was present from 2.5 ft. on the CL to 148 feet. LOA for this piece was 145.5 ft. The sided dimension varied from 1.1 ft. to 1.25 ft. Deck stanchions were morticed into the keelson on the centerline. There were 25 stanchions and/or stanchion mortises along the keelson. There were three mast steps also present on the keelson, with the heel of the fore and mizzen mast still stepped.

Mast steps: The foremast was centered at 37.5 feet. The step was a mortise and tenon. The step was let into a rider on the keelson. This rider started at 34.4 ft. and ended at 39.8 ft. This component was 1.25 ft. sided and .80 ft. molded. It had a stanchion inlet into either end. The forward edge of the mast was secured by a 1.2 ft. chock. The chock and both stanchions were horizontally pinned athwartships with .11 ft. in diameter drift pins. It was vertically pinned to the keelson with four pins offset from the CL aft of the mast and two pins forward of the mast. The mast had an iron retaining ring at the bottom approximately .80 ft. above the top of the step/rider.

The main mast was missing. The rider and step, however were still articulated. This mast was saddle stepped. The main mast would have been centered at 75 feet on the baseline. The step rider began at 72.9 ft. and ended at 78.2 ft. It was .90 ft. molded. The saddle notch began at 74.4 ft. and ended at 75.9 ft. It was inlet .35 ft. on either side. The notches were .52 ft. deep. There was a stanchion present in either end of this structure. Both stanchions were pinned horizontally athwartships. The step/rider was pinned to the keelson with three pins aft, one in the center of the step, and four pins forward. All were .11 ft. in diameter, peened over roves.

The mizzen mast step was centered at 113.8 feet on the baseline. It was saddle stepped. The rider began at 109.9 ft. and ended at 116.9 ft. The sided dimension is 1.25 ft., molded thickness is .80 ft. A stanchion was inlet into either end. These were horizontally through-pinned. The saddle notch began at 113.0 ft. and ended at 114.15 ft. Three vertical pins secured the aft side of the step/rider and four pins secured the forward half. The mast stump carried no retaining band.

Framing: The vessel is double-framed, moderately spaced. There were 120 futtocks to starboard and 110 futtocks on the port side. The difference in frame counts between port and starboard sides is probably due to missing upper futtocks on several frame assemblies. Average room and space is 2.92 ft. Room and space was assessed at transect lines at 30 ft., 50 ft., 70 ft. and 110 ft.. At 30 ft. the room was 1.7 ft. for a double frame (.85 ft. per futtock) with space at 1.3 ft. At 50 ft. room on the single measured futtock was .7 ft. and the space was 1.3 ft. At 70 ft. a single futtock was .90 ft. and space was 1.5 ft. At 110 ft. the room for a double frame was 1.5 ft. (.75 ft. per futtock) and space was 1.0 ft. All pins were peened over roves. Pin diameter was .11 ft., roves were .125 ft. Futtocks showed numerous examples of longitudinal through pins. Futtocks were in-line, butt scarphed with even/odd number overlap.

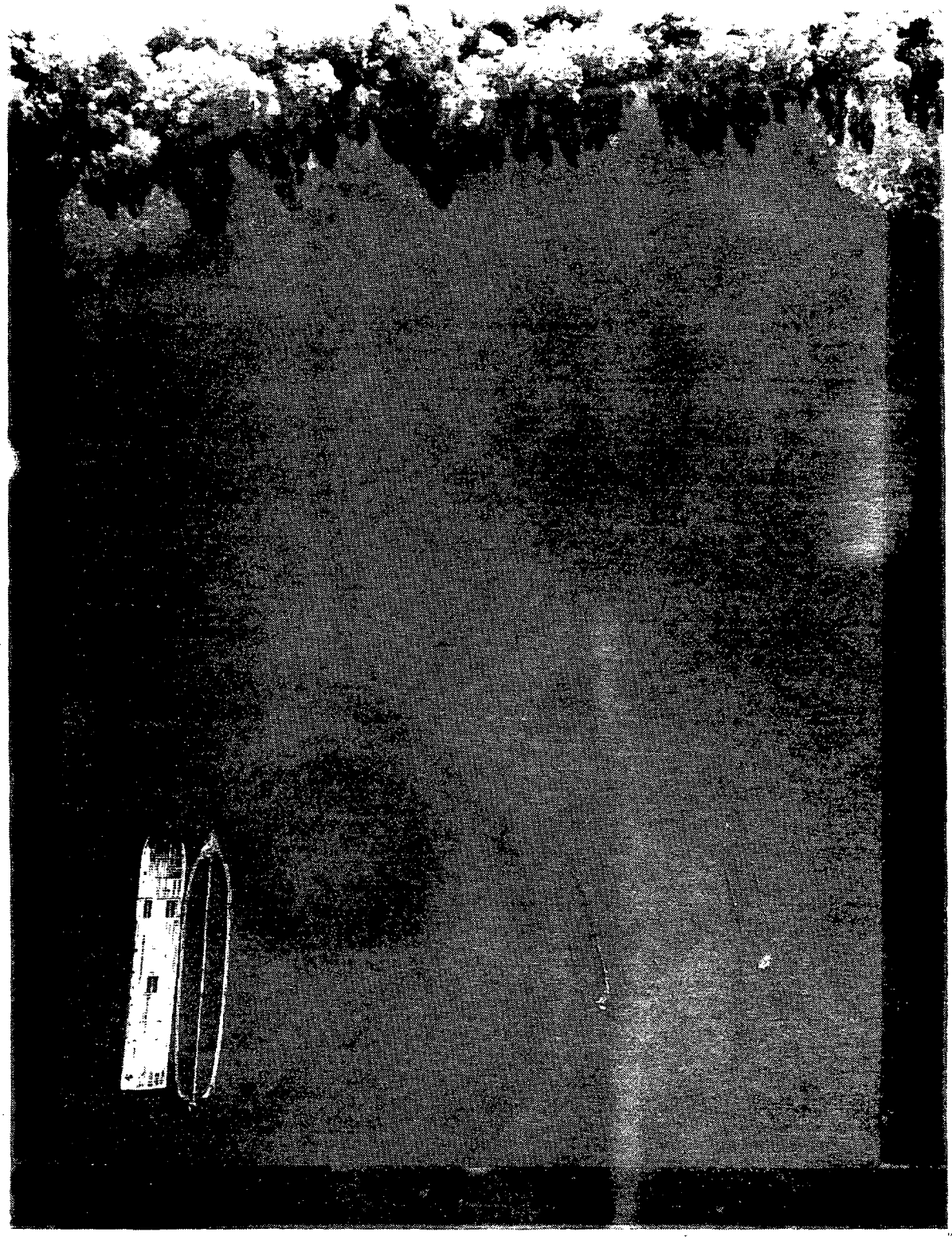

Figure 8.15. Aerial View of the Shields Point Schooners.

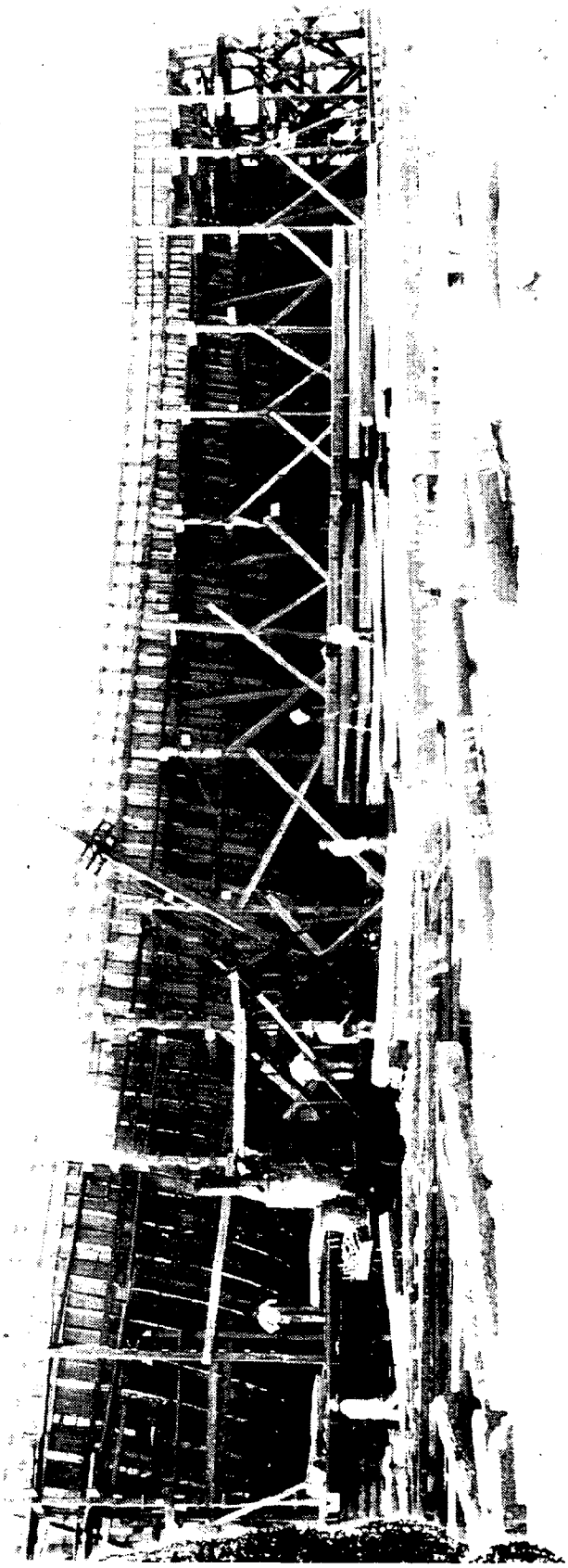

Figure 8.16. Photograph of the *Palafox* Under Construction.

Figure 8.17. Photograph of the *Palafox* Being Built.

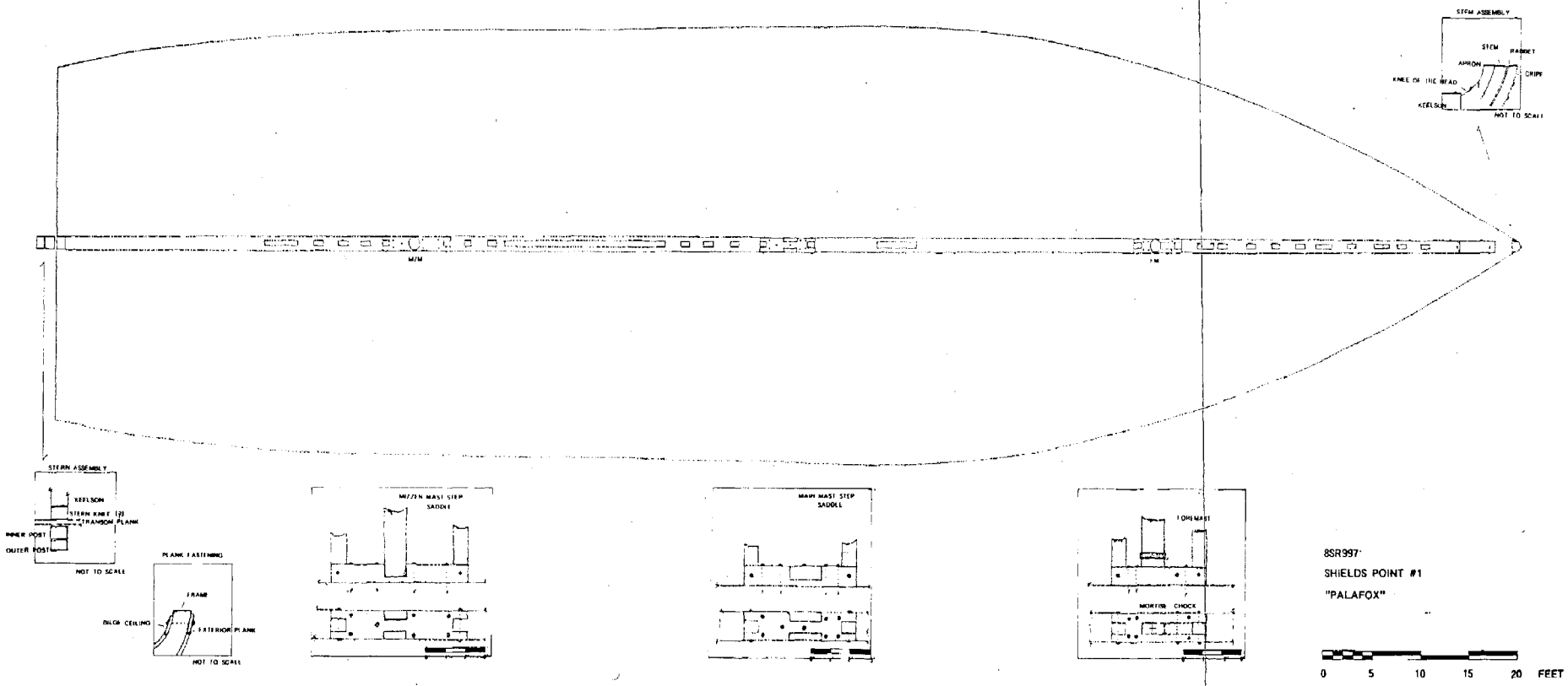

Figure 8.18. Site Plan of 8SR997, Shields Point # 1.

Planking: Ceiling and exterior planking were spiked to the frames as well as through-pinned as an assembly. This technique was evident in numerous places. Exterior planking was between .15 and .20 ft. Transom planks were .20 to .25 ft. thick. Planks were laid in straight strakes with butt scarphs. Diminishing strakes were evident in the run of the planking in both the bow and the stern.

Hull Shape: The vessel has a modestly fine entry with a very full midships section. Maximum breadth is 37.9 feet. Breadth at the square transom is 31 feet. (Photographic evidence of the *Palafox* reveals only a moderate sheer.)

PSS Site Number: **T122SR**
Site Name: **Shields Point #2, probably the *Dinty Moore*.**
Master Site File: **8SR998**

Local resident Gordon Wells identifies this vessel as the *Dinty Moore*.

General Site Description

The visibility on the day the site was recorded (3/23/91) was good, over 10 feet. The preserved LOA of the hull is 131 feet. The preserved maximum breadth is 30.6 ft. The depth of preservation above the river bottom varies between 6.5 feet and 8.0 feet; the weather deck is missing.

A baseline was extended from the stern post along the centerline, with zero at the stern. All measurements are taken relative to this datum. To record the hull's shape, breadth measurements were recorded at 10 ft. intervals near midships, 5 ft. intervals at the stern and 2.5 ft. increments to measure the bow curve. Figure 8.19 shows the site plan drawn.

Features

Mast steps: Three mast step riders were located; the mizzen rider ran at 34 ft. to 41 ft. along the baseline, the main mast rider at 70 ft. to 76 ft. along the baseline, and the foremast rider at 106 ft. to 112 ft. along the baseline. All were mortise and tenon mast steps.

Bulkhead: A bulkhead ran athwartships at 81.0 ft. on the baseline.

Framing: There were approximately 54 pairs of frames recorded, 109 futtocks on the port side, 110 futtocks on the starboard side. The frame room was a constant .8 ft. The frames measured were for the most part through-pinned in pairs, and a third structural member probably fit into the spaces, but could not be seen due to the planking remains. The space between pairs varied between areas of .8 ft. and areas of 1.0 ft. in the bow and well past midships. Frame spacing became irregular in the stern (15 ft. on the baseline), averaging between 1.2 ft. and 1.4 ft., probably due to deterioration of the hull.

Planking: Ceiling planking thickness averaged .2 ft., although at one point near 15 ft. on the baseline, the inner hull planking was .35 ft. thick. Outer hull planking was .20 ft. thick on the average. The hull was fastened with iron spikes (.05 ft. square shanks). Iron driftpins were also used, peened over roves, the top diameter measured approximately .2 ft. with the outer diameter of the rove being .15 ft.

Stem Assembly: The stem construction area consisted of four timbers, all through-pinned together with long pins spaced at 1.1 ft. intervals. The outer timber, probably the

gripe, was missing near the waterline, but remains were found almost 4 feet beneath the water surface. Its molded dimension was 1.0 ft. and sided was near 1.0 ft. The second timber aft was probably the stem. Its molded dimension was .5 ft. and it was sided 1.2 ft. After a .3 ft. space (due to deterioration), a third timber was probably the apron. Its molded thickness was .6 ft. and it was 1.0 ft. sided. After another .3 ft. space, the inner timber may have been the knee of the head. Its molded dimension was .8 ft. and it was 1.0 ft. sided. Three breasthooks butt up against the stem assembly. They were noted in preliminary sketches, but no measurements were taken.

Stern post: No drawings were made of the stern construction, which was fairly deteriorated. It should be noted that there was a large round stern post (approximately 1.4 ft. in diameter, at zero on the baseline) outside of the transom, and another large structural timber similar to a stern post inside of the transom. The rudder was found lying on the bottom behind the stern post.

PSS Site Number: **T133SR**
Site Name: **Shields Point #3, probably the *George T. Locke***
Master Site File: **8SR1011**

Local resident Gordon Wells identifies this vessel as the *George T. Locke*. A newspaper account describes the *Locke* as a "schooner-barge, gross tonnage 801, built in West Lake, La. in 1916. This vessel also had four masts and with sails carried freight before conversion to a barge" (*Pensacola News Journal*, August 9, 1964).

General Site Description

The hull lies just to port.of Shields Point #4 on an axis bearing 056 degrees magnetic. LOA is 189.5 feet. The maximum breadth recorded at midships is 37.4 feet. The hull remains are complete from the stem to the sternpost. Inner and outer hull planking and frames are visible on both port and starboard sides of the hull. A longitudinal bulkhead runs the length of the hull along the vessel's centerline. No deck planking remains. Because of a large number of protruding fasteners and wooden components, only basic hull measurements were taken from the outside of the hull and a cursory site plan was drawn (Figure 8.20). A baseline was attached with the zero point at the vessel's bow and all measurements were recorded relative to the baseline.

Features

Wales: The bilge ceiling plank and the outer hull plank visible at the waterline measured .5 ft. and .6 ft. thick respectively. These were probably wales and planking thicknesses below this level would have been smaller.

Frames: The hull is framed in pairs. Each timber in a pair is sided .5 ft. and molded .8 ft. The pairs were spaced one foot apart.

Fasteners: The outer hull planking is held on with iron roved drift pins. The drift pin heads in the stem and stern assemblies were also roved. The diameter of the drift pin head in the stem was .22 ft. (concreted) and the pin itself measured .1 ft. in diameter.

Stem Assembly: The stem assembly consisted of three wooden pieces 1.0 ft. molded by 1.4 ft. sided, .8 ft. molded by .7 ft. sided, and .7 ft. molded by .7 ft. sided, moving inward.

