AFTER WRECKING: EXAMINING SPANISH SALVAGE OF THE 1622, 1715, AND 1733 PLATE FLEETS

by

Amber Cabading

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Thesis Advisor: Dr. Jennifer F. McKinnon

Major Department: Program in Maritime Studies, Department of History

ABSTRACT

From the 16th to the 18th century, Spain dominated the transatlantic trading empire, though not without cost. The Spanish Plate Fleets lost off the coast of Florida have been the subject of much treasure hunting and archaeological interest. The fleets evoke a romantic tale of historical international trade, colonialism, piracy, devastating tragedy, and insight into the economy of the Spanish empire and maritime culture of the 18th century (Florida's Bureau of Archaeological Research, Division of Historical Resources [BAR, DHR] 2020). After each wrecking event, Spanish authorities extensively salvaged the shipwreck sites for several years, producing a healthy historical record. Unfortunately, modern treasure hunters were the first to relocate the 1715 and 1733 fleet wrecks, and consequently, heavily impacted the sites; archaeologists have documented what remains.

Despite the well-documented history of both fleets, little research has focused on the salvage camps and the historic salvage efforts associated with the 1622, 1715, and 1733 Plate Fleet disasters. Using a maritime cultural landscape (MCL) theoretical framework, this thesis seeks to understand the cultural processes and behaviors involved with the Plate Fleet

shipwrecks and salvage operations. This thesis also will offer analysis informed by Critical Race Theory to uncover the hidden stories and agency of the enslaved persons conducting the dangerous salvage operations under the close watch of Spanish admiralty agents. Critical Race Theory challenges the dominant ideology (in this race-based slavery) by "giving voice" to people who otherwise are silenced by racist oppression. Both theoretical approaches will help understand the broader maritime cultural landscape, or the interaction between human processes and the maritime environment on both land and underwater, of the 18th century.

Research into the lives of the salvagers can add another dimension to the study of 18th century Spanish colonialism, exploration, and commerce. An ESRI Story Map, designed as a public outreach product, will describe, and illuminate the salvage history of the Spanish Plate Fleets. By employing techniques drawn from critical race theory and MCL this thesis seeks to extrapolate information pertaining to the Spanish salvage industry and the people participating in the salvage operations.

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Amber Lynn Cabading

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by

Amber Lynn Cabading

APPROVED BY:

DIRECTOR OF THESIS _____

Jennifer McKinnon, Ph.D.

COMMITTEE MEMBER: _____

Lynn Harris, Ph.D.

COMMITTEE MEMBER: _____

Karin Zipf, Ph.D.

CHAIR OF THE DEPARTMENT OF HISTORY: _____

Jennifer McKinnon, Ph.D.

DEAN OF THE GRADUATE SCHOOL: _____

Paul Gemperline, Ph.D.

To the Scott and “The Ex-Best Friends”

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Chapter 1. Introduction

Introduction

As early as 1537, Spain established and maintained a global trade network, emerging as a dominant trading empire by the 18th century (Florida's Bureau of Archaeological Research, Division of Historical Resources [BAR, DHR] 2005). Each year two *flotas* (fleets), the New Spain and the *Tierra Firme*, left Spain to distribute European goods to Spanish colonies in the Americas and procure South American products such as Peruvian silver, porcelain shipped from China, gold, and other raw materials. Such products on single, unprotected vessels were easy prey for pirates. To counter this threat, Spain developed a convoy system comprised of not only merchant *naos*, but armed *navios* and galleons to protect its laden vessels from predators (FIGURE 1.1) (BAR, DHR 2005).

FIGURE 1.1. Artist Frederick Daniels rendition of 18th century Spanish Galleon Ship Sailing Cape Cod. The painting is currently located in the Cheshire Antiques Consultant Collection, Chester, England.

Under ideal conditions, the convoy route to and from the Americas was the primary trade pattern between Spain and the New World, however, many factors deterred and interrupted the trade network. As fleets departed Havana, Cuba for their voyage back to Spain, uncharted shoals and reefs, faulty ship construction, shifting sandbars, treacherous currents, and tropical storms regularly took their toll on the fleets (Smith 1993:25; BAR, DHR 2005). Teredo worms ate away at wooden hulls, making ships leaky and unseaworthy, and, in many cases, most of the ships in the plate fleets were old and nearing the end of their serviceable careers (BAR, DHR, 2005). The greatest of all dangers, however, were unexpected and powerful hurricanes. As a result, Spain suffered three massive fleet destructions along the Florida coastline in 1622, 1715, and 1733.