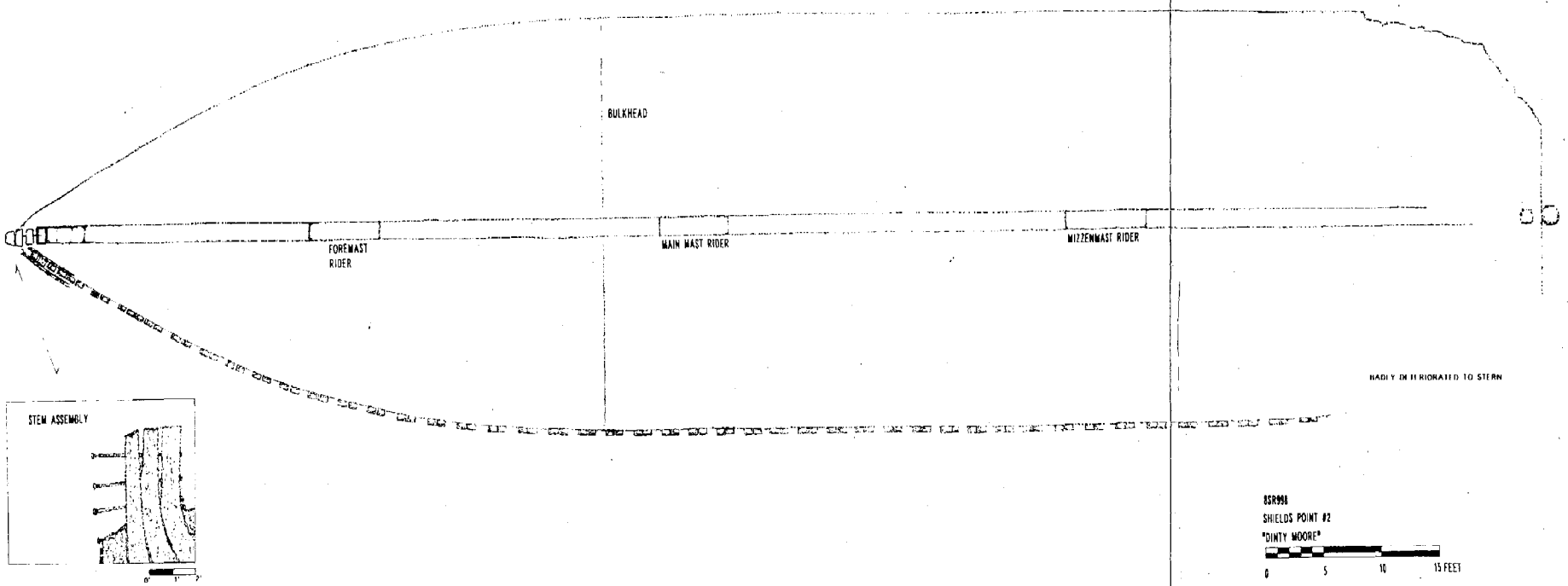

Figure 8.19. Site Plan of 8SR998, Shields Point # 2.

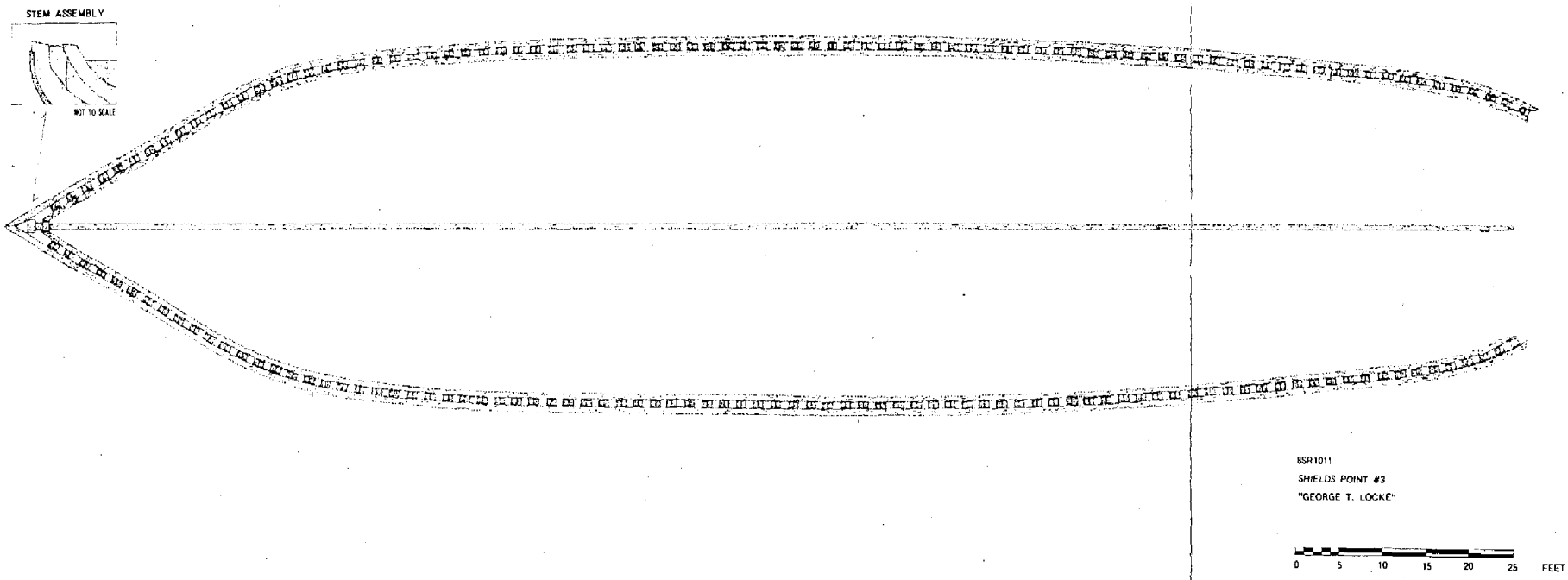

Figure 8.20. Site Plan of 8SR1011, Shields Point # 3.

These timbers were through-pinned together. An iron cutwater .4 ft. wide by .06 ft. thick is attached to the outside of the stem assembly approximately 1 ft. beneath the water level. The longitudinal bulkhead butts directly against the stem assembly.

Longitudinal Bulkhead: This bulkhead runs the entire length of the hull. It is .5 ft. sided. Drift pins run through it both vertically and athwartships where it is supported by additional longitudinal timbers, one on either side measuring .4 ft. across.

Wood Types: Two samples of wood were removed from the vessel and sent to Lee Newsom of the Florida Museum of Natural History for identification.

The frame wood sample was identified as

> "*Pinus* sp. section diploxylon, hard group pine. Of the three major hard pine groups, this specimen by anatomy most closely fits the *Taeda* group which is composed solely of New World members including longleaf (*Pinus palustris*) and the other southern hard or yellow pines."

The exterior hull plank sample was identified as *Pinus*, same as above.

PSS Site Number: **T134SR**
Site Name: **Shields Point #4, probably the *Guanacastle***
Master Site File: **8SR1012**

Local resident Gordon Wells identifies this hull as the *Guanacastle*. The *Guanacastle* "was a schooner-barge. She was at one time a four-masted schooner that plied the ocean routes with freight. She was later converted two [sic] work. Her gross tonnage was 609. She was built in 1917 in Portland, Ore." (*Pensacola News Journal*, August 9, 1964).

General Site Description

The vessel is preserved from stem to stern, up to and including the weather deck. The LOA is 160 feet. The maximum breadth is 32.5 ft. Due to the danger of protruding fasteners and a weakened deck, only cursory measurements were taken from the outside of the hull. These measurements along with an aerial photo were used to produce a site plan, with the hull shape and a deck plan showing hatch size and hatch locations sketched to approximate scale (Figure 8.21).

A longitudinal bulkhead, similar to that found on Shields Point #3, may lie beneath the deck.

Wood sample Analysis

Two samples of wood, one from one of the vessel's frames and one from the exterior hull planking were sent to Lee Newsom of the Florida Museum of Natural History for analysis. The frame sample was identified as follows:

> "*Pinus* sp. section diploxylon, hard group pine. Of the three major hard pine groups, this specimen by anatomy most closely fits the *Taeda* group which is composed solely of new world members including longleaf (*Pinus palustris*) and the other southern hard or yellow pines."

"The growth rings of this specimen match so closely those of SP3 (8SR1011) frame [above] that it is possible the two fragments could have come from the same tree or population of trees."

The exterior hull planking sample was identified as *Pinus*, same as above.

Threats to the Sites

Threats to these four sites are continued degradation of exposed surfaces and deterioration of iron fasteners. As these fasteners decompose, the integrity of the hull's will gradually decrease. Other potential hazards are barge and tug traffic and wake disturbance.

Assessment

These vessels represent a valuable thematic study group. All were involved in the lumber trade, and all are contemporaneous. Three were built on the Gulf Coast and one in Oregon. Comparative analysis of hull shape, design theory and construction methods may offer valuable insight into early twentieth-century wooden sailing ship construction. These vessels are also tangible representatives of the rise and fall of the lumber trade, and its significance to Pensacola's history.

Recommendations

No immediate action seems to be required to protect these sites. Steps toward making positive identification should be taken. These vessels should be documented as a group and compared. One possible way to accomplish this would be to encourage a graduate student to use these as a thesis topic. The complete documentation of these sites should be undertaken when personnel and funding is available. This site also meets criteria for nomination to the National Register of Historic Places, and steps should be taken to begin this procedure.

PSS Site Number: **T159SR**
Site Name: **Milton RR Swingbridge Wreck**
Master Site File: **8SR1008**

General Location

The wreck is southeast of the railroad swingbridge located in downtown Milton. Depth of the water near the bow is 3 feet or less, with the depth of water at the stern being almost 30 feet. The bottom sediment is a mixture of soft silt on top of sand.

General Site Description

The remains of a wooden vessel, approximately 61 feet long lie along the southeastern side of the channel's edge. The vessel lists radically to port, at an estimated 65 to 70 degree angle. The port side of the vessel is smashed down into the mud, flattened and disarticulated. The starboard side of the vessel is intact. The vessel may have been dragged to its current position and probably has also been damaged during the dredging of the channel. In addition, as the current runs swiftly along the bottom of the channel, debris builds up on top of the vessel. No detailed recording or assessment of the vessel was undertaken. The following observations were noted:

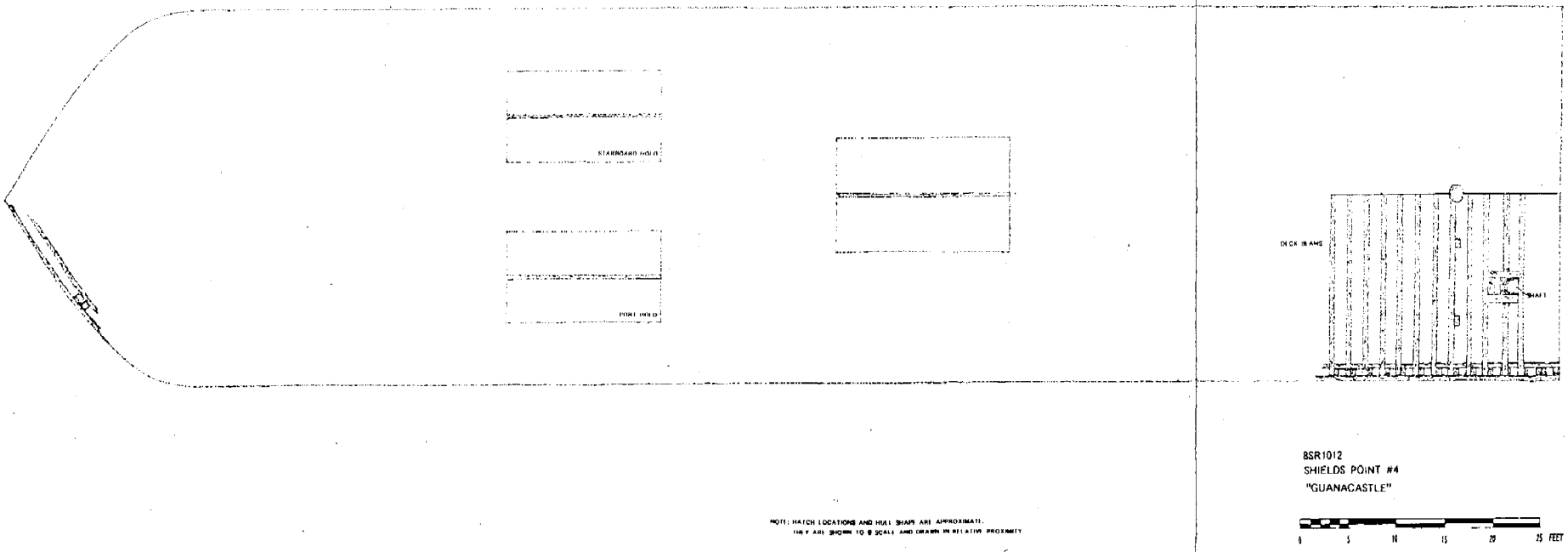

Figure 8.21. Site Plan of 8SR1012, Shields Point # 4.

Features

The weather deck of the vessel is constructed of pine. Hatches in the deck measure an estimated 4 ft. by 5 ft. Iron fasteners were used. Caulking was noted between planks. A baseline was attached with the zero point at the bow or eastern end. At 31 feet on the baseline, a hole 1.5 ft. in diameter was observed in the deck. At 32 ft. on the baseline an iron concretion, unidentified, was observed behind the hole running through the deck. Frames were measured at .4 ft. by .6 ft. The steering station was present, located at 52 ft. on the baseline. Due to the disarticulation of the hull the wheel is 90 degrees off center, and faces the port side of the vessel. The steering wheel is made of iron, held on with a bronze nut.

Threats to Site

The site is threatened by continuing erosion due to the river current, as well as by navigational traffic and any future dredging of the channel.

Assessment

No assessment was made as to vessel age or type, other than that it is probably 19th or 20th century.

Recommendations

The site should be measured and cursory construction features noted and identified.

PSS Site Number: **T148SR**
Site Name: **Proposed *City Of Tampa***
Master Site File: **8SR1010**

General Location

The site is located in almost 7 feet of water, north of the red daymark that is east of Bay Point where the Blackwater River empties into the Blackwater Bay. The bottom is sand and soft silt.

Site Description

The only structure visible above the sediment was an iron boiler. No probing was undertaken to determine, what if any, of the vessel remains are located under the sediment.

Features

Boiler: Iron plates, riveted together, form a long cylindrical shape measuring 14 ft. long, by 6 ft. wide, by 6 ft. high. Some of the boiler is buried in the sediment. One end is inverted in a cone shape. A stack 2 ft. long by 2 ft. wide is situated on the top of the boiler near the eastern end. An oblong hole was also observed.

Threats to Site

The parts of the boiler that are exposed above the sediment will continue to erode in the river. Whatever structure remains beneath the sediment is probably relatively stable. The wreck reportedly used to break water, and is now just beneath the surface where the stack rises up. A hazard to navigation; the boiler has been located by NOAA, and is reported

on navigational charts of the area. Since no structure is visible other than the boiler, the site is probably in no further danger of being looted or salvaged by sport divers.

Assessment

Only the exposed portion of the site has been observed. Local residents Gordon Wells and Wayne Williams have reported that the boiler is the remains of the *City of Tampa*, a vessel that caught fire and was pushed away from the Bay Point Mill docks in the 1920s. Historically, this site is potentially significant in terms of coastal steamship construction and machinery. It is also significant in terms of Pensacola's history as the vessel was used to carry workers and passengers to and from work in the lumber yards.

Recommendations

Further attempts should be made to a) delineate the boundaries of the site under the sediment and b) determine if she is the *City of Tampa*. Because of her relatively recent use, sinking and abandonment, no further work is recommended at this time.

The Blackwater River Barges

Seven barges, at six sites along the Blackwater River, were located and assessed by the Pensacola Shipwreck Survey. Since their conditions are all similar, a brief description of the environment, will be followed by individual hull reports and collective sections on threats to the sites, assessment, and recommendations.

Environment

All of the barges under discussion were located in a shallow water environment. The water has low salinity and a high tannic acid content. Visibility varied between 0 and 3 ft. All vessels were partially exposed at low water. Detrital growth and marsh growth is present at all sites in the area.

PSS Site Number: **T144SR**
Site name: **Barge off Sanborn's**
Master Site File: **8SR1013**

General Location

The vessel structure lies in 1 ft.to 3 ft. of water on a soft silt bottom covered with marine grasses and detritus to the west of the south shore of Shipyard Point.

General Site Description

The wreckage is probably the remains of a barge; most of the structure is covered with reeds. Some 31.5 ft. of timbers, running on an east-west axis, probably are the longitudinal components of the structure. About 22.3 ft. of the breadth is exposed before being covered with sea grass. One floor, and what is believed to be longitudinal outer hull planking, were noted. The wreckage is fastened with iron fasteners. Various bits of timber fragments lay both inside and outside of the hull. This area was once a storage pond for the Ollinger & Bruce Yard according to property tenant Kirk Sanborn. The entire body of water is littered with timbers and stumps.

PSS Site Number: **T149SR**
Site Name: **Barge off Dutchman's Cut**
Master Site File: **8SR1002**

General Location

In the Blackwater River, when leaving Dutchman's Cut and heading west, the wreck lies in 8 ft. of water against the marsh island to the southwest. At low tide timbers, are exposed.

General Site Description

The site extends for some 100 ft. running east to west and some 50 ft. north to south. The presence of two lines of vertical uprights running east to west, with planking fastened both inside and out suggest that this site is another barge. The structure was fastened with iron nails. No evidence of ballast or conventional frames was seen. The exposed wood was extremely eroded while that protected by silt seemed to be in good condition. Some wood was charred. Inside of the structure an iron concretion was noted, as well as some chocks of wood, bricks, and modern intrusive bottles and cans. Much of the wreckage is covered with trees, stumps and accumulated debris that washes down the river. There is a second set of uprights to the south of the first, lying at a right angle, that may or may not have been attached at some time. This site is probably two barges.

PSS Site Number: **T153SR**
Site name: **Barge at # 38 marker**
Master Site File: **8SR1003**

General Location

The wreckage lies in 3 to 10 ft. of water, near the eastern bank of a mid-river island. At low tide, some timbers break the surface. The bottom is soft sediment on top of mud.

General Site Description

The wreckage of a barge lies perpendicular to the shore. Four longitudinal structural timbers, believed to be chinelogs and stringers, are 71.9 ft. long with molded and sided dimensions of .7 ft. by .7 ft. With a tape placed at a zero point on the southernmost timber, the stringers run at 0 ft., 11 ft., 14 ft. and 18 ft. Some floors are notched over the stringers. The wreckage runs into the mud at the upriver or northern end, leaving a maximum exposed beam of 22.6 ft. Outer hull planking is disarticulated and seems to be running north to south, or parallel to the hull's floor timbers. Floors measure .7 ft. wide and .15 ft. thick. The wreckage is covered with debris and obstructions snagged in the river.

PSS Site Number: **T154SR**
Site Name: **Barge south of Dutchman's Cut**
Master Site File: **8SR1004**

General Location

The vessel is eroding out of a marsh island bank that forms a small cove, south east of Dutchman's Cut. The water adjacent to the vessel itself is deep (at least 4 ft.), but the entrance to the little cove is blocked by a sandbar except immediately to the south and west of the barge. Bottom sediment is depositional silt and detrital matter. Water depth near the hull ranges between 1 and 3 ft.

General Site Description

The vessel remains, a late 19th- or early 20th-century wooden barge fastened with iron, are eroding out of the bank. No detailed measurements were taken. Observed were four longitudinal timbers identified as one or two centerline stringers and two chine logs that delineate the hull's original breadth at some 30 ft. The exposed length of the wreckage was almost 40 ft. The chine logs were notched to receive the (missing) vertical uprights. Floor frames were beneath the stringers and placed on approximate 2 ft. centers. Longitudinal outer hull planking was visible. The hull was fastened in places with iron pins with washers.

PSS Site Number: **T155SR**
Site Name: **Marquis Basin Barge**
Master Site File: **8SR1005**

General Location

The vessel juts out of the bank in Marquis Basin. The bottom sediment is soft silt. Water depth is approximately 2 feet.

General Site description

The remains of a barge, some 53 ft. long, run parallel to the bank, protruding 2 to 3 ft. above the water near shore, and sinking down into the mud away from the bank. The remains of what may be the bow point to the east. Some 17 ft. of the vessel's beam is exposed before being covered with reeds and mud. One center stringer and outer chine log were observed and sketched. Outer hull, frames, and vertical uprights were present, as was transverse deck planking. Iron pins .75 inches in diameter were noted, as were bolts with roves protruding from the centerline stringers. Iron nails with square shanks measuring .30 inches by .30 inches, and brad heads (diameter .4 inches) were noted. Outer hull planking ran into the mud towards the basin center and is .15 ft. thick. Floors measured an average .2 ft. wide by .55 ft. high. Some floors were doubles, and room and space averaged 1.6 ft.

PSS Site Number: **T156SR**
Site Name: **Quinn Basin Barge**
Master Site file: **8SR1006**

General Location

The vessel is submerged in 6 to 8 ft. of water, partially covered with vegetation, in Quinn Basin on the Blackwater River. The bottom appears to be mud and soft silt.

General Site Description

The remains are probably that of a barge; most of the wreckage is covered with grass. No detailed measurements were taken. Observed were three longitudinal stringers, a line of vertical uprights, some paired, and some decking. The size of the wreckage is approximately 75 ft. by 30 ft. It is fastened with iron.

PSS Site Number: **T161SR**
Site Name: **Baypoint Barge**
Master Site File: **8SR1009**

General Location

The barge is located along the northern bank of Baypoint. The hull lies on a mud bank,

with a soft silt deposition. A portion of the vessel lies buried beneath the reeds. Water depth is 2 to 3 feet.

General Site Description

The remains of a barge lie parallel to the shore for some 113 feet. A breadth of some 27 feet is exposed. Near the eastern end, one stringer .4 ft. wide by .9 ft. high runs for almost 20 ft. exposed near the eastern end of the wreck. Copper pins are backing out of its top surface. Just next to the stringer is a second longitudinal timber measuring .9 ft. square. These longitudinal timbers cover floor timbers (.6 ft. by .7 ft.) that are covered with at least three planking strakes (.8 ft. by .2 ft.) fastened with iron nails on either side. Planking is missing from most of the area that is not covered with reeds. There seem to be two different widths of the hull, further east the hull runs to 17 ft. wide and ends in a series of vertical uprights (.4 ft. by .3 ft.) spaced on 2.5 ft. centers for some 40 ft. Just west of this the exposed hull is some 10 ft. wider and ends in a second series of vertical uprights. These are .7 ft. by .4 ft. Outer hull planking is fastened to the outside of these uprights with .04 ft. square shanked, brad headed fasteners. After this, the hull is mostly buried for some 40 ft. moving westward, with only some 12 transverse timbers exposed. These timbers measure .6 ft. wide and are at least .7 ft. high, exposed from the mud. They are all at least 25 ft. long. The last 18 ft. of the exposed hull has another longitudinal timber with copper pins exposed, covering three floor timbers with deck planking laid on top and fastened with peened pins with washers. At this section, the hull appears to begin to curve in from what was formerly a straight line of breadth. The end of the stringer is constructed and may be the beginning of a stem assembly. This may be the bow of the vessel. Its edge is then buried beneath the mud and reeds.

Threats to the Sites

These seven sites are primarily threatened by erosion due to the river's current and decomposition of the iron fasteners. The unexposed wood will remain in good condition for some time due to the environment of the Blackwater River. These sites will continue to be covered with sediment as bottom accretion occurs. The sites are not threatened by sport divers or salvagers. The sites that lie near the shore in areas that may be developed as residential properties (8SR1005, 8SR1009), may be impacted by the construction of docks and piers.

Assessment

Due to the paucity of documented information on barge construction, all of these sites offer valuable information to a greater or lesser extent, contingent on their state of preservation. The most complete hulls are 8SR1005, 8SR1006 and 8SR1009. All of these barges are significant in terms of Pensacola's maritime past due to their importance to the lumber and/or brick industry. They are also important to the understanding of barge design within a larger historical framework.

Recommendations

These sites should be documented completely. All construction details, hulls shapes, and designs should be recorded. The general state of preservation, due to the environment, offers an ideal study collection of contemporaneous barge building and usage. During the winter months, at low tide, most of these vessels are almost completely exposed. They could each easily be recorded in less than a day at that time.

The Bayou Chico Barges

Four wooden barges were recorded in Bayou Chico. Only three vessels were assigned Master Site File numbers, since one barge has already been removed (Figure 8.22). The barges located in Bayou Chico share the same environment. The bayou has been a point source for several industrial dumps and consequently is a "dead" body of water. Accumulated heavy metals in the sediments pose a health hazard if disturbed during diving. Each of the barges in Bayou Chico is different and will be reported separately. To varying degrees, all however, are significant in terms of construction features and all offer valuable information on barge design, function and variation.

PSS Site Number:	**PSS T140E**
Site Name:	**Vessel at Runyan's Shipyard**
Master Site File:	**8ES1896**

General Location

The timbers are eroding out of the northern bank of Bayou Chico, in 2 to 5 feet of water, just west of Runyan's Shipyard. Bottom sediment is accreted silt and sand over a mud bottom.

General Site Description

Long timbers are eroding out of the bank and into the deeper water. An area approximately 45 ft. by 10 ft. parallel to the shore is exposed in the mud and visible beneath the shallow water's surface. No specific measurements were made. The vessel appears barge-like, but requires further examination.

Threats to Site

This site is primarily threatened by erosion due to exposure from the water. The wood under the water and mud will remain in good condition for some time to come due to the environment of the bayou. Low salinity and a high toxic contamination due to industrial run-off prevent much deterioration. The iron fasteners may continue to disintegrate and the hull may begin to lose integrity. The site will continue to be covered with sediment as bottom accretion continues. The site is not threatened by sport divers or salvagers, but may be threatened by any construction along the shore. A proposed new bridge crossing the Bayou may impact this site.

Assessment

The vessel remains are relatively modern. They may represent a barge abandoned near the turn of the century. Runyan's has been operating in this location since the beginning of the 20th century. No detailed recording of the timbers was undertaken.

Recommendations

This site could be recorded in detail before any additional deterioration takes place. No excavation is necessary. No artifactual material is likely to be present at the site since the vessel appears to have been abandoned. At low water during the winter months a good deal more of the bayou's bottom is exposed above water. The remains at this site could easily be recorded and interpreted at that time. The site could provide more information on the diverse

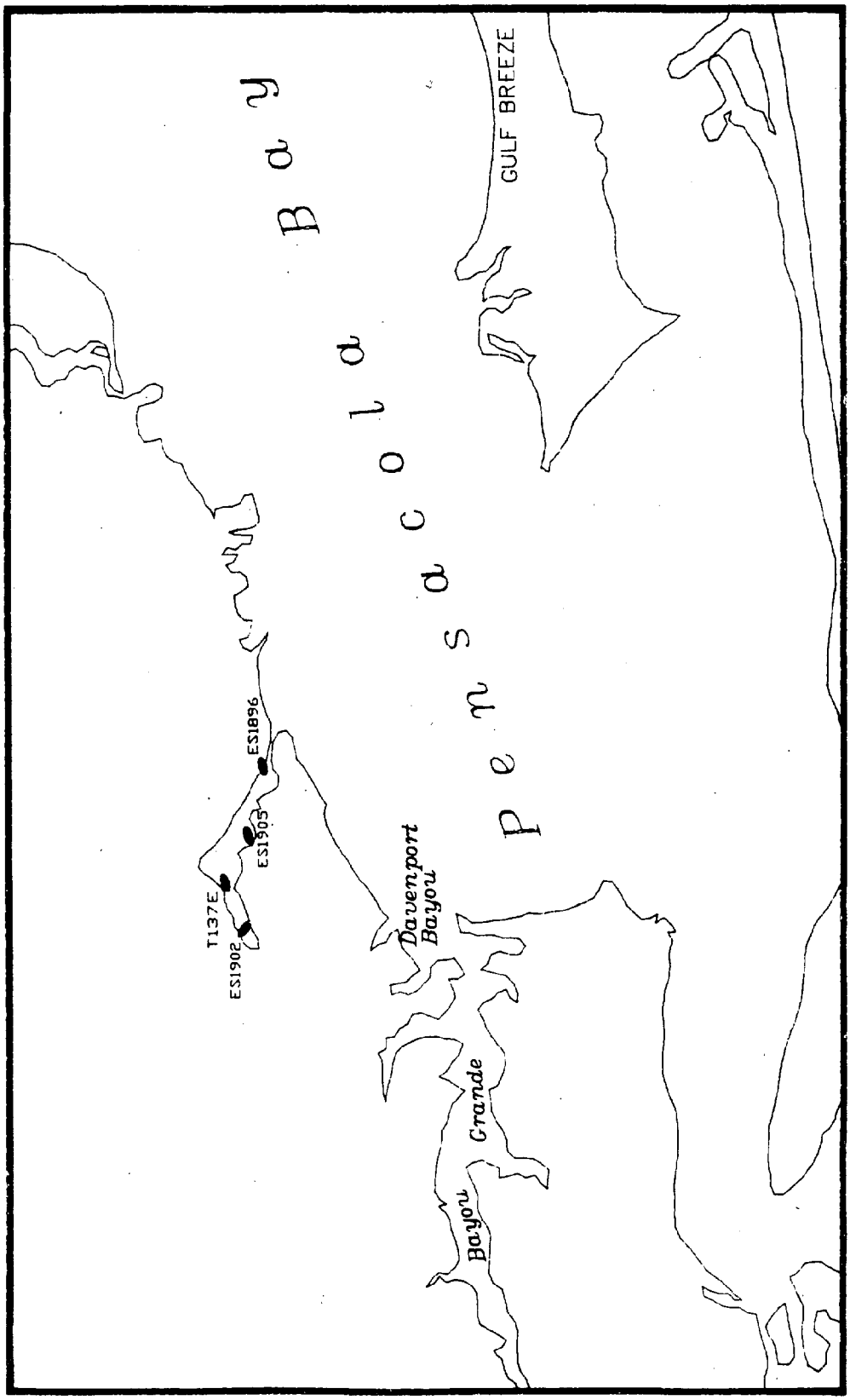

Figure 8.22. Location Map, 19th & 20th Century Bayou Chico Wrecks.

methods of barge construction used on inland waterways. It should be noted that because of its toxicity, extreme caution should be used when diving (or swimming) in Bayou Chico.

PSS Site number: **T137E**
Site Name: **Barge (removed) in Bayou Chico.**
Master Site File: **None**

General Location

The vessel was located along the northern edge of Bayou Chico, in 2 to 5 feet of water, just before and west of where the Bayou runs under the Railroad bridge. Wreckage was removed by a local salvage operator and placed on a spoil island just across from the crane at the Pensacola Shipyard.

General Site description

The remains of a late 19th- or early 20-century wooden barge were dredged up as the contractor was installing a dock. He immediately called the PSS office. The wreckage was identified, and photographed. No specific measurements were taken.

Threats to Site: None

Assessment

The vessel remains are relatively modern, belonging to a barge that was probably abandoned near the turn of the century. No detailed recording of the timbers has been undertaken.

Recommendations

The timbers could be measured and recorded before any additional deterioration takes place. No excavation is necessary. This could provide more information on the diverse methods of barge construction used on inland waterways. It should be noted that because of its toxicity, extreme caution should be used when diving (or swimming) in Bayou Chico.

Site number: **T139E**
Site Name: **Barge off Clopton's dock**
Master Site File: **8ES1905**

General Location

The remains of a barge are just to the east of Jeff Clopton's dock in Bayou Chico. The water depth varies between 3 and 6 feet. The bottom sediment is deposition silt and sand over mud. At low water, portions of the hull stick out above the water's surface.

General Site Description

The wreckage of a barge some 80 ft. by 30 ft. lies perpendicular to shore. The area is marked by PVC poles. No detailed recording of the timbers was undertaken.

Threats to Site

It has been reported that the barge will probably be removed by the marina adjacent

to Clopton's property since it impedes navigation.

Assessment

The site is reported to be a modern barge. No detailed recording of the site was made. This site could provide more information on the construction of vessels used for inland waterway navigation.

Recommendations

Bayou Chico is extremely toxic and no diving inspection of this site should be made without adequate precautions being taken. At extreme low water, in the winter, perhaps this site can be recorded without diving.

PSS Site Number: **T140E**
Site name: **Barge in West Leg of Bayou Chico**
Master Site File: **8ES1902**

General Location

The vessel is lying in approximately 4 feet of water, exposed at low tide, in the furthest western leg of Bayou Chico, behind three marsh islands. Bottom sediment is a soft silt deposition mixed with sand on top of a mud bottom.

General Site description

The remains of a barge, some 76.5 ft. long and 28.3 ft. wide lie in 4 feet of water and rise almost 2 ft. higher for a total exposed preserved height of almost 6 ft. Basic measurements were taken and a site plan was drawn. Figure 8.23 is a rough site plan, it should be noted that while all timber dimensions are accurate, the timbers themselves were only sketched in relation to one another, not triangulated.

Features

Three longitudinal stringers and two outer chine logs form the backbone of the hull. They angle up sharply near the eastern end or bow of the wreck and form a sort of "knee" for the hull planking of the vessel's flat end to be laid across (Figure 8.23). They are spaced at roughly 7 ft. intervals (0, 6.3, 13, 21.7 and 28.2 ft. on a transverse baseline). Transverse deckbeams (.55 ft. by .5 ft.) cross the hull at irregular intervals. Longitudinal deck planking was in place in a few instances. These planks averaged .5 ft. wide by .2 ft. thick. They were fastened with iron square-shanked nails and in some instances with roved iron pins to the transverse deck timbers. Vertical uprights were visible along both sides of the hull. These uprights measure .5 ft. square. Outer hull planking was .4 ft. thick. Interior hull planking was .3 ft. thick. The stern or western end of the hull was missing. It was not visible and could not be detected by probing.

Threats to Site

This site is primarily threatened by erosion due to exposure from the water. The wood under the water will remain in good condition for some time to come due to the environment of the bayou. Low salinity and a high toxic contamination due to industrial run-off prevent much deterioration. The iron fasteners may continue to disintegrate and as they do the hull

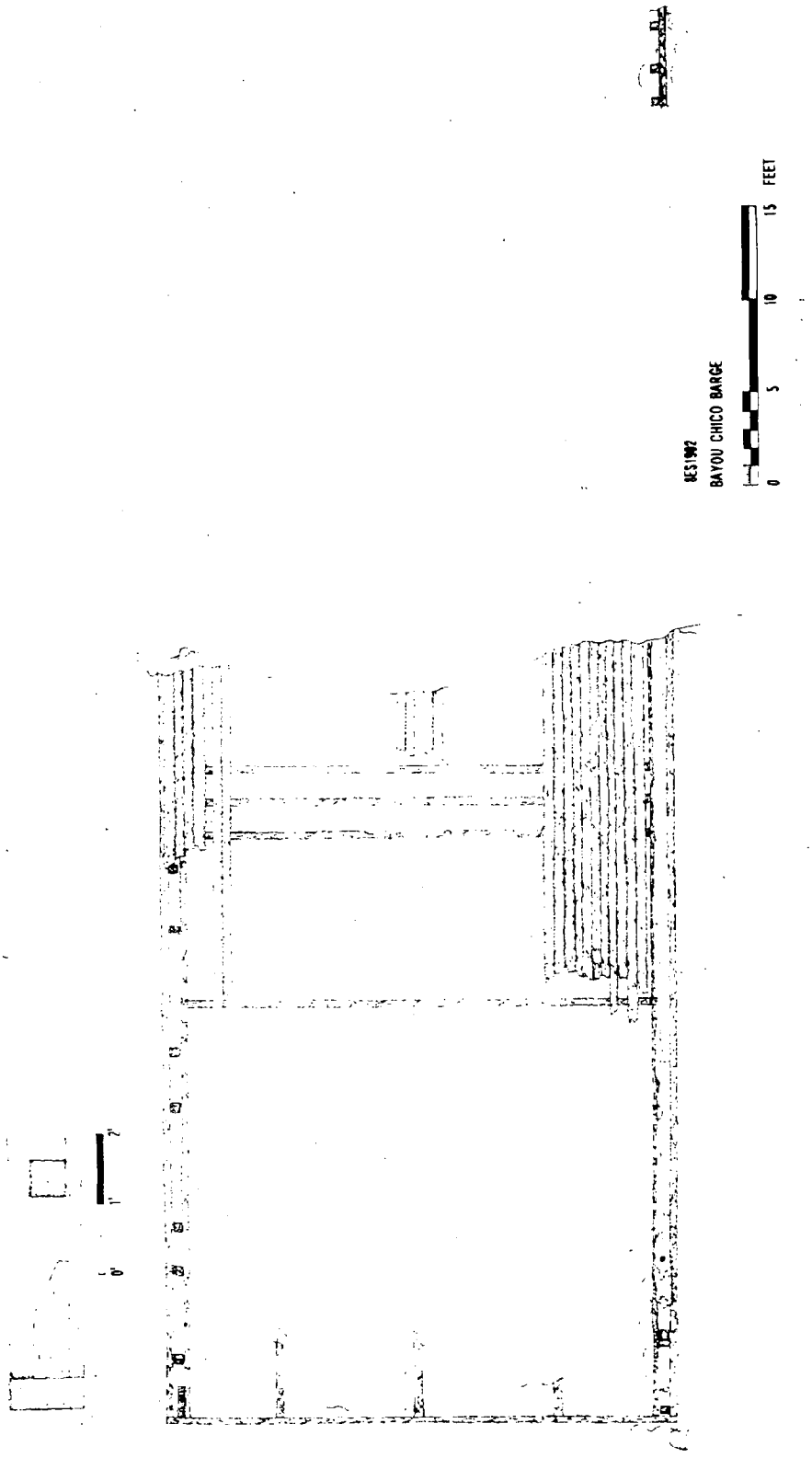

Figure 8.23. Site Plan of 8ES1902, Bayou Chico Barge.

will begin to lose integrity. The site will continue to be covered with sediment as bottom accretion continues. The site is not threatened by sport divers or salvagers.

Assessment

The vessel remains are relatively modern; they probably represent a barge abandoned near the turn of the century. A local informant who lived near the abandoned hull stated that he heard it had come to rest there during the hurricane of 1926. This site is the most intact of the Bayou Chico barges that were investigated.