Because the loss of even one treasure galleon was crippling to Spain's economy, "Spanish-American authorities established permanent salvage teams at the principal Caribbean ports of Cartagena, Panama, Vera Cruz, and Havana" (Viele 2001:5). Salvaging wrecked cargos and repairing floundered treasure galleons was essential in maintaining the financial lifeline of Spain (Ratcliffe 2011:39). Therefore, Spanish authorities established permanent salvage facilities throughout the Caribbean to administer relief to survivors and mount salvage operations to recover submerged cargo (Viele 2001:5). Salvage efforts continued for several years after initial wreckings and the Spanish extensively mapped and documented the progress.

In the mid-20th century treasure hunters relocated most of the 1622, 1715, and 1733 shipwreck sites and, consequently, significantly damaged the sites through aggressive treasure hunting operations. For the purposes of this thesis, treasure hunting refers to the modern search for artifacts to be collected and sold for profit, while the historical recovery of shipwrecked material by Spanish authorities is referred to as salvage. Despite each fleet's well-documented

history, little archaeological research has focused on the salvage camps, the methods used to recover submerged cargo, and the people who conducted the salvaging.

Research Questions

The primary goals of this thesis are twofold: to understand Spanish shipwreck salvage enterprise during the 17th and 18th century and to reconstruct a narrative for the enslaved salvage divers. To accomplish these goals, this thesis investigates a variety of data including a historical and archaeological review of the 1622, 1715, and 1733 plate fleets, an examination of historical salvaging tools and techniques, and a material culture analysis of the 1715 *reals* (salvage camp sites). Due to the onset of a global pandemic, no archaeological excavation will take place on the known Spanish *reals*. Therefore, to study the salvage process, this thesis reviews previously collected material culture and archaeological reports from 1715 camp sites. Thus, to understand these research themes, the chapters address the following ancillary questions:

1. What tools, practices, ship types, etc. did the Spanish utilize during shipwreck salvage?
2. What types of Spanish salvage archaeological sites are known and have been investigated?
3. What is the archaeological characterization of these sites in terms of material culture, form, and organization?
4. Who conducted (directed) the salvage operations, how were the salvage parties organized, and what were their motivations?
5. What specific mode or modes of labor (wage or forced, debt servitude, apprenticeship, etc.) did these actors employ in the salvage operations, and what political and economic circumstances surrounded those modes of labor?

Justification

Until now, no comprehensive archaeological investigation on historical salvage techniques employed by the Spanish during the 17th and 18th century. Similarly, few studies have focused on the people conducting the often-dangerous salvage operations. Spanish salvors were organized and quick to recover the lost cargos. As such, the Spanish government produced detailed reports of the cargo manifests as well as the locations of the shipwreck sites. Additionally, very little documentation exists regarding the individual experiences of the mariners. This thesis attempts to fill in the gaps in both the historical and archaeological narrative regarding the 17th and 18th century Spanish salvage industry.

By attempting to identify the methods, techniques, and culture behind these salvage operations, this thesis will further avenues of site interpretation by creating a list of multipurpose tools used in historical salvage that can be used to identify evidence of Spanish salvage on shipwrecks and *real* sites. Furthermore, the information collected for this thesis is applied to a public outreach product in the form of an ESRI Story Map which can illuminate the contemporary Spanish salvage practices and participants as established by the 1622, 1715, and 1733 shipwreck sites (here after referred to as the 1622s, 1715s, and 1733s). Additionally, the ESRI Story Map can yield tangible materials for stakeholders to address the cultural heritage of these sites while also promoting the protection and preservation of the archaeological remains.

Theoretical Framework

This thesis utilizes the theoretical concept of maritime cultural landscapes (MCL) to describe the interaction between human processes and the maritime environment both on land and underwater. The term cultural landscape “refers to the general concept that cultural identities and communal histories are anchored to physical landscape features and contained within

cognitive perceptions for any given area" (Duncan 2006:7). The maritime element ties cultural identities and perspectives to the water through "human utilization or economy of maritime space by boat: settlement fishing, hunting, shipping, and its attendant subcultures, such as pilotage, lighthouse and seamark maintenance" (Westerdahl 1992:5). Therefore, to understand the spatial element of the salvage industry within the Caribbean, an MCL approach can illuminate the colonial maritime culture of the time and its relationship within the overarching global economy.