The NOAA Automated Wreck and Obstruction Information System lists a wreck #7107 "observed" at almost this location. NOAA identifies the hull as "an old Government DPC Fuel Barge which carried Bunker C prior to World War II" according to "a local tugboat captain." Figure 8.24 is the photo of a comparable early 20th-century coal barge at a local shipyard. It shows the layout of decking and separate bunkers for stockpiling coal that may have been present on 8ES1902. Good information on fuel barge construction could be acquired from this site. Although fairly modern, the compartmentalization is an important feature that should be examined.

Recommendations

As the most intact vessel located in the Bayou, this site should be recorded in detail before any additional deterioration takes place. No excavation is necessary. No artifactual material is likely to be present at the site since the vessel appears to have been abandoned. At low water during the winter months a good deal more of the bayou's bottom is exposed above water. The remains at this site could easily be recorded and interpreted at that time. This could provide more information on the diverse methods of barge construction used on inland waterways. It should be noted that because of its toxicity, extreme caution should be used when diving (or swimming) in Bayou Chico.

Old Navy Cove

Five sites were located in the cove from this time period (Figure 8.25). At least two other sites in this area were located with side scan sonar, but were buried under accreted sediment and were not assessed. Near Deadman's Island the bottom sediment is coarse quartzite sand, but as the water quickly deepens away from shore, the bottom becomes covered with deep soft silt.

PSS Site Number:	**T135SR**
Site Name:	**Deadman's Punt**
Master Site File:	**8SR1014**

General Location

The hull is partially buried under a coarse quartzite sand bottom. Water depth varies between 1 and 2 feet depending on wind, current and tidal flow.

General Site Description

A sturdy work vessel, a punt or small scow, is faintly discernible during both high and low tides protruding from the sand. It has been noted that the hull tends to become

covered and uncovered during storms as the water breaks on Deadman's Island. For the purpose of recording, the inside of the hull was cleared off with an induction dredge. A baseline was set on the centerline and all measurements were made relative to the baseline. The zero point was at the bow, or western end of the hull. The vessel's preserved length is 16.5 feet. Maximum beam is 5.5 feet. The maximum depth of preservation is 2.1 feet in the stern. Figure 8.26 is a drawing of the punt.

Features

Planking: Outer hull planking, consisting of one or two side strakes, was .13 ft. thick. Bottom planking thickness was not recorded but a thicker king plank, running along the vessel's centerline was noted. Planking width varied between .4 and .9 ft. The seams were oakum payed.

Frames: The vessel was sturdily framed. Some floors and futtocks were disarticulated or missing, but it appears that some 11 frame stations made up the hull. Floor timber dimensions varied between .18 ft. and .30 ft. molded, the average being about .22 ft. Sided dimensions varied between .34 ft. and .74 ft., with the average about .4 ft. Futtocks were forward of the floors in the stern, and past the 7 foot mark on the baseline at midships, switched to aft of the floors. (This is based on the eastern edge of the hull being the bow, the western edge the stern.) Futtock dimensions varied between being 1.5 ft. and 2.0 ft. long. Some showed evidence that they had been rough-cut knees, now eroded flat. Futtock molded and sided dimensions were on average .2 ft. Notches .3 ft. by .2 ft. were cut into the floors at 2.5 ft. on the baseline, 5.5 ft. on the baseline (two), and 14.42 ft. on the baseline.

Stern: The stern was the most heavily framed area. Butting against a raked transom was a floor and futtock. On top of the floor, a knee (1.5 ft. by .45 ft.) supported a corner post (.35 ft. by .25 ft. by .18 ft.) on the starboard side (Figure 8.26).

Fasteners: The hull was fastened with iron, the head measured .1 by .1 ft., the shank .05 ft. square.

Wood Analysis: Two wood samples were sent to Lee Newsom of the Florida Museum of Natural History for analysis. The futtock sample was identified as:

> *Pinus* sp. section diploxylon, hard group pine. Of the three major hard pine groups, this specimen by anatomy most closely fits the *Taeda* group which is composed solely of New World members including longleaf (*Pinus palustris*) and the other southern hard or yellow pines.

The sample of exterior hull planking was identified as *Quercus virginiana*, or live oak.

Threats to Site

This site is easy to observe from shore and could be disturbed by snorkelers and waders on the beach. The prime threat to the site is erosion and wind and wave effects. Although the site was backfilled upon completion of recording, it continues to uncover under certain wind and sea conditions. Some frames are loose, and the hull will probably continue to disarticulate.

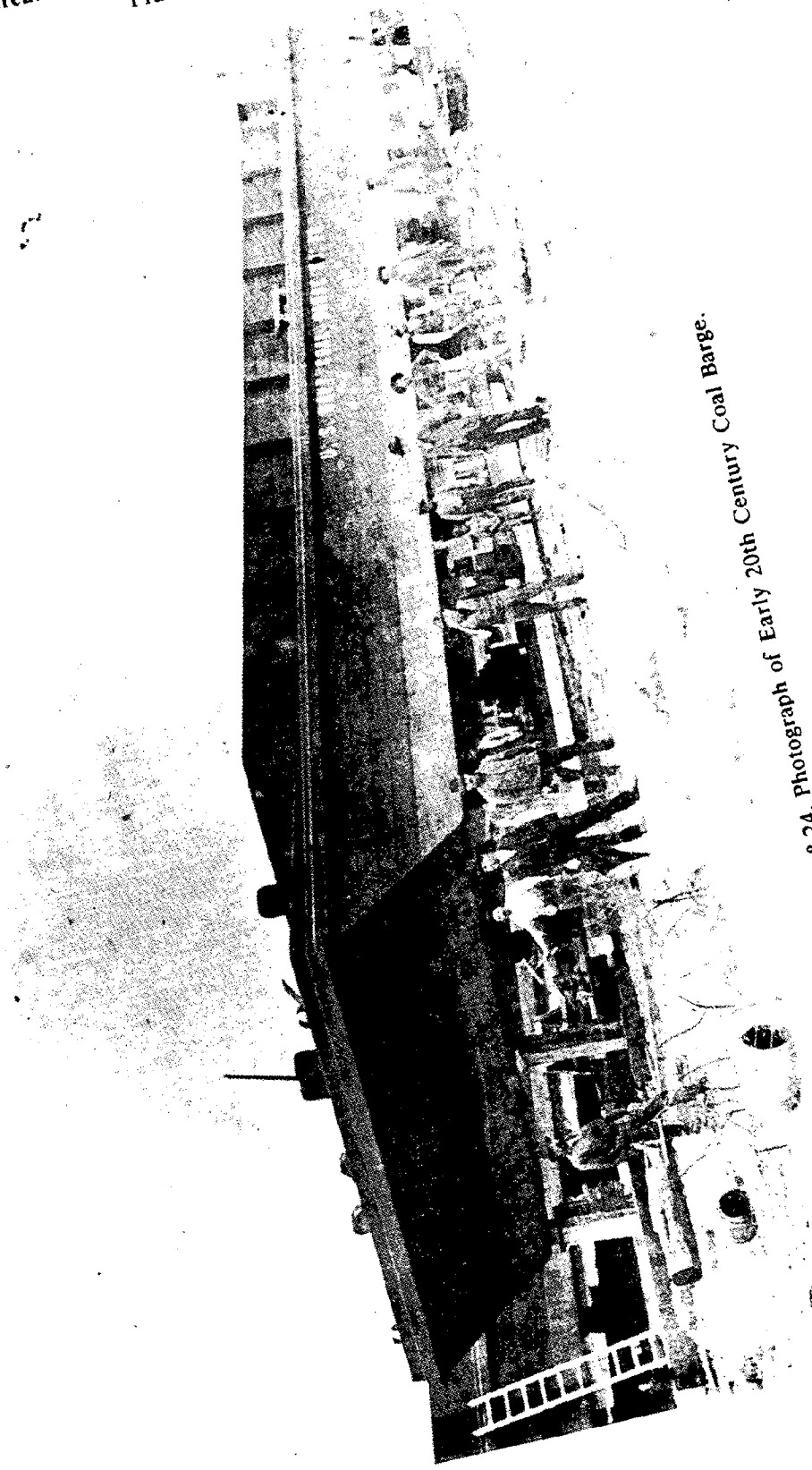

Figure 8.24. Photograph of Early 20th Century Coal Barge.

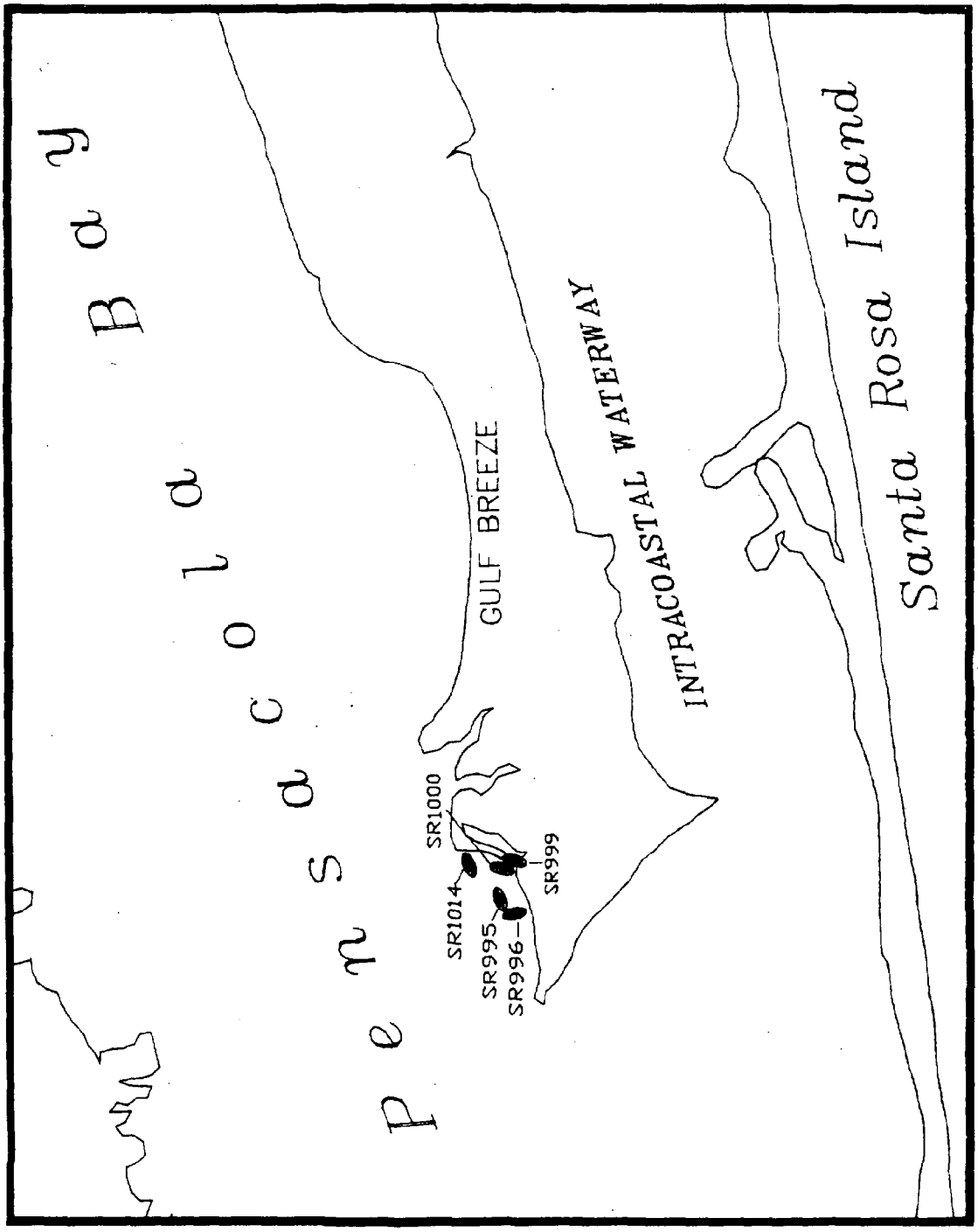

Figure 8.25. Location Map of 19th & 20th Century Old Navy Cove Sites.

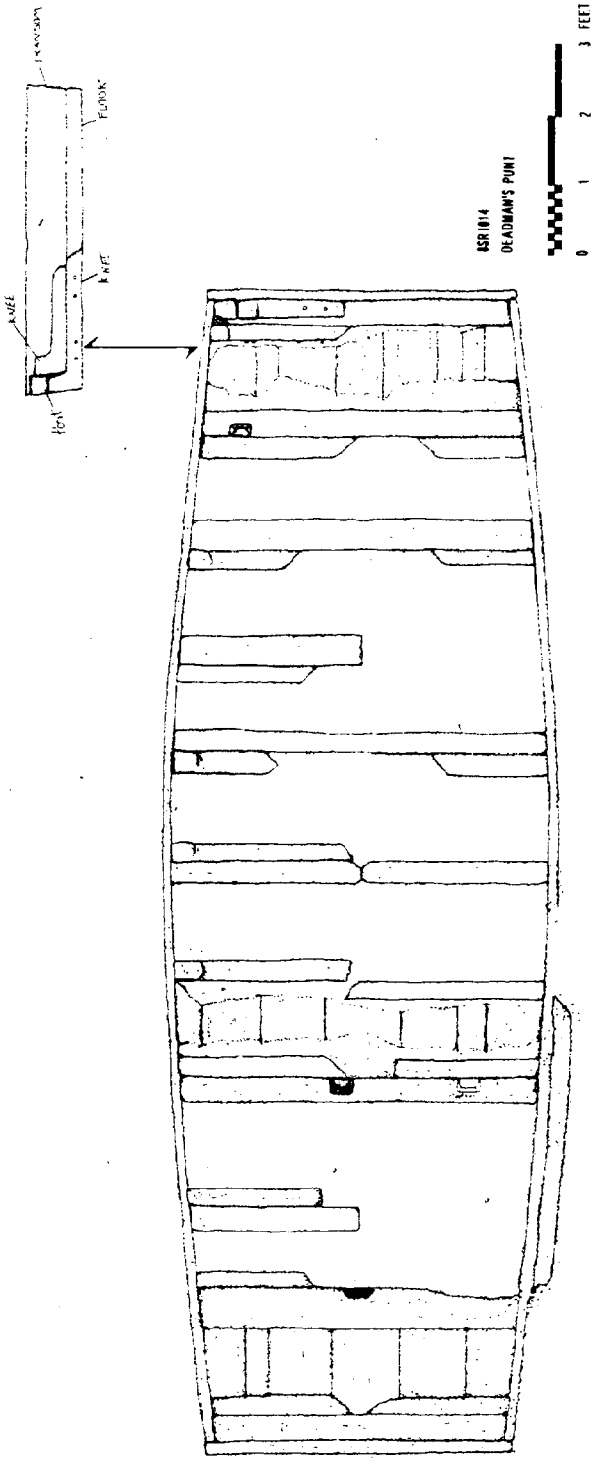

Figure 8.26. Site Plan of 8SR1013, Deadman's Punt.

Assessment

The Deadman's Punt probably represents a vessel of the early 20th century. The careful attention to detail in her construction design demonstrates that she was not hastily built. This seems to alter initial conceptions that she was simply used as a working platform. Her wood sample identifications, hard yellow pine frames and an outer hull plank of live oak, are somewhat unusual. Although both materials are commonly used for vessel construction and indigenous to Pensacola, usually the harder live oak was used for frames and the southern pine for planking. The reversal in this vessel may indicate that she was constructed simply with local materials at hand (or that the wood analysis samples were reversed; resampling could check this).

Recommendations

The vessel has been accurately recorded and no further actions are recommended. It is suggested, however, that in order to prevent continuing erosion, the vessel could be easily moved and reassembled if a proper place for her conservation and/or exhibit can be found.

PSS Site Number: **T107SR**
Site Name: **Centerboard Schooner**
Master Site File: **8SR996**

General Location

The vessel lies in Old Navy Cove, in 12 to 15 ft. of water. Sediment is quartzite sand with a very slight overburden of gray silt and shell hash.

General Site Description

The remains at site 8SR996 appear to be those of a centerboard vessel. Although badly eroded and disarticulated, the remains are preserved to a state allowing identification of major structural features. The remains are approximately 85 feet in length and 20 feet in width. The still-articulated features visible were the centerboard, the trunk, the floors, bilge ceiling, exterior planking, copper sheathing and portions of the sister keelsons.

Features

The remains of the trunk assembly were 32 feet in length and started approximately 3 ft. from the northernmost end of the vessel remains. The two lowermost members of the trunk were .52 ft. in width (sided dimension) and were .75 ft. apart, this gap being the slot for the centerboard. The trunk was secured with vertical pins .10 ft. in diameter and with transverse pins of the same diameter to the sister keelsons. No pivot could be found for the board due to the poor state of preservation and sediment accumulation. At one point the board rises 2.5 ft. above the bottom surface and exhibits through-pin vertical fasteners.

Floors are discernible on both sides of the trunk, approximately 3 ft. on either side. The area immediately adjoining the trunk is still covered by bilge ceiling. The floors are badly eroded and worm-eaten (*Teredo navalis*), and are entirely covered in sediment and shell hash. Exterior planking was attached to the floors with iron pins .05 ft. in diameter. The exterior planking was sheathed in copper and secured to the hull with copper tacks. Also present at the site were numerous iron concretions and a curved iron shaft, possibly a davit.

Threats to Site

Environmental threats to the site are wave action, scouring and marine borers. Cultural impact will remain minimal due to poor diving conditions and low interest within the sport diving community.

Assessment

The vessel at site 8SR996 is a 19th-century centerboard schooner. She is fairly heavily constructed. The vessel had flat floors and probably had a hard chine and would have exhibited a deadrise cross section. Although badly deteriorated, enough of the structure remains intact to offer important information. The site is significant and offers valuable data on 19th-century centerboard schooners.

Recommendations

Although this site is poorly preserved, additional excavation and recording of this vessel would offer worthwhile data on centerboard vessel construction. Due to the fragile nature of the site, it should not be open to the general diving public. Poor visibility and shallow depth will probably keep this site from becoming a popular dive site. Any further work on this site should be carried out by a professional archaeologist.

PSS Site Number:	**T131SR**
Site Name:	**Composite Hull**
Master Site File:	**8SR1000**

General Location

The vessel is located just past the drop off at Deadman's Island in Old Navy Cove. The water depth is 10 feet. Bottom sediment is sand and shell hash with a soft gray silt overburden.

General Site Description

The hull remains extend over an area 49 ft. by 15 ft. A centerline/baseline was established and all hull remains were drawn *in situ* relative to the baseline (Figure 8.27). The zero point was located at the southern end of the keel. The remains represent a vessel of composite construction, preserved along the centerline. A wooden keelson rests upon an iron I-beam keel. Very little relief remains above a soft silty bottom. One iron frame is uncovered at 25 feet on the baseline to the east. Some wooden planking was recorded to the west of the baseline. Four strakes run from 5 ft.to 9 ft. Two strakes are uncovered from 2 ft. past 32 ft. Several concreted objects protrude from the sediment.

Features

Keel: Iron, shaped like an I-beam, .5 ft. wide and .6 ft. high.

Keelson: Wooden, through-bolted to keel, .5 ft. square.