To compensate for historical accounts written through a colonial European perspective, this thesis incorporates techniques drawn from critical race theory (CRT) to understand the experiences of individual enslaved salvage divers who left few traces in the historical record. Specifically, this thesis draws from various archaeologies of identity and race and ethnicity studies that look to how "social identities are constructed, how those identities might be explored in the archaeological record, and how identity formation itself is always 'socially constituted'" (Johnson 2010:137). Particularly in historical archaeology, sensitivity to racism and resistance offers researchers interpretive tools to help construct African American identity through an archaeology of resistance, that is a focus on resistance to power through social inequality. Researchers can reveal how "African identities were manipulated and transformed by enslaved peoples in the most oppressive of contexts" (Johnson 2010:139). This approach will also help interpret experiences of indigenous groups living near marooned Spanish wreckage. Implementing a CRT assists in understanding the identity of the enslaved people conducting the often dangerous and sometimes deadly diving operations on these shipwreck sites while also producing a multi-perspective understanding of the past and adding to the studies of African Diaspora.

Methodology

This thesis incorporates several methods of data collection including extensive historic and archival research, a comprehensive review of archaeological reports, and a material culture analysis of associated archaeological materials. Archival and historical research provides additional background information regarding Spanish salvage methods, the survivor and salvage camps, and the individuals conducting the salvage expeditions. The archival research and secondary studies reconstruct the dangers the salvagers had to endure while also touching on the relationships and modes of labor between the Spanish salvagers and the enslaved divers.

A comprehensive review of all archaeological reports regarding Spanish salvage associated with the 1715s and 1733s are compiled to create a database for identifying Spanish salvage methods during the 18th century. Only two 1715 salvage camps, Higgs Site (Site No. 8IR24/8IR26) and the Winter Beach Camp (Site No. IR818) have been archaeologically investigated. There is also one known 1733 survivor camp located on Tavernier Key, Florida, however, no extensive archaeological work has been conducted at this site (BAR, DHR 2004). No archaeological investigation has been conducted to locate and excavate any 1622 campsites.

The shipwreck sites associated with the 1715 and 1733 fleets are situated in shallow, warm, and relatively clear water year-round, therefore, humans have continually impacted the wreck sites for several decades. Since these sites were relocated and initially salvaged by treasure hunters who did not keep organized and detailed reports, much information has been lost. Despite this, there are archaeological reports and a few treasure hunting adventure novels, that can provide additional information to address the above research questions. Most of the artifacts and material recovered from the wreck sites reside in personal and private collections and are therefore excluded from the material culture analysis.

Florida requires treasure hunters to acquire Exploration and Salvage permits to work under the supervision of state officials and a qualified archaeologist (Price 2015:4; BAR, DHR 1994). In the case of the 1733s, and in fulfillment of Florida salvage contracts during the 1970s and 1980s, the state kept a percentage of the artifacts found by treasure hunters (Wilder 2000:96). The state owned 1715 and 1733 artifact collections, though only a fragment of the total cultural material found with the wreck sites, may be the only accessible cultural material to examine. Aid from the Florida's Bureau of Archaeological Research, Division of Historical Resources (BAR, DHR) was necessary in identifying supplemental archival resources. To supplement the nature of ownership and the lack of archaeological provenience for the artifacts associated with the 1715 shipwreck sites, a cultural analysis of the artifacts excavated from the 1715 *real* sites is used to determine what life was like between the Spanish salvagers and the enslaved divers living together in the *reals*.

This thesis shares its results using ESRI's online GIS application known as Story Map in order to explain and preserve knowledge about 18th century Spanish salvage industry off the coast of Florida. The ESRI Story Map platform provides a unique opportunity for archaeologists to publish findings on a free online publication with universal access (Tan 2020:84). This online platform can also be used to aid the long-term archaeological management strategy of the 1715s and 1733s. Much like the 1733 Spanish Plate Fleet Heritage Trail, the ESRI Story Map created for this thesis promotes preservation and protection of the individual histories associated with the fleets and their historical salvage backgrounds. Overall, through accessible education, communities that are knowledgeable of the real histories of the wreck sites, will be less likely to collect artifacts and instead be more inclined to protect and conserve them for future generations (McKinnon 2006:94).