Frames: One frame, an iron I-beam was uncovered and recorded. It measured .6 ft. high by .4 ft. wide on the ends and .2 ft. wide in the center.

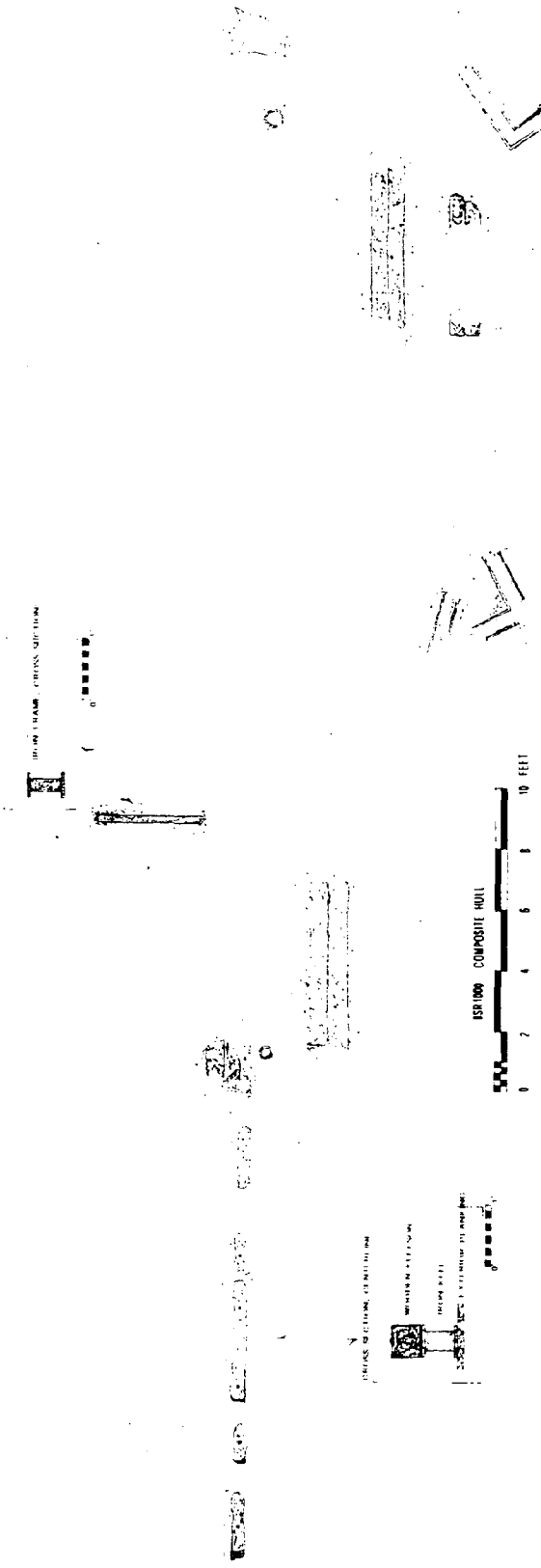

Figure 8.27. Site Plan of 8SR1000, Composite Hull.

Threats to Site

The site seems to have stabilized underwater. There is no relief so the site is not endangered by vessel traffic. There is little to interest the casual pot hunter or sport diver.

Assessment

Due to her composite hull, this vessel may date from the 1850s onward, but a late 19th-century date seems most appropriate. She probably was one of the numerous vessels abandoned in Old Navy Cove when she became obsolete or irreparable. The composite construction could provide some additional construction information, but the hull remains are too deteriorated for any information on hull shape or size.

Recommendations

No further work is recommended.

PSS Site Number: **T104SR**
Site Name: **Old Navy Cove # 1-2, possibly the *Cabadroca***
Master Site File: **8SR995**

General Location

The vessel is located in Old Navy Cove in approximately 12 feet of water. Bottom sediment is extremely soft, gray silt.

General Site Description

A wooden hull, in excess of 200 feet LOA,is lying on a gray silty bottom in 12 ft. of water. The hull is fastened with iron bolts or pins. The entire hull is filled with disarticulated debris including iron pipes, deck planks, a davit, iron rail stanchions and a section of a boiler.

Threats to Site

Potential threats from wave or erosion at this site are minimized by the depth of silt covering most of the hull. This is not a popular dive site and will not suffer from vandalism.

Assessment

The vessel remains at this site are extensive. The disarticulated structure and machinery within the hull is well preserved and appears to be material associated with the vessel. No material was apparent on the bottom around the vessel. This is probably a result of sediment depth and accumulation rather than a lack of disarticulated material outboard. Local divers have identified this hull as the *Cabadroca*, a Portuguese ship scuttled in Old Navy Cove in the early 1900s. The hull is also located on NOAA navigational charts.

Recommendations

This vessel appears fairly modern. Her upper works are in complete disarray. Future work could be done to ascertain general hull shape and construction features. This information could be compared to available information on the *Cabadroca* in order to positively identify her, but this is a low priority site.

PSS Site Numbers: T128SR, T129SR, T130SR
Site Name: Bayou Gilmore Debris, Possible Marine Rail way
Master Site File: 8SR999

General Location

Located just west of the Bayou Gilmore entrance in Old Navy Cove, this area of bottom debris is in approximately 10 feet of water. The bottom is sand and soft depositional silt.

General Site description

This debris was originally identified as three separate sites when located with side scan sonar. Ground truth diving revealed that the three areas were contiguous, a mixture of concrete slabs, wooden timbers and other structural components spread out for a distance of almost two square nautical miles.

Threats to Site

The site is already highly disarticulated. No additional threats are perceived.

Assessment

The site appears to be a second marine railway, in addition to the railway already identified, 8SR740, to the north of this one. Local resident W.W. Langford confirms that there was a railway at this location, owned and operated by his cousin during the early 20th century.

Recommendations

Cursory measurements and a general site map should be made to delineate the site. Additional research into privately held records should also be undertaken.

Pensacola Bay, Sound, and Offshore

Five additional sites were recorded in a variety of locations and environments from this time period. Figure 8.28 shows their locations.

PSS Site Number: T072E
Site Name: *Rhoda*
Master Site File: 8ES1899

General Site Location

The wreck is located on the sound side of Santa Rosa Island in some 25 feet of water. The bottom surface is sand and shell hash. This places the vessel within the jurisdiction of the National Park Service at Gulf Islands National Seashore if accessed by land.

General Site Description

The entire site is littered with material dumped by local fisherman to create an artificial reef. There are air conditioners, shopping carts, tires and several porcelain

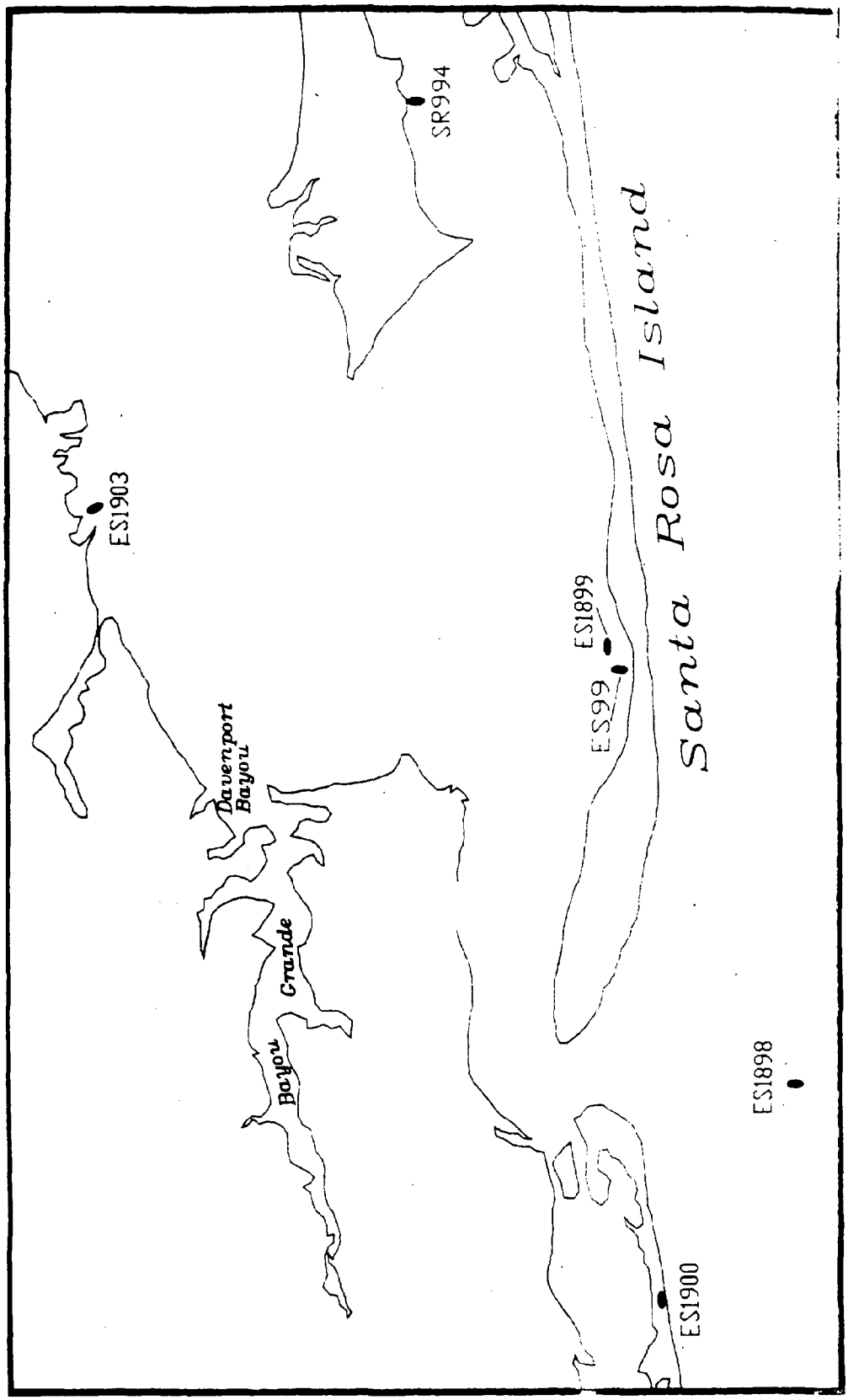

Figure 8.28. Location Map of 19th & 20th Century Bay, Sound, and Offshore Sites.

commodes strewn about the site. Exposed vessel remains consist of an 80 ft. run of wooden frames, a large ballast pile, iron chain plates, chain, iron knees, and one exposed section of deck clamp. There are several disarticulated wooden planks as well as two hawse pipes towards the northwest end of the site. The hull remains are on an even keel on one side of the wreckage, as indicated by the vertical articulated chain plates and upper futtocks. The other side of the hull appears to have collapsed onto the seabed.

Features

Chain Plates: The iron chain plates are in some cases disarticulated. Seven are still attached to frames. They are .40 ft. in width and 8.0 ft. in length and .04 ft. thick. Five additional chain plates were found lying scattered inboard of the frame line.

Deck Clamp: A section of deck clamp was exposed on the fourth frame on the baseline. It was made of three pieces. The innermost piece was .35 ft. in width. The second piece was .20 ft. wide, and the third piece was .70 ft. wide. The entire assembly was through-pinned to the frame.

Frames: Frames were doubled and pinned. The chain plates that are still articulated have flanges fitted into the seam between the paired futtocks. Though most frames are excessively deteriorated, it seems that an average original dimension for the futtocks is .8 ft. sided and .5 ft. molded thickness. A third wooden structural member was observed directly outboard and adjacent to frame pairs F11, F13, F14 & F15. This timber could possibly be the remains of a disarticulated top timber or futtock, or a wale which survived only where connected to the frame pairs. The height of preservation of this third timber was in most cases significantly less than the frame pairs to which it was adjacent.

Ballast Pile: The pile of large river cobble was present inboard of the frame line and extended well beyond the run of frames. These rocks were heavily covered in marine growth and are not indigenous to this area.

Threats to Site

Due to the thoroughly disturbed nature of this site, no additional threats are worth considering. It is likely that more hull structure is buried under the ballast pile and bottom sediment but that fact alone insures protection of the unexposed remains.

Assessment

Local information about this site is conflicting. Divers and fishermen agree that this is the *Rhoda* site, however some claim the vessel to have been a bark and some claim her to have been a coastal steamer. Likewise, the vessel remains are equally ambiguous. Numerous chainplates are present on the exposed frames. There is little evidence to argue for a steam vessel with two exceptions. There is a large, partially buried iron box, possibly a steam chest. Numerous pipes are in the vicinity of this feature. Due to the massive amount of intrusive material on this site it has not been determined if this feature is a piece of the vessel's machinery.

Tesar states that

"On September 9, 1882, the English bark *Rhoda* drifted across the bay and

capsized about 7:00 pm near Santa Rosa Island during a hurricane. (NOTE: This is probably the wreck located NE of the Life Saving Station in 24 feet of water on the 1901 chart of Pensacola Bay)" (Tesar 1973:166).

Tesar's information is from the "File of Pensacola's Ship Wrecks" in the archives of the Pensacola Historical (Society) Museum.

Recommendations

Due to the ambiguity presented by this site, further investigation is recommended. Test trenches and a complete site map, coupled with detailed recording of all possible machinery associated with the vessel (excluding air conditioners and commodes) would at least allow for identification of the vessel's means of propulsion.

PSS Site Number: T077
Site Name: *Sport*
Master Site File: 8ES99

General Location

The wreck is located on the sound side of Santa Rosa Island, just offshore in 2 to 3 feet of water on a sandy bottom.

General Site description

LOA of the hull is 86 feet. Maximum preserved breadth of the hull is 19.8 feet. The preserved remains are riveted iron-on-iron construction. The height of wreckage above the bottom of the bay varies from 1.2 ft. in the stern to 4.3 ft. in the bow. The hull lies bow towards the beach, on an axis bearing 155 magnetic degrees. Almost the entire frame line on the starboard side is exposed. The port side of the hull is buried throughout the midships section. The hull lists to port at approximately a 30-degree angle. No excavation took place on this site. Only the exposed areas were mapped (Figure 8.29).

A baseline/centerline was stretched inside of the hull. The zero point on the baseline was in the bow, and all measurements were taken relative to the centerline. There was a wooden deck on iron beams and reinforcement plates, although at present only a small area of wood is attached to the hull at approximately 23 ft. on the baseline. Two iron bollards remain on the port side of the hull, at 8 ft. on the baseline. The bollards are 1 ft. high, their top diameter is .45 ft. and they are spaced .7 ft. apart. In the stern, a transverse bulkhead begins at 80 ft. on the baseline. This bulkhead lies at the forward edge of the base on which a rudder indicator sits. It is at this point that the frames end and four radial beams run into a rounded stern section. A longitudinal stringer runs from 29 ft. to 53.5 ft. on the baseline. This stringer is 5.9 ft. away from the centerline.

Features

Frames: The frames are iron I-beams .2 ft. by .5 ft. After 23 ft. on the baseline the beams are .3 ft. on 2 ft. centers. From this point 29 beams transverse the hull until the bulkhead begins at 80 ft. on the baseline.

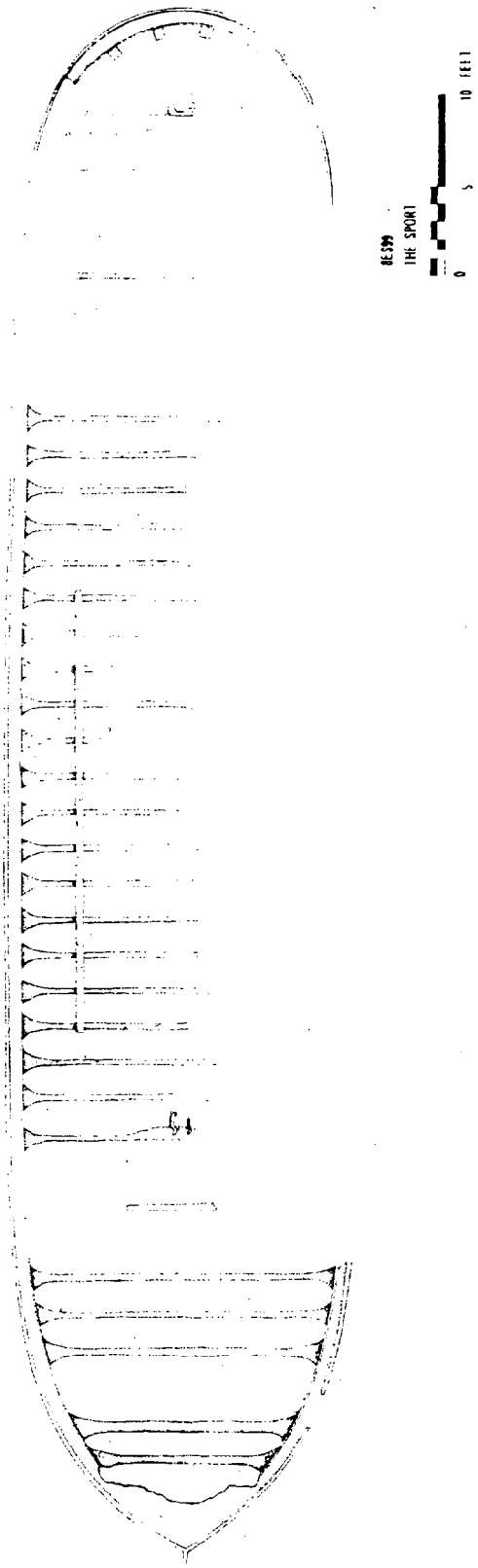

Figure 8.29. Site Plan of 8ES99, *Sport*.

Threats to Site

Early photos of the wreck make it evident that much more of the hull's superstructure originally rose out of the water. The iron that remains is below water, except for the stem at low tide, and seems to have stabilized.

Assessment

This hull is in sound condition. No protection or action seems to be required at this time. Local papers and informants all identify this hull as the *Sport*, an iron tug used to ferry passengers to Santa Rosa Island that sank during a hurricane in the first part of the century. This site offers information on hull shape and iron vessel construction.

Recommendations

This hull is in shallow water and not particularly vulnerable to further damage. A sand bottom insures good visibility, and, the hull actually looks like a shipwreck. This vessel provides an excellent opportunity for interpretation, and it could easily be developed as an underwater park for snorkelers and waders. It should be noted that if accessed by land, this wreck lies within the jurisdiction of the National Park Service at Ft. Pickens, Gulf Islands National Seashore.

PSS Site Number: **T001SR**
Site Name: **Windlass Wreck**
Master Site File: **8SR994**

General Location

The site is located in English Navy Cove in 15 feet of water. The bottom sediment is soft silt and clay. The silt is accreted, it is not the indigenous sediment type.

General Site Description

The only object visible above the bottom is an iron windlass, approximately 14 ft. long and 4 ft. high. See Figure 8.30 for a scale drawing. Also visible was some 2-inch thick planking fastened with square-shanked nails. Any other hull structure is buried beneath the silt and was not recorded.

Threats to Site

The site has reached a point of stabilization beneath the accreted sediment, and the exposed wood and iron appear to be in a stable condition also. No major threats are perceived.

Assessment

The windlass may date to the late 19th or early 20th century. Its dimensions suggest that the vessel beneath the sediment will be of some size. No systematic probing was conducted to define the exact parameters of the site.