Research Limitations

Various limitations hindered the research of this thesis. Four key limitations affected the research of Spanish salvage and the Plate Fleets. These include: limitations related to accessibility due to the coronavirus, SARS-Co-2 (COVID-19), lack of historical and archaeological data, inaccuracies in data collection and data loss due to modern salvage, and predominantly Western perspectives in historical accounts. Other limitations include language and translation barriers.

Nevertheless, the first limitation is the onset of COVID-19 which has produced a worldwide pandemic causing many repositories to close or restrict access to materials. Incorporating analysis of any material artifact collections, or physical archive collections were dependent on receiving permission during COVID-19. Additionally, many of the primary resources pertaining to the Spanish salvage records and correspondences exist in museum archives in the Seville National Archives Spain and Cuba, thus these documents were excluded from this thesis. Additionally, several records were written in Spanish, which lends itself to the author's limited Spanish reading skills (Tan 2020:11). As a result, this thesis relied on previously translated materials.

The second limitation of this thesis is the amount of assessable historical and archaeological resources. Despite the healthy number of historical accounts documenting the salvage efforts of the 1733s, there is little documentation on the individual people participating in the salvaging process and specific salvaging techniques. Therefore, much of the research is gathered from secondary sources that summarize and refer to known primary sources. While the 1733s have a hearty amount of archaeological data, unfortunately, there has been little

archaeological investigation into the 1622 and 1715 wreck sites due to extensive treasure hunting activities and lack of state and federal laws implemented at the time of re-discovery.

The third limitation rests in the quality of data represented in the archaeological archives and the training of those who gathered it. The way archaeology is conducted has evolved since these sites were originally studied in the 1940s and 1970s. This author's responsibility is to cross-reference and verify data to ensure that the level of archaeological integrity is appropriate for today's standards. Furthermore, this thesis consults specialists in maritime cultural management and historical materials to guarantee data is peer-reviewed before being presented to the public.

Private treasure hunting companies, weekend sport divers, metal detection enthusiasts, and treasure hunters extensively salvaged the Plate Fleet site. As such, researchers know little about the materials that once belonged to the sites. This limits the amount of material culture analysis of the associated artifacts. The artifact collections owned by the State of Florida may provide insight into the Spanish maritime culture and the materials they either chose to leave behind or could not access when salvaging. In addition, many of the materials in the State's collection do not include data pertaining to artifact provenience, meaning it is impossible to determine exactly where the items were located or even precisely when they were recovered. Consequently, this influence can skew and potentially diminish the amount of data sourced from the artifacts.

The fourth limitation is the colonial perspectives of historical accounts. Because the Spanish documented the salvage process, the records and accounts associated with the Plate Fleet wreck sites stem from Western perspectives. Finding the stories of the specific people conducting the savaging (i.e., enslaved Africans and Native Americans) may be challenging. Additionally, much of the archaeological and modern salvage data collected for these sites dates

to the 1940s to the late 1980s which inherently carries the bias of white, male, and masculine conclusions. Therefore, CRT will be vital in examining the "hidden stories" imbedded in primary and secondary historical documentation as well as interpreting the material culture previously collected from the Plate Fleet artifact assembles.

Thesis Structure

This thesis is structured into seven chapters. Chapter 1 is an introduction which outlines the background information, research questions, theories, methodologies, and limitations of the thesis. Chapter 2 provides a historical background of the Spanish trade and salvage in the 18th century and reviews the history of wrecking, salvage, and archaeology of each Plate Fleet. Chapter 3 focuses on the theoretical frameworks of the project and legislation of Plate Fleet sites. Chapter 4 delves into the methodologies used to answer the research questions. Chapter 5 provides an analysis of the data collected for this thesis and shares the information about the database and Story Map while analyzing the results. Chapter 6 consists of answers to the research questions as well as concluding remarks.

Chapter 2. Historical Narrative

Introduction

The Spanish Plate Fleets of 1622, 1715, and 1733 evoke romantic tales of historical international trade, colonialism, piracy, and devastating tragedy, while also providing insight into the economy and maritime culture of the Spanish Empire (BAR, DHR 2020). As Spain continued to plunder the New World for valuable and vital resources to finance the Spanish Crown, a transatlantic convoy system was established to protect the heavily laden galleons from pirates and privateers. As *flotas* (fleets) departed Havana, Cuba, for their voyage back to Spain, unexpected tropical storms and hurricanes struck the fleets, forcing vessels onto the shallow Florida reefs. To cope with the increasing amount of mass wrecking disasters, Spain developed a formalized salvage industry consisting of *balandras* (small sloops), wrecking equipment, and, most importantly, skilled divers. These enslaved African and sometimes Guayquerí, Taíno, and Ais (also spelled Ays) Indigenous divers would submerge to depths up to 40 feet for several minutes, totaling to a several hour work day recovering wrecked cargo. The salvagers lived and operated out of *reals* (salvage camps), often originally camps established by the remaining survivors of each fleet. While the Spanish government left a plethora of maps and documents detailing everything from daily life in the *reals* to cargo manifests and extensive salvage recovery inventories, very little is known about the enslaved divers and the relationship between them and their Spanish employers.

Establishment of the Transatlantic Convoy System

After obtaining all land 370 leagues west of the Cape of Verde Islands in the Treaty of Tordesillas between Spain and Portugal, Spain established permanent settlements in the New World and exploited the vast natural resources and peoples of the Americas (Keith 1988:45;

Smith 1988:85). By the mid-16th century, pirates incessantly plundered the valuable raw materials onboard Spanish vessels voyaging to and from the frontier colonies. Because the Spaniards neglected to fortify and establish settlements along with the Bahamas, which flanked the eastern edge of the trade route, the island chains offered the perfect cover for lurking pirates and privateers (Peterson 1972:256). To counter this threat, the Spanish government began organizing a convoy system complete with armed escorts to protect trade routes to the West Indies (BAR, DHR 2005). It took nearly thirty years, however, for the *Casa de Contratación* (House of Trade), Spain's royal administrative body located in Seville that governed all commerce and trade throughout the empire, to formally organize and implement the convoy system across the Atlantic (Pérez-Mallaína 1998:9).

The *Casa de Contratación* also functioned as the customs and clearinghouse for all incoming ships and outward-bound colonial trade (Haring 1918:32-34). All cargos and passengers crossing the Atlantic between Spain and the colonies needed to register with the ministry. The *Casa's* officers kept in close correspondence with royal authorities in the colonies, noting the European supplies and resources needed for the New World settlements. The officers of the *Casa* also determined which products were appropriate for seasonal shipping and approved which oceangoing vessels were suitable for transporting supplies (Haring 1918:22). As such, the *Casa* kept detailed records of all transactions, serving as both an inventory for merchants while also facilitating the collection of customs and the *averiá*, a protection tax (Haring 1918:22).

Akin to an insurance policy, the *averiá* defrayed "the cost of sending armed escort vessels with each convoy" (Skowronek 1984:6). Essentially, the *averiá* was a protection tax for maintaining the convoys with armed escorts to defend the merchant fleets on their voyages. This

tax, however, slowly increased from 2% in the 16th century to 12% by the 17th century, indicating the increasing difficulty and uncertainty of protecting the convoys (BAR, DHR 2005). The rise in taxes also led to extensive smuggling between the colonies and Spain (Haring 1918:62; Skowronek 1984:7). Despite the rigorous penalties of smuggling contraband, illicit trade continued to grow throughout the 17th and into the 18th century (Haring 1918:62). In an attempt to discourage the amount of smuggling by crewmembers and merchants, the *Casa* required Spanish officials to maintain several copies of cargo manifests to account for missing cargo and lost ships (Peterson 1975:93). Smuggling, however, "was practiced on such a scale that it must have had the connivance of many of the officials concerned" (Peterson 1975:93).

Each *flota* departing Spain for the Americas comprised several different types of vessels that served particular purposes within the convoy. There were at least two armed escorts, a *capitana* or flagship which would sail at the front of the convoy, while the rear of the convoy was defended by an *almiranta* or vice-flagship (Smith 1996:85; BAR, DHR 2005). Additional armed *vessels* with soldiers often protected larger fleets and generally accompanied the fleets for the "first leg of the outward-bound journey to defend against by French or North African corsairs" (Smith 1996:86). Individual merchant vessels, usually sloops, and merchants whose cargos were carried in the fleet would pay the *averiá* tax on their products to the Spanish Crown for the extra escorted protection (BAR, DHR 2005).

Thus, the transatlantic and transpacific trade throughout the Spanish Main was interlocked within a complex system of trade regulations and practices. The *Casa de Contratación* established several ordinances during the 16th century, regulating the number of vessels required for a convoy and even when they were permitted sail—twice a year in March

and September (Peterson 1975:62). The *Casa* also enforced various other forms of legislation to establish a trade monopoly that would keep Spain's New World colonies dependent on the homeland. One such rule even forbade all of Spain's colonies from trading with foreigners, though royal officials and the populace regularly ignored these restrictions (Harman 1969:5; Skowronek 1984:7).