Recommendations

Probing and a possible test trench should be undertaken at this site. The remains appear relatively modern. The hull is buried, and under no threat. Until more information is recovered, no assessment of significance can be made.

PSS Site Number: **T141E**
Site Name: **Clopton-Large Wreck-Possible Drydock?**
Master Site File: **8ES1903**

General Location

The site is located in 3 to 5 feet of water. The site is located in the bay, near the downtown waterfront, just off the channel entrance to the Patti Seafood docks. Bottom sediment is sand and shell hash, with a soft sediment overburden.

General Site Description

Visible is a large section of a copper-sheathed wooden structure. The run of the remains are relatively straight and the frames and planking sections visible are heavily constructed. No measurements were made, but the structure was estimated as at least 300 feet long.

Threats to Site: None.

Assessment

This wreckage is adjacent to the area where Ollinger & Bruce Shipyard operated a floating drydock in the 1920s. Description of the drydock has it being 380 feet LOA. The long straight run of planking, sheathing, and the heavy construction could be indicative of drydock structure or some other association with the shipyard. This area was also the site of many shipwrecks during the 1906, 1916, and 1926 hurricanes in Pensacola.

Recommendations

Additional work at the site is recommended. Test trenches could reveal whether this is indeed a portion of the Ollinger & Bruce drydock. The significance of the yard to Pensacola make this effort worthwhile, as would specific information on the construction method.

PSS Site Number: **T003**
Site Name: **USS *Massachusetts***
Master Site File: **8ES1898**

General Location

The site is located approximately one-and-a-quarter miles offshore in the Gulf of Mexico, just to the west of the harbor entrance channel. Water depth is between 18 and 20 feet. Bottom sediment is very coarse, accreted quartzite sand and shell hash.

General Site Description

A battered steel hulk of a late 19th century battleship partially lies buried under the sand on a flat bottom. The hull is oriented east-west, with the bow pointed to the east. Both 13-inch gun turret barbettes are awash at low tide. The wreck is a popular sport fishing and diving location on the weekends.

Features

Two 13-inch gun turret barbettes run along the central axis, both have been displaced

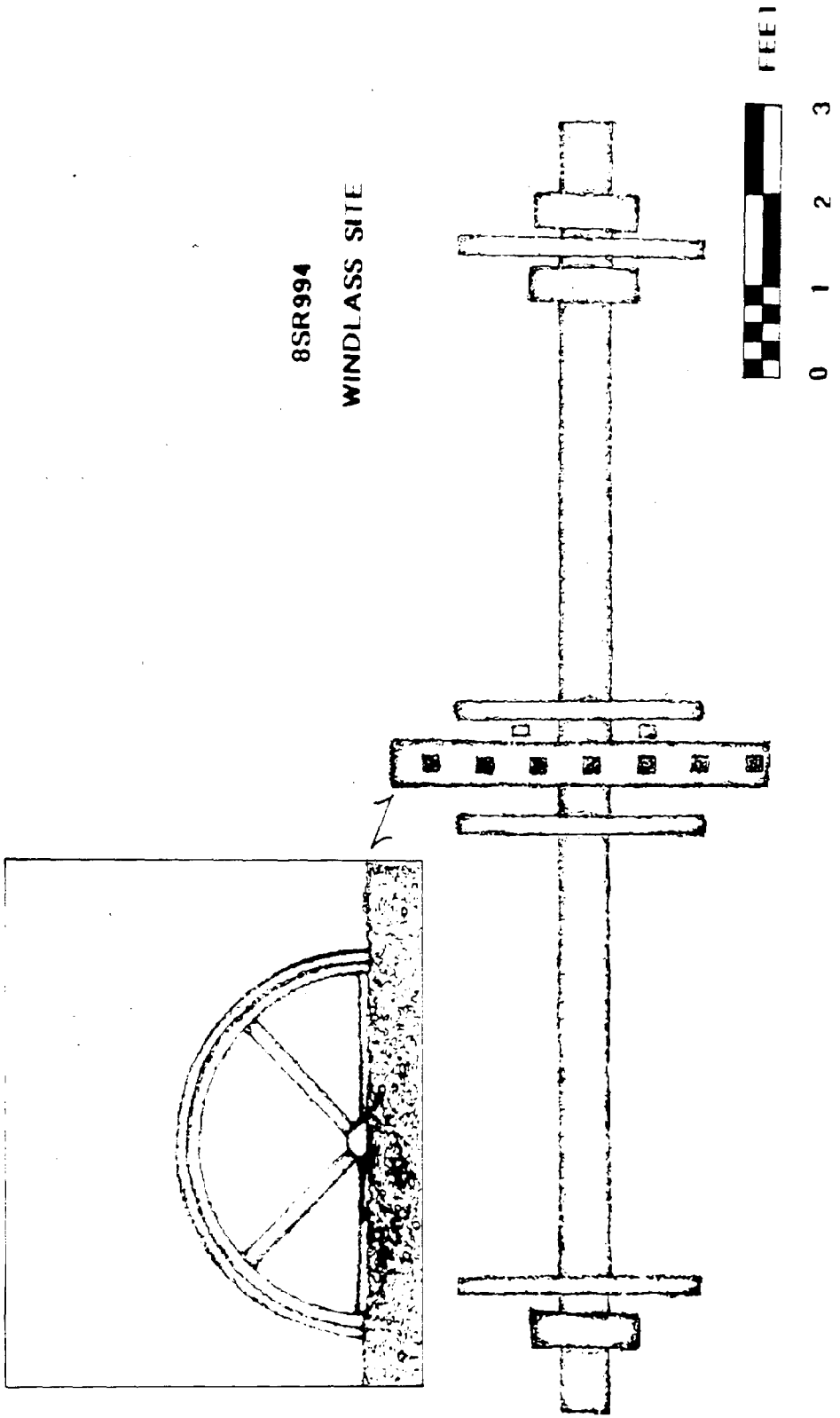

Figure 8.30. Site Plan of 8SR994, Windlass Site.

from their mounts. The 8-inch gun turrets have been displaced outboard on either side of the hull. The stern steering quadrant and rudder shaft are visible above the sand. The bow section was displaced by explosions, but still recognizable are the hawser pipe and torpedo tube. The windlass house top is displaced from the windlass but still contains chain running through four hawser pipes. The main windlass is still intact and is a prominent feature of the forward portion of the site. The forward starboard section of the berthing deck is accessible to divers by swimming through the bulkheads. A portion of the port armor plate along the waterline (18-inch thick nickel steel) has been displaced from the ship at a radical angle.

Threats to Site: None.

Assessment

The hull was blown apart by artillery tests in January 1921 and alleged torpedo bomber drills before World War II, and/or depth charging (Figure 8.31). The site has abundant marine life. Portions of the hull are recognizable and can be interpreted. Visibility and current conditions vary depending on the tides. At least three or four points allow access to spaces belowdecks and could be dangerous if divers were to explore them. The *Massachusetts*, although not an easy dive, is significant for several reasons. She is important to Pensacola history, and U.S. Naval history. See Figure 8.31.

Recommendations

This site has been nominated by local divers to become a state underwater archaeological preserve. See recommended steps for park establishment (see Chapter 10, Recommendations).

8. The Late Twentieth Century, 1945 to Present

Although modern sites from this period exist in Pensacola Bay, none were studied during this phase of the survey. Several small recreational craft have been lost in recent years, and remnants of derelict industrial craft are to be found; however, modern aids to navigation and more efficient recovery of vessels in distress make it likely that fewer sites from this period exist compared to earlier periods.

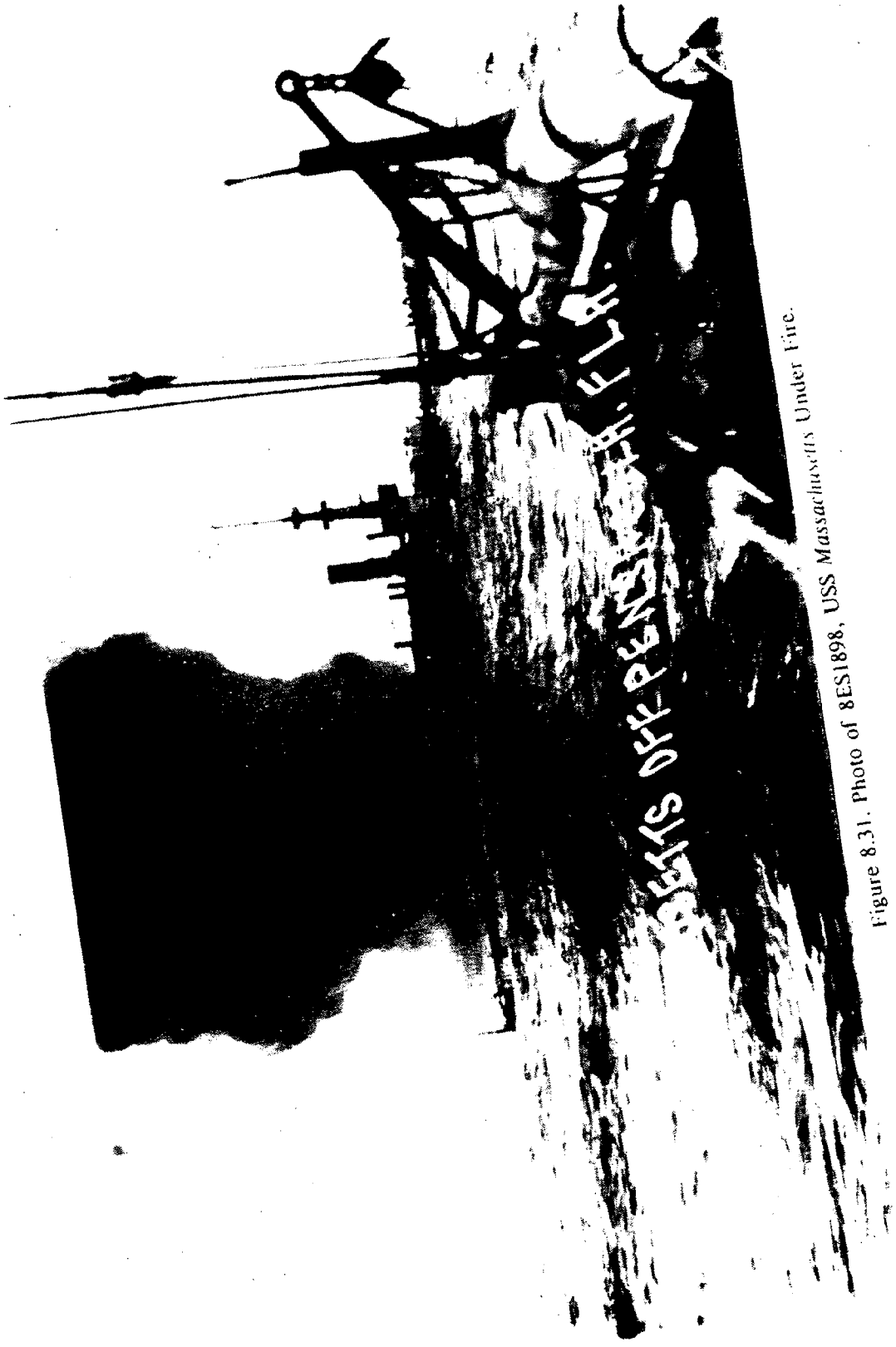

Figure 8.31. Photo of 8ES1898, USS *Massachusetts* Under Fire.

CHAPTER 9. CONCLUSIONS

Introduction

During an eight-month period, the Pensacola Shipwreck Survey compiled a data base containing 162 entries, representing recorded ship losses, local site accounts, and recorded sites. Project staff investigated over 40 sites, of which 33 were recorded as historically or archaeologically significant.

In an attempt to develop a system for recommending possible management options for the underwater resources of Pensacola Bay, these 33 sites are organized into a proposed schematic matrix, arranged by age, integrity, and management options.

Limitations of the Wreck Site Reports as a Sample Base

Many of the sites in the sample base were found to be of the same age and function, and were located in similar environments. Examples of these are the cluster of four lumber vessels at Shield's Point, and the barges in Bayou Chico. In addition, the sample base did not include sites from three of the eight periods of Pensacola maritime chronology, namely the First and Second Spanish Periods and the Late Twentieth Century. Hence, the chronological and environmental spread of the sample base was limited, and serves as a pilot study that produced only tentative conclusions regarding historic shipwrecks contained in Pensacola Bay. Further fieldwork is needed to broaden the range of sites in an attempt to study a more complete cross section of these resources.

Sites recorded by the survey staff were, for the most part, those that were readily accessible. Of the 33 sites described, 28 were previously known sites shown to the survey staff by area residents, and five were discovered using remote sensing equipment. The survey had limited access to remote sensing equipment; when instruments were available on short-term loans, they were used to seek out more sites, rather than to gather additional data on existing targets. Remote sensing surveys were completed in two areas thought to contain potentially significant maritime sites. Old Navy Cove was surveyed with side-scan sonar, producing several new sites, and Bayou Grande was surveyed with magnetometry with negative results.

An inherent problem during the survey resulted from lack of a uniform survey positioning system with which to accurately fix datum locations and control points. On occasion, two different LORAN C instruments were used to record positions, resulting in difficulties with the accurate relocation of previously detected targets, and in some cases, inability to complete accurate and comprehensive surveys of designated areas. This problem initially could have been prevented by utilizing only one LORAN instrument for all survey work, or more ideally, by using a more sophisticated positioning system dedicated solely to the survey project.

In some instances, sites detected by low frequency sonar were completely buried beneath the bottom sediments, and could not be assessed without some means of clearing away overburden, an activity outside the designated scope of this project. Because of sediment accretion on the bottom of the bay over the last centuries, older shipwrecks are more likely to be buried and less likely to be as detectable or accessible as those that are more modern. The oldest sites thus far encountered in Pensacola Bay are the remains of two colonial vessels

eroding from the beach in shallow water. Undoubtedly, there are older sites in the depths of the bay that are deeply buried under sediments. To locate examples of these, sub-bottom penetrating sonar could be employed, as well as probing and coring tools to investigate buried targets.

The 33-site sample base represents only a small part of the great variety of vessels expected to be encountered in Pensacola's waters. Over 20 of the sites recorded by the survey show evidence that they were abandoned vessels, rather than "shipwrecked" vessels. As such, these sites were the most accessible, and are associated with the locations of historic maritime activities, such as careenages, shipyards, mills, and wharves. Their present accessibility depended largely on having been abandoned, rather than having been damaged or lost by wrecking or storms. And their accessibility is also a result of their situation in a relatively calm and protected environment conducive to good organic preservation.

With these limitations noted, data from recorded sites is applied to a proposed matrix along with recommendations for proposed management options in the following section.

The Pensacola Shipwreck Matrix

The sites are initially separated by the time period to which they date, age being one criterion for assessing implied historical and archaeological significance. They are reviewed for site integrity: the amount and condition of the hull remains and any associated material that is preserved for archaeological assessment, serving as an additional means for determining archaeological significance. Using these criteria the sites are assigned a priority rating of potential significance. The priority rating will determine the range of proposed management options viable for each individual site. An additional factor that must be accounted for at this stage is site preservation. Is the site in danger of being disturbed through environmental or human forces? Does it require full and immediate action to salvage archaeological information that may be lost at a later date? All of this information must be processed into the shipwreck matrix. The obvious factor is that the initial site identification and reconnaissance must be accomplished by either a professional or a trained amateur marine archaeologist. To determine the basic facts about a wreck site, including a vessel's possible age and nationality, as well as a balanced assessment of the hull's integrity and degree of preservation, some level of expertise and prior experience is necessary.

Shipwreck Time Periods

The simplest way to initially categorize the sites and types of shipwrecks encountered is again the Pensacola maritime chronology. This will in most cases separate the wrecks by time period as well as nation of origin. The same time periods discussed in the previous chapters are used for the matrix. They are:

1. The First Spanish Period, 1513-1763
2. The British Period, 1763-1783
3. The Second Spanish Period, 1783-1821
4. The Early American Period, 1821-1861
5. The Civil War, 1861-1865
6. The Maritime Expansion Period, 1865-1906
7. The Early Twentieth Century, 1906-1945
8. The Late Twentieth Century, 1945-Present

Most of these periods are based on war or a change in ruling nations, and can be applied to the rest of Florida. Only the year 1906, between the sixth and seventh periods, is site-specific to Pensacola, chosen to mark a major hurricane that changed the face of local maritime industry and development.

Wrecks will be termed as more significant when they are identified as older or as belonging to an important or previously undocumented historical or developmental period. In this instance, sites are simply assigned a significance priority based on their time period of operation in the order shown above. It should be understood that special considerations can be made for more modern vessels, such as vessel types that have not received much documentation or hulls that are associated with a large amount of significant artifactual information.

Shipwreck Integrity

A shipwreck site can be defined as a uniform archaeological assemblage of physical remains associated with a vessel that has sunk or been abandoned. Artifacts found in association with structural remains and/or archaeological features are considered to be part of a site when they can be documented as being derived from a particular vessel. Unassociated or intrusive artifacts are those that cannot be archaeologically documented as belonging to a certain vessel.

Site integrity will depend on certain variables, such as the cause of sinking, depth of water, and nature of the environment, as well as secondary adverse impact by natural or human activities. For simplicity, site integrity can be divided into three categories: high, moderate, and low.

The range of integrity categories is described in two sections, 1) Hull Structure Integrity, and 2) Associated Ballast, Hardware and Small Finds. Because a completely intact hull may have been stripped and abandoned, or a disintegrated hull may still contain important information in its remaining associated timbers and artifactual remains, the two sections must be considered together and collectively weighed to determine a site's integrity rating. Table 9.1 describes the integrity options.

Table 9.1 Shipwreck Site Integrity

HULL STRUCTURE

High	Moderate	Low
intact and/or articulated structure above the vessel's waterline or turn of the bilge	articulated timbers are associated, including portions of the keel, keelson, floors, and planking	remnants of the hull are present but unarticulated or scattered

BALLAST, HARDWARE AND SMALL FINDS

High	Moderate	Low
in-situ primary deposits of ballast stone, anchors, armament, rigging, or artifactual materials	partially disturbed deposits of ballast stone, associated anchors, armament, rigging, or artifactual materials are present but scattered over a wide area	little or no secondary ballast stone deposits, scattered hardware or rigging, no artifacts, only intrusive items

Pensacola Shipwreck Integrity Examples

Sites in Pensacola survive in a variety of environments, although wrecks from five of the eight designated time periods were recorded in groups, each of which was restricted to a single environment. Since several wrecks overlapped between periods 6 and 7, they will again be treated as one unit. Integrity of the shipwreck sites will be rated, and examples assigned where available, for each of the time periods covered.

2. The British Period, 1763-1783
   High: Town Point 8SR983 (Though hull integrity is moderate, several *in situ* small finds were noted, making this an overall high level integrity site).

4. The Early American Period, 1821-1861
   High: Pickens Wreck 8ES1901 (Hull integrity is high, buried and preserved to the level of the deck beams, additional material may be present *in situ).*

5. The Civil War, 1861-1865
   Moderate: *Convoy* 8ES1372 (The hull integrity is low, and scattered associated material remains are moderate).

6. The Maritime Expansion Period, 1865-1906,
   and

7. The Early Twentieth Century, 1906-1945
   High: The Shields Point Lumber Schooners 8SR997, 8SR998, 8SR1011, and 8SR1012 (Though primarily stripped of associated hardware, rigging and artifactual material, hull integrity is high on all four vessels).

   Moderate: *Sport* 8ES99 (Though hull structure is still articulated, it exists only to the turn of the bilge; the rest of the vessel has deteriorated. No additional material remains are associated with this site).

Shipwreck Management Options

The following management options will be discussed and applied to the prioritized sites on a sliding scale basis. All options presently exist in Florida's management program, except for the Landmark status and Amateur permit, which in Pensacola's case are recommended. Salvage contracts are listed since they are a management option currently exercised by Florida, although they are probably not issues that will have to be addressed in Pensacola, due to the lack of any historically documented lost treasure fleets.

Restricted access to a shipwreck might be warranted on a temporary basis if a site is threatened by looting or other disturbances, or if it is the subject of an ongoing research project. This management option would only be considered for unusual circumstances.

Reserve status may be given to a site to protect and preserve its integrity. Sites with a reserve status would remain open to public visitation, but closed to exploration and salvage activities. Archaeological research permits may be granted for reserved status sites, but only to qualified organizations seeking to meet specific research goals.

Preserve status may be given to a site to protect, enhance, interpret, and promote it for public use and appreciation. Historically significant and interesting wrecksites can be nominated for designation as underwater archaeological preserves (parks) to be established and managed through joint efforts at the local, county and state level.

Landmark status may be given to a shipwreck site that has been identified as being of state or national historic significance. Such status is considered for sites that may not meet the criteria for a preserve, such as ease of public access or good underwater visibility, but which deserve historic designation and public interpretation. Criteria for landmark sites would be similar to those for listing on the National Register of Historic Places.

Research projects may be conducted on shipwreck sites for the purpose of recovering knowledge about hull construction or artifacts that will result in increased understanding and appreciation of Florida's historically and archaeologically significant wrecksites. Qualified research organizations may apply to the State of Florida for permission and assistance, in the form of grants or participation, to conduct projects that are in the public interest.

Research permits may be granted to qualified institutions with trained personnel and adequate equipment and facilities to perform archaeological research projects. The permit requires the production of a professional and publishable report on the results of the project. All materials recovered under the permit are to be conserved and curated, and will remain in public ownership for further study or display.

Amateur permits could be granted to amateur organizations whose members have agreed to operate under a code of ethical standards similar to those accepted by professional organizations. Such permits would be for conducting archaeological survey and sampling of a site, with excavation limited to collection of diagnostic samples for further research. The permit would require the preparation of a publishable report, and all materials collected would be conserved and curated, and remain in public ownership.

Exploration contracts may be entered into for the purpose of conducting electronic survey work in a certain area of state bottomlands to locate historic shipwrecks. The contract is not a lease of state lands or resources, but rather a work agreement that requires production of a survey report which must be reviewed and signed by a qualified marine archaeologist. With necessary permission from appropriate agencies, an exploration contract may be amended to include limited test excavation of targets for the purpose of determining their nature. Any material collected during sampling is to remain in public ownership.

Salvage contracts may be entered into for the purpose of commercial recovery of artifacts from a shipwreck site. Aside from demonstrating an acceptable justification for salvage and a rational strategy of work, the contractor must also possess appropriate salvage qualifications and obtain the services of a qualified marine archaeologist to supervise all recoveries. The contract contains strict archaeological guidelines that include the preparation of a detailed report by the archaeologist. After conservation, a portion of the salvage artifacts, such as duplicate specie and bullion, may be awarded to the contractor for disposal. The remaining collection of materials is to remain in public ownership.

Management Options by Category

A - could possibly have access temporarily restricted; would warrant reserve status;

would not be eligible for underwater preserve; would be eligible for landmark status; could be subject of research project; would require a research permit; could possibly be subject of amateur permit under supervision of a qualified archaeologist, taking into account nature of site and abilities of permittee; would not be subject of exploration contract; would not be subject of salvage contract.

B - could possibly have access temporarily restricted; could warrant reserve status; could be eligible for underwater preserve; could be eligible for landmark status; could be subject of research project; would require a research permit; could be subject of amateur permit; could be subject of exploration contract; could possibly be subject of salvage contract, under strict archaeological guidelines, taking into account nature of site and ability of salvor.

C - Access would never be restricted; could warrant reserve status; could be eligible for underwater preserve; could be eligible for landmark status; could be subject of research project; would require a research permit; could be subject of amateur permit; could be subject of exploration contract; could possibly be subject of salvage contract, under strict archaeological guidelines, taking into account nature of site and ability of salvor.

D - Access would never be restricted; reserve status not warranted; could possibly be eligible for underwater preserve; could be subject of research project; could possibly require a research permit; could be subject of amateur permit; could be subject of exploration contract; could possibly be subject of salvage contract, under strict archaeological guidelines, taking into account nature of site and ability of salvor.

E - access would never be restricted; reserve status not warranted; would not be eligible for landmark status; could possibly be subject of research project; would not require a research permit; could be subject of amateur permit; could be subject of exploration contract; salvage contract not applicable.

Table 9.2 outlines the management options in a table form for quick reference.

Table 9.2 Shipwreck Management Options

OPTIONS	CATEGORY A	B	C	D	E
access restricted	possible	possible	no	no	no
reserve status	yes	yes	yes	no	no
preserve (park) status	no	yes	yes	possible	no
landmark status	yes	yes	possible	no	no
research projects	yes	yes	yes	yes	possible
research permits	yes	yes	yes	possible	no
amateur permits	possible	yes	yes	yes	yes
exploration contracts	no	yes	yes	yes	yes
salvage contracts	no	possible	possible	possible	n/a

Classification of Pensacola Shipwrecks

Table 9.3 assigns a classification integrity to the possible combinations of the various time periods and levels of integrity that may be encountered.

Table 9.3 Classification of Shipwrecks

AGE	INTEGRITY: High (intact)	Moderate (continuous)	Low (scattered)
1. 1513-1763	A	A	A
2. 1763-1781	A	A	B
3. 1781-1821	A	B	B
4. 1821-1861	A	B	C
5. 1861-1865	A	B	C
6. 1865-1906	B	C	C
7. 1906-1945	B	C	C
8. 1945-present	C	D	E

Table 9.4 applies the shipwreck sites recorded during the course of the Pensacola Shipwreck Survey to the classification matrix. Three other Pensacola wrecksites discussed in previous work will also be included. In the case of sites such as the Windlass Site, the *City of Tampa*, or the possible *Judah* site, it will be assumed that more of the wreck is present beneath the sediment, since this has not been disproved. Again, the 1865-1906 and 1906-1945 time periods are combined.

Table 9.4 Classification of Pensacola Shipwrecks

AGE	INTEGRITY High (intact)	Moderate (associated)	Low (scattered)
1. 1513-1763	A	A	A
2. 1763-1781	Town Pt. Wreck SR983 A Deadman's Wreck SR782	A	B
3. 1781-1821	A	B	B
4. 1821-1861	Navy Caisson ES1897 A Pickens Wreck ES1901	B	C
5. 1861-1865	*Convoy* ES1372 A *Judah* ES1904	B	C
6. 1865-1906 7. 1906-1945	Cedar Wreck SR1007 Snapper Wreck SR1001 B Shields Point Schooners SR997, 998, 1011, 1012 Deadman's Punt SR1014	*Massachusetts* ES1898 *Sport* ES99 C *Rhoda* ES1899 "*Cabradroca*" SR995 Centerboard Schooner SR996 Composite Wreck SR1000 Jack's Wreck ES1900 "City of Tampa" SR1010 Milton RR Hull SR1008 Blackwater Barges Bayou Chico Barges	Marine Ways Debris C
8. 1945-present	C	D	E

Analysis of Pensacola Shipwrecks in the Management Option Matrix

The information entered into the matrix generally agrees with the results of the individual evaluations and assessments formed by survey staff and reported in the narrative wreck inventory descriptions. The single inconsistency is in the integrity rating; in some cases a higher integrity is assigned to a shipwreck such as the *Cabadroca* than the value suggested by the ground truth evaluation. In the later time periods this is negated in most cases by the fact that preservation options for all integrity levels differ only by small degrees. Wreck integrity and management classifications for earlier years are relatively untested due to lack of data. The data from early periods that was entered seems to be correct, yet more information will be required to truly test the effectiveness of the matrix. A major drawback is that data acquisition and entry are still relatively subjective. Entry and evaluation will differ depending upon an investigator's training, experience, and familiarity with comparative sites. The shipwreck classification matrix is only a tool, and will best be manipulated by those with an appropriate technical background.

CHAPTER 10. RECOMMENDATIONS

Introduction

Four issues are addressed in the final chapter. The first section contains recommendations for future work in the field in Pensacola, in order to broaden the range of historic wrecksites discovered. The second section contains recommendations to the agency that conducted this work, the Division of Historical Resources, Bureau of Archaeological Research. Specific recommendations for interaction between local, state and federal agencies in order to better understand and preserve Florida's submerged cultural resources are included in the third section. A final course of recommended action is continuing public education and awareness, emphasizing communication and cooperation with the sport diving public.

Recommendations for Future Work

The next phase of the shipwreck survey in Pensacola could benefit from a number of suggestions. In addition to following up and assessing reported wreck sites, efforts should be made to complete more remote sensing surveys. The use of a more accurate positioning system designed for this purpose would greatly aid in this process. Efforts should also be made to acquire the use of a sub-bottom profiling system to survey limited areas. Recent developments in these systems have demonstrated the ability to find and identify wooden wrecks buried beneath the sediment. Use of sub-bottom sonar would help to determine the number of wrecks buried beneath the bay bottom, and the depth of sediment covering the wrecks. Recommended areas to survey in the future include the western shore of the Gulf Breeze peninsula, Bayou Chico, near Muscogee Wharf, and the deep-water central sections of Pensacola Bay. Efforts should be made in the Blackwater River to locate the HMS *Mentor* and the Civil-War era gunboat burned and abandoned by the Confederates off Bagdad. Winter low tides should provide the opportunity to record exposed wrecks in the Blackwater River and Bayou Chico. Recent storms have begun to uncover the remains of two wrecks located just offshore of Gulf Islands National Seashore: *Catherine*, a Norwegian bark run aground in 1894 and *E.W. Fowler*, a snapper smack still working when it wrecked on the beach in 1960. Both wrecks cover and uncover periodically. The sites were briefly described by Tesar in 1973, and should be rechecked and recorded to further understand how this environment affects site preservation.

Recommendations to the Bureau of Archaeological Research

1. Establishment of an Underwater Preserve in Pensacola

The first phase of the Pensacola Shipwreck Survey has demonstrated that there are a number of easily accessible shipwreck sites within the Pensacola Bay system, and that there exists a growing network of interested organizations and individuals who support interpretation and preservation of their submerged cultural resources. The latter includes sport divers and fishermen, who have taken an active part in ongoing field investigations.

Given the success of Florida's nascent program to establish Underwater Archaeological Preserves on shipwrecks such as the *Urca de Lima*, *San Pedro*, and *City of Hawkinsville*

elsewhere in the state, Pensacola would appear to present a promising location for a new Preserve that would receive enthusiastic support. In fact, among the nominations received during the 1990 statewide solicitation that led to the establishment of the *City of Hawkinsville* preserve was the Pensacola nomination of the USS *Massachusetts*, by local diver Larry Broussard.

The sunken remains of the *Massachusetts*, a former U.S. Navy battleship, lie in 20 feet of water on a sandy bottom 1.5 miles offshore of the Pensacola Bay channel entrance. The ship's two main gun turrets are awash at low tide, and the wreck is marked on nautical charts and by a bell buoy. The site attracts abundant marine life as an artificial reef, and is a popular destination for sport divers and fishermen since its location is readily apparent and does not require electronic instrumentation to find.

The wreck of the USS *Massachusetts* is a site of national significance. Designated BB-2, the vessel was one of the three initial battleships of the "New Steel Navy" created in the 1890s, and is the only one of her class still in existence. Launched in 1893, she served in the Spanish-American War and in World War I, by which time her technology was obsolete. Stripped of her guns, the battleship was loaned to the Army and towed to Pensacola, where she was scuttled in 1921 to become a stationary target for strategic coastal artillery experiments. Afterwards, the hulk was abandoned when no bids for scrapping were received, and in 1956, title to her remains was awarded to the State of Florida by a Supreme Court decision. USS *Massachusetts* has spent 70 of her almost 100 years underwater off Pensacola; her present features and her past career have yet to be interpreted.

Recommendation

In response to the 1990 nomination, the Bureau of Archaeological Research should survey and map the site of USS *Massachusetts* in order to prepare a formal public proposal for the establishment of the site as the state's fourth Underwater Archaeological Preserve. As with the other preserves, the proposal should be circulated at the state, county, and city levels, and among those organizations and waterfront businesses that might share in the development of the preserve. Input received from the proposal would determine the preserve's feasibility and the degree of support for its establishment through a cooperative venture with the state.

2. Establishment of an Amateur Underwater Archaeology Workshop

Positive public response to the Pensacola Shipwreck Survey was demonstrated in several important ways, one of which was the large number of individuals who approached survey staff to offer their assistance as diving volunteers. These individuals came from all walks of life; many with unrelated professional skills. Staff limitations and schedule precluded working with many volunteers; most of those who actually assisted in the fieldwork were university students who had attended a UWF class in underwater archaeology. Had the majority of potential volunteers been familiar with the fundamental methodology and the goals of the project, much more fieldwork might have been conducted. In exchange, more volunteers would have had their desires to participate fulfilled.

However, of more overriding importance would have been the development of a local network of enthusiastic, amateur sport diving surveyors and mappers. An organized group, trained in the basic non-disturbance methodology of recording and reporting, could greatly increase the inventory of underwater resources, as well as further raise public awareness

about issues of protection and preservation. Based on the degree of interest shown by potential volunteers, Pensacola could be an ideal location to attempt to foster the organization of an amateur survey group.

Recommendation

The Bureau of Archaeological Research should develop a workshop in basic underwater archaeological recording and reporting to be conducted in cooperation with local Pensacola diving clubs and dive shops. Elements of existing training programs, such as those developed by the British Nautical Archaeology Society and Indiana University, should be adapted for use in the Pensacola Bay environment. The workshop should consist of classroom as well as field training activities, and upon completion, participants should be encouraged to join an existing preservation-oriented organization, such as the Pensacola Historical Society or the Pensacola Archaeological Society. Alternately, a new organization could be established with similar goals and codes of ethics.

Working with ongoing state or university projects, the amateur group should be encouraged to hold periodic meetings to report on survey progress to the public and to foster a fuller regional awareness of submerged cultural resources. In Pensacola, the impact of such a trained group promises to be significant, perhaps serving as a model for the encouragement of similar groups in other parts of the state.

3. Establishment of an Amateur Permit

At present, under Florida law there are only two rules that govern the manner in which archaeological resources are investigated. These are Chapter 1A-31, Florida Administrative Code, under which contractual agreements may be entered into for the exploration and salvage of historic shipwreck sites under certain guidelines, and Chapter 1A-32, F.A.C., under which archaeological research permits may be issued to qualified professional archaeologists and institutions to conduct research on state-owned sites.

It may be argued that, from the time these rules were established, neither exploration/salvage contracts nor research permits have added substantial knowledge to the state's archaeological record with regards to shipwreck sites. While many exploration contracts have been entered into over the years, they have mainly been for areas adjacent to known treasure wrecks for the purpose of finding additional treasure, or in areas falsely thought to contain treasure-bearing wrecks. Salvage contracts have produced some site-specific data, but generally it is in the form of artifact accounting inventories for the purpose of dividing recoveries with the state. Little or no provenance data, such as simple site plans, have been generated by salvors; at best, the locations of holes dug are noted. Few archaeological research permits have been issued by the state for investigation of shipwreck sites; fewer professional reports from these permits have been received in return.

By far, the majority of shipwreck investigations in Florida are conducted informally by recreational divers, who vastly outnumber salvors or archaeologists. This is especially true in Pensacola, where many of the sites recorded by the Pensacola Shipwreck Survey were first explored by local sport divers. Most of these divers lacked the knowledge or incentive to record and report the sites they encountered in any formal way. Local knowledge about sites was transmitted, at best, by word of mouth to other divers for the purposes of recreational exploration, spearfishing, or artifact collecting. Other divers, out of curiosity, conducted basic historical research on Pensacola's shipwrecks and shared knowledge of their finds with

local historians. This information formed the nucleus of the Shipwreck File gathered over the years by the Pensacola Historical Museum.

At present there are no legal means by which to sanction the exploration of wrecksites in Florida by amateur sport divers. Technically, the law (F.S. 267) states that "any person who conducts field investigations on any land owned or controlled by the state, . . . without first obtaining a permit or having first received from the division a notice to proceed under procedures relating to accredited institutions. . . is guilty of a misdemeanor punishable by a fine not exceeding $500 or by imprisonment in the county jail for a period not to exceed 6 months or both." Amateurs who wish to explore wrecksites, even in a non-disturbance mode, clearly do not meet the professional qualifications required for a research permit, and most would not consider a salvage contract requiring a $1,200 fee and the services of an archaeologist. Thus, the majority of individuals who encounter and explore Florida's shipwrecks have no legal sanction to permit their activities, and, under strict interpretation of the statute, might be seen to be breaking the law.

Recommendation

The Bureau of Archaeological Research should formulate a new rule to establish an amateur archaeological research permit, which would sanction amateur investigation of shipwreck sites, encourage non-disturbance recording, mapping, and reporting of sites, and guide organized groups of sport divers toward cooperative efforts in historic preservation.

It is recommended that such a permit should be granted to amateur organizations, rather than individuals, whose members have agreed to operate under a code of ethical standards similar to those accepted by professional organizations. The permit would be for the purpose of conducting archaeological survey and sampling of one or more sites, with excavation limited to collection of diagnostic samples for further research. The permit would require the preparation of a publishable report, and all materials collected would be conserved, curated, and remain in the public domain.

4. Establishment of a Florida Landmark Status

Mechanisms for assigning a special status to certain significant submerged cultural resources in Florida at present include designation as an Underwater Archaeological Preserve, and nomination to the National Register of Historic Places. The first, as a preservation tool using the concept of "education through recreation," requires that sites meet certain criteria, such as ease of public access, good underwater visibility, etc. The second mechanism also requires that sites meet certain criteria of significance, and that lengthy detailed paperwork be completed for nomination to the National Register. While sites accepted to the Register receive some form of national recognition and extra consideration in relation to federal projects, it is not always clear how this recognition serves to enhance, preserve, or protect registered archaeological sites, especially at the local level where it counts.

There are many shipwreck sites that do not meet the criteria for a state Preserve, yet might deserve some form of special status because they are of state or national historical importance. While nomination to the National Register might be one method of granting special status, it is unclear how this status affects the local public perception of a site's historical importance and how it serves as a mechanism for local interpretation and protection of the site.

Recommendation

The Bureau of Archaeological Research should devise a state Landmark Status for certain shipwreck sites that are of regional and statewide significance. Such status would be considered for sites that may not meet the criteria for a Preserve but deserve historical designation and public interpretation.

Examples of sites in Pensacola that might deserve distinction at state Landmarks are the four lumber schooners at Shield's Point (*Palafox*, *Dinty Moore*, *George T. Locke*, and *Guanacastle*). These sites clearly are of regional and statewide historical distinction, since they represent well preserved remains of extinct watercraft that supported the timber boom of the Florida Panhandle.

Criteria for Landmark Status could be similar to those for nomination to the National Register, but the designation would be statewide, similar to the state Historical Marker program. Sites would be nominated at the local level, assessed and interpreted by the Bureau, and designated accordingly, perhaps with a marker, in a cooperative venture with local civic organizations.

The assigning of Landmark Status to certain shipwreck sites would bring to a region an increased awareness of history, a broader appreciation for submerged cultural resources, and an opportunity for local entities to participate in the celebration and preservation of their unique underwater sites.

5. Florida Master Site File

The Pensacola Shipwreck Survey involved collection of specific site information that was arranged in three ways: a computer data base, written descriptive narratives, and a geographical data base. These data were then assimilated into the Florida Master Site File using the Underwater Archaeological Site Forms. However, these existing forms proved to be inadequate for recording much of the specific information collected on shipwreck sites. For instance, the existing form does not address vessel type and size, or site features such as armament or machinery. In addition, portions of the existing form are inappropriate even for general underwater sites, such as designations for "stone wall," or "temple mound." The proper description and reporting of submerged resources within the Master Site File is essential. When construction or development permits are applied for, the Master Site File is checked to determine whether culturally significant areas will be impacted.

Recommendation

Creation of a new Florida Master Site File form is recommended specifically for shipwrecks, since these represent the majority of underwater sites surveyed throughout the state. The new Shipwreck Form could be formatted with a combination of fields to be checked off, as well as short written fields to allow for relatively simple computer input.

Suggested elements of the new form could include, but not be limited to, the following parts, adapted from a successful shipwreck survey form used in British Columbia (Moore 1990):

Part 1 (Universal Data)
FMSF number
site name (geographical or local name, eg., Town Point Wreck)

vessel name (vessel's registered name, if known)

Part 2 (Site Location)
latitude and longitude
UTM coordinates
LORAN location numbers (LOPS)
major water body (e.g., Pensacola Bay)
minor water body (e.g., Gilmore Bayou)
site elevation (elevation Below Sea Level-BSL, Above Sea Level-ASL)

Part 3 (General Site Description)
site vegetation (floral growth)
bottom environment (sediment type, etc.)
site description
disturbances (factors affecting site)

Part 4 (Wreck Description)
site size (total extent of wreckage)
magnetic orientation (e.g., bow points 270 degrees)
vessel length (original & preserved)
vessel breadth (original & preserved)
features (anchor, rigging, hardware, fastenings, etc.)
hull material and type (iron, wood, composite)
machinery (engine, boiler, pump, propeller, etc.)
vessel type (schooner, barge, freighter, etc.)
cause of casualty (burned, wrecked, scuttled, etc.)
time period
nationality

Part 5 (Artifacts)
cargo artifacts
ship artifacts
artifacts removed

Part 6 (Recording)
site reporter (name and address)
reporting date
site informant
site collections (description, name, address)
site photos
site film/video
site remote sensing

Part 7 (Significance)
geographical significance (local, state, or national)
site historical significance (military, economic, technological, etc.)
site archaeological significance (addressing specific research questions)
site priority (overall importance, e.g., high, medium, low)
threats to site
protected status

Recommendations for Interagency Cooperation

During the course of the Pensacola Shipwreck Survey it became apparent that the goals of the project could be greatly enhanced by cooperating with a variety of local, state and federal agencies, in addition to private organizations. The following sections detail the recommended actions for further cooperation in order to benefit the management of submerged cultural resources in the state.

City of Gulf Breeze

The peninsula of Gulf Breeze has been found to contain a significant portion of Pensacola Bay's marine archaeological sites, due to its strategic location, maritime access, and natural resources. Along the northwestern shore between Town Point and Deer Point, a clustering of several sites has been investigated in the shallow waters off a section of undeveloped shoreline locally called Deadman's Island. These include the remains of two colonial naval vessels, a small wooden punt, three ballast piles, the remains of two marine ways, a centerboard schooner, a steam vessel, and a composite-built sailing ship. In addition, an important collection of historic artifacts has been unearthed by natural erosion along the shore of Deadman's Island after winter storms, representing some of the earliest found in the Pensacola area.

The City of Gulf Breeze owns Deadman's Island, and has determined that the property should remain undeveloped as a natural preserve. Although not a true island, Deadman's Island is most accessible to the general public by boat. A narrow spit of land connects the island to the main peninsula along its northern edge; public access by land is thus limited to the immediate suburban neighborhood overlooking the island. Consequently visitors to the island tend to be weekend picnickers who come by boat, or local residents who walk from the neighboring houses to fish or explore the beach.

Despite its protected status and limited accessibility, Deadman's Island and its resources are threatened both by human and natural impacts. Sites such as the two colonial vessels are actively eroding from the beach, as are the remains of other maritime features. The natural erosion pattern is not well understood, but has disturbed sites that were previously buried and well preserved. Fortunately, Wayne Farrior, a local resident and one of the founders of the Gulf Breeze Historical Society, actively monitors the island to collect loose artifacts before they are dispersed. It was he who discovered that one of the colonial shipwrecks had been vandalized and seriously damaged during the summer of 1991. Since that time, monitoring of the area by the Florida Marine Patrol has increased.

Many Gulf Breeze residents are aware of their area's natural and historical value, however, most have not visited Deadman's Island. Others who do visit the island, are not well informed as to its protected status and historical significance. Boaters who come from across the bay often are unaware of the island's public ownership and of any ordinances that apply to city lands. Consequently littering and beachcombing affect the natural and historical resources of this unique place.

Recommendation

To provide better public awareness of the natural and historical sensitivity of Deadman's Island's resources, it is recommended that the City of Gulf Breeze erect signage that reflects the local ordinances protecting the island. Signs could be effectively placed at

two locations--one to the east of Town Point at the land access, and another on the beach south of Town Point at the boat access. Wordage of the signs might declare the city's ownership of the island and its preserve status, and ask that visitors refrain from littering or collecting artifacts. A media release might accompany the placement of signage to widely inform the general public at large of the island's status. In this manner, the area's resources might be more fully appreciated and protected.

Historic Pensacola Preservation Board

From the onset of the Pensacola Shipwreck Survey, the Historic Pensacola Preservation Board provided encouragement and logistical support for the project. The Board generously allowed use of the Tivoli House in the Historic Village for the survey's headquarters, and helped in innumerable ways to orient and integrate the project into the current historic awareness that exists in Pensacola. Although the survey activities in the Tivoli House were not as accessible to the public as was originally planned, due to staff limitations and the pilot nature of the project, plans for a cooperative exhibit dealing with maritime history and archaeology were discussed.

Through the efforts of the Historic Pensacola Preservation Board, tangible remains of the city's history are readily available to citizens and visitors in the form of historic buildings and museums that house interpretive displays and exhibits. In the heart of downtown Pensacola are located the T. T. Wentworth Museum, the Museum of Industry, the Museum of Commerce, and the Old Christ Church Museum, which is operated by the Pensacola Historical Society. This Historic Village, adjacent to Seville Square is a magnet that attracts thousands of people to the district each year. In addition, the several square-block district is a natural location for civic events and festivals on a regular basis. Archaeological excavations, conducted in recent years by the University of West Florida, have resulted in public exhibits and displays that are incorporated into educational tours provided by the Preservation Board.

Recommendation

Over the course of the first phase, the Pensacola Shipwreck Survey has collected graphic, historical, and artifactual materials that could represent the foundation for an exhibit on maritime history and archaeology to be incorporated into existing programs of the Historic Pensacola Preservation Board. Many of these materials surfaced through the efforts of local citizens with an interest in the interpretation and celebration of Pensacola's maritime heritage. Undoubtedly more materials will become available in the future, if this interest is galvanized into a public product such as an exhibit. It is therefore recommended that the Shipwreck Survey work together with the Preservation Board and other interested parties to create a permanent maritime component within the Historic District that will complement existing displays to provide a fuller picture of Pensacola's past.

Department of Natural Resources, Bureau of Submerged Lands and Preserves

Expansion of Ft. Pickens Aquatic Preserve was proposed in a DNR Management Plan which was drafted by staff of the Northwest Florida Field Office in June 1991. Pensacola Shipwreck Survey staff were approached by DNR staff to provide data and input on local submerged cultural resources located in, or affected by, the Ft. Pickens Aquatic Preserve. This input included information on several affected sites, such as the USS *Massachusetts*, as well as other sites in waters adjacent to the Preserve. As a result, DNR staff have

recommended expanding the Preserve to include submerged lands around Deadman's Island, a natural upland preserve purchased by the City of Gulf Breeze to prevent development.

The island, which forms the northwest tip of the peninsula of Gulf Breeze, has been the site of historic maritime activities since the 1700s, and contains several significant shipwreck sites (SR782, SR983, SR1014, etc.), as well as the remains of two marine railways (SR740, SR999). Aside from these submerged sites, a significant collection of colonial artifacts has been systematically recovered from the shoreline by local resident Wayne Farrior after winter storms. These materials reflect the long and continuous use of Deadman's Island; the area is considered of regional importance as a prime maritime archaeological repository.

Officials and residents of the City of Gulf Breeze are concerned with the island's preservation, as well as its offshore resources. This has been evidenced by the city's financial and logistical support for the 1988 UWF archaeological survey of the island and the 1989 investigation of Deadman's Shipwreck (SR782). The concern also was manifested in June, 1991, upon the discovery that SR782 had been vandalized and badly damaged. Gulf Breeze Mayor Ed Gray immediately offered $500 reward for information leading to the arrest of the culprits; the sum quickly grew to $1,250 as Pensacola city officials and private citizens also pledged their support.

Recommendation

The expansion of Ft. Pickens Aquatic Preserve to include the submerged lands around Deadman's Island would help to provide added protection to the cultural and natural resources of this unique area. The DNR proposed management initiative states:

> As per the Rules of the Board of Trustees of the Internal Improvement Trust Fund Chapter 18-20 Florida Aquatic Preserves, 18-20.009, pursue the expansion of the Fort Pickens Aquatic Preserve to include the submerged lands adjacent to Deadman's Island on the Gulf Breeze peninsula (DNR 1991:58).

This recommendation should be pursued by that agency with cooperative input from the Division of Historical Resources and the City of Gulf Breeze.

Florida Marine Patrol

District 11 of the Florida Marine Patrol assisted the Pensacola Shipwreck Survey on numerous occasions. Major Calvin Dixon alerted survey staff to finds made by fishermen in the waters off Gulf Breeze; Captain Thomas Bishop provided storage space for boats and trailers in the Patrol compound; Lieutenant David Bullard helped to coordinate an investigation of vandalism on SR782 in conjunction with the Gulf Breeze Police Department; and Officers Wayne Williams and Jim Garret guided staff to several submerged sites in the Blackwater River system.

This close cooperation resulted from interaction between Patrol personnel and survey staff from the onset of the project. Once the Patrol understood the mission and goals of the Survey, its relevance to local marine affairs and to the community at large, Patrol personnel became supportive of the project beyond the traditional role of law enforcement. While the Patrol was quick to respond to the vandalism case, it went further to include in its televised

4th-of-July public safety message a reminder to divers about the state laws regarding disturbance of submerged sites. And while the Patrol passed along local waterfront information about sites to the Survey, more than one officer personally guided archaeologists to several sites in his patrol area. This degree of interaction between the Florida Marine Patrol and the Division of Historical Resources has been facilitated by knowledge and understanding on the part of the officers involved of the mission of DHR and of the state laws regarding archaeological and historical sites.

A recent review of Florida's historic preservation laws has concluded:

> . . . that the state owns and controls, through the ownership of state lands, a significant number of archaeological sites, many of which are of national importance. The major threat to these state-owned sites is looting of their artifacts. While there are laws providing penalties for such looting and vandalism of historic sites, the laws are not well enforced. Many believe that law enforcement agencies are not widely aware of the value of archaeological sites, or the laws enacted to protect them (Florida Senate Committee on Governmental Operations 1991:85).

The Committee staff recommended that the Florida Department of Law Enforcement incorporate a training program for officers in cooperation with the Department of State and the Game and Fresh Water Fish Commission.

Recommendation

The law enforcement training program proposed by the Senate Committee on Governmental Operations should also include the active participation of the Department of Natural Resources, Florida Marine Patrol. The Patrol would benefit from increased understanding of the issues and laws regarding submerged cultural resources, as well as increased interaction with other agencies involved in historic preservation. Law enforcement officers of the Department's Division of Recreation and Parks would also benefit from participation in the training program, since their responsibilities often include protection of state-owned submerged lands within park boundaries.

Ideally, curricula at the Florida Law Enforcement Academy could include a teaching unit on historic preservation laws and policies that developed jointly by the involved agencies. This unit could include written materials to be incorporated into the Academy's workbooks, and a short videotape as a teaching aid. In addition, the unit could include at least one lecture per semester by personnel from the Division of Historical Resources.

Aside from the training of recruits, law enforcement officers in the field could benefit from direct exposure to state historic preservation policies. The Pensacola example of interaction between the Marine Patrol and DHR archaeologists points to the need for similar interaction elsewhere in the state. At a regional level, a simple workshop might be conducted at District Patrol offices to inform both administrative and field personnel of current state laws and policies regarding historical and archaeological sites.

At the very least, Florida's law enforcement agencies should have access to a brochure on state historic preservation laws and policies that would be developed and distributed by the Division of Historical Resources. Distribution at the state level would include the Florida Department of Law Enforcement, Florida Game and Fresh Water Fish Commission, Florida

Marine Patrol, Florida Park Service, and other agencies. In addition, appropriate county and city agencies would benefit from receipt of the brochure.

National Oceanic and Atmospheric Administration

During the course of the project the NOAA research vessel *Heck* was stationed in Pensacola for three months. Obstruction surveys conducted in Pensacola Bay were informally coordinated with The Pensacola Shipwreck Survey. The National Ocean Service, Hydrographic Survey branch office supplied the shipwreck survey with a copy of its data base relevant to Pensacola. *Heck* crew members reported the types of finds that were discovered when ground truth diving detected anomalies. All of the information shared between agencies was the result of chance encounters between NOAA ship's officers and shipwreck survey staff. Recognizing that remote sensing and ground truth diving is the main focus of NOAA survey vessels, valuable amounts of information on submerged historic resources could be recovered if data sharing channels were recognized.

Recommendation

This cooperative interaction should be formalized to share information about historic wrecksites and other related remains. The first step in satisfying such a recommendation again depends upon education: NOAA personnel would need to be trained as to what constitutes a historic wrecksite. In addition, NOAA crew would need to know who to report wrecksites to. Since NOAA's office of Ocean and Coastal Resource Management has begun to deal with archaeological resources, perhaps this branch could serve as a liaison between NOAA and state archaeological agencies.

National Park Service

The Fort Pickens portion of the Gulf Islands National Seashore is a popular destination for tourists, campers, and beachgoers. Sport divers also frequent the north side of the island, where an underwater trail has been created at the Fort Pickens Jetty by placing miscellaneous objects on the seabed to attract marine life. This location is routinely used by dive instructors to train students, since the waters generally are clear and protected, and the bottom slopes off to varying depths. The trail consists of discarded cars, jeeps, aircraft, and other objects ranging from 10 to 50 feet in depth. Divers from the Panhandle, Alabama, and Georgia come to this location, since it is one of the few diving attractions in the region accessible from the beach.

Some 2.5 nautical miles to the east of the Fort Pickens Jetty lie the remains of the *Sport* (8ES99), an iron tugboat used to ferry passengers to Santa Rosa Island in the first part of this century. The vessel sank close to shore in shallow water during a hurricane. Although the superstructure is gone, the entire lower hull is partially exposed on a sandy bottom in three feet of water.

Recommendation

The *Sport* is an ideal attraction for snorkelers and novice divers, since the vessel actually looks like a "shipwreck," and can be explored with no adverse visitor impact to the iron hull. The sandy, shallow bottom insures relatively good visibility and the protection of the island normally provides calm conditions. The hull could be marked with a permanent buoy attached to the stempost, which is the highest portion of the wreckage. The site could

be made more accessible from shore and by boat. A sheet, describing the vessel's history and incorporating a plan of visible constructional features, could easily be developed at little cost. The Division of Historical Resources could assist in developing the site as part of its mission to protect and promote Florida's historic sites.

University Level Education

Throughout Florida, programs are being established to teach underwater archaeology. Locally, the University of West Florida has recently begun to confer a masters degree in Historical Archaeology, and core classes on underwater archaeology are being taught at the undergraduate and graduate level. Currently two universities offer graduate level degrees in maritime archaeology: East Carolina University's Program in Maritime History and Underwater Research in Greenville, North Carolina and Texas A&M University's Nautical Archaeology program. Several of the sites investigated by the Pensacola Shipwreck Survey merit further investigation, as reported in the individual wreck descriptions in Chapter 8 (the Shields Point Lumber Schooners, Intracoastal Barge Construction). Such work could be undertaken on the graduate level, as field experience used for thesis topics. Investigation of 8SR782, the Deadman's Island Shipwreck, was conducted as a joint field school between the Florida Bureau of Archaeological Research and the University of West Florida. The Bethune Blackwater Schooner was recorded with volunteer help by East Carolina graduate student David Baumer.

Recommendation

Interaction between the Bureau of Archaeological Research and University-level students can benefit all involved. Currently, no formal method is available in Florida to suggest research topics. Any field work by graduate students is generally the result of an informal network of underwater archaeologists, usually at the initiative of the State Archaeologist. A means should be established to formally publicize the availability of archaeological research topics. As an inexpensive means to acquire professional level research, the state should make an effort solicit more help from graduate programs and continue to support interaction. At the very least, copies of this report should be delivered to university archaeology programs, to serve as a reference and to suggest some of the wide range of research topics available in Florida.

Public Education and Awareness

Despite talks and media publicity, sport divers and the public in general are still not adequately informed of how their resources are managed and preserved. Unless designated as a state historic or archaeological site, resources on most public lands (whether terrestrial or submerged) generally are not actively monitored. These resources often are adversely impacted, whether intentionally or not, by a public that is not well informed of the law. It is incumbent on both regulatory and enforcement agencies to better educate the general public about the need to preserve these dwindling resources.

Recommendation

A brochure should be developed by the Division of Historical Resources, Bureau of Archaeological Research for public distribution. Public outlets for the brochure could include

dive shops and marinas. State parks, museums, and preservation boards, as well as their county and city counterparts could also distribute the brochure. In the field, law enforcement officers could use the brochure as a reference tool, but also for distribution to members of the public who are encountered on state owned-lands. For example, if a Marine Patrol or Wildlife Officer checks a group of divers and suspects that they are disturbing a submerged site, the officer can issue a warning and give a copy of the brochure to the group. Such a brochure used locally to cite laws regulating fishing is widely available, and very successful.

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