As such, the Spanish-American frontier colonies relied heavily on the transatlantic convoys to deliver European goods in high demand. Each year, two separate fleets left Spain laden with European products to resupply the colonies (FIGURE 2.1). After sailing down the coast of Africa and restocking provisions at the Canary Islands, the fleets sailed across the Atlantic (BAR, DHR 2005). Spanish slavers also used this shipping lane to transport Africans from the western coastline of Liberia (Dawson 2018:58). Once the fleets reached the Caribbean, they separated. One fleet, the New Spain fleet, or *Nuevo España Flota*, sailed to the island of San Juan de Ulúa just off the coast of Veracruz, Mexico, to take on trade goods from Mexico City and Chinese porcelain shipped across the Pacific from the Philippines in Manila galleons to Acapulco and brought overland to Veracruz (Smith 1996:86; BAR, DHR 2005). The New Spain *flota* then set course for Havana to rendezvous with the *Tierra Firme* fleet.

After diverging from the New Spain *flota*, the galleons of the *Tierra Firme* would make for *Cartagena de Indias*, on the Caribbean coast of modern-day Colombia, to acquire South American products. From there, the fleets sailed a short distance to the north coast of Panama, to Nombre de Dios, or Portobelo to obtain Peruvian silver and meet with other merchants from the interior of South America. Other vessels from the *Tierra Firme* fleet made for Margarita to acquire oyster pearls (Pérez-Mallaína 1998:9; BAR, DHR 2005). Then after several months of distributing European goods and procuring the Americas products, the *Tierra Firme* fleet would

set course through the Yucatan Channel to rendezvous in Havana, Cuba, to prepare for the journey back to Spain (Smith 1996:86; BAR, DHR 2005).

FIGURE 2.1. Spanish Convoy System. Map created by author using ESRI ArcGIS.

At Havana, the two fleets underwent routine maintenance while preparing for their return voyage to Spain. Frequently, the fleets were delayed for several weeks to months due to inclement weather. Consequently, the docked wooden vessels sat in salty water for long periods, allowing teredo worms to eat away at the hull and barnacles to accumulate. If the fleets departed suddenly, ships carpenters often repaired any damage in route. Departure dates for the fleets frequently varied, however (Haring 1918:205; Skowronek 1984:7). Choosing when convoys should depart Havana was also a difficult and potentially dangerous decision. Sailing during the winter months exposed fleets to bad weather and choppy seas. The summer months were more forgiving in terms of weather, which meant pirates frequently patrolled, ready to seize the

galleons laden with bountiful goods. Summer also meant that the "tropical regions were in the midst of their rainy season which precipitated epidemics that decimated the crews" (Pérez-Mallaína 1998:10). Despite the many counteracting factors of sailing during the summer months, Spanish officials generally scheduled to sail in the spring but boreoarctic, maintenance, or weather delays forced fleets to sail during the summer (Ratcliffe 2011:38). It was overall deemed less dangerous to confront pirates than to expose the fleets to storms.

Nevertheless, heavily laden with New World goods such as "indigo and cochineal dyes, exotic woods, ceramics, leather goods, chocolate, vanilla, sassafras, tobacco…Native American products" and untold quantities of contraband, the fleets departed Havana (BAR, DHR 2005). Apart from the passengers' personal baggage, all homeward bound Spanish vessels bore the raw and finished materials of colonial origin. The average working-class Spaniard generally could not afford many of the New World luxury products. Ultimately, the destination of these goods were the homes and industries of the wealthy of Spain and Europe (Skowronek 1984:12). Gold and silver coins and bars, however, were the property of the king and were transported aboard the heavily armed escort galleons (BAR, DHR 2005; Haring 1918:207).

For the most part, the convoy system functioned effectively and generally fought off pirates with success. With no way to forecast storms or predict their trajectories, the fleets were at the mercy of the winds and waves (BAR, DHR 2005; Pérez-Mallaína 1998:10). Consequently, the overloaded, top-heavy, old, and overused vessels within the *flotas* frequently met their demise along the eastern coastline of North America, particularly along Florida's shallow barrier reef system (FIGURE 2.2).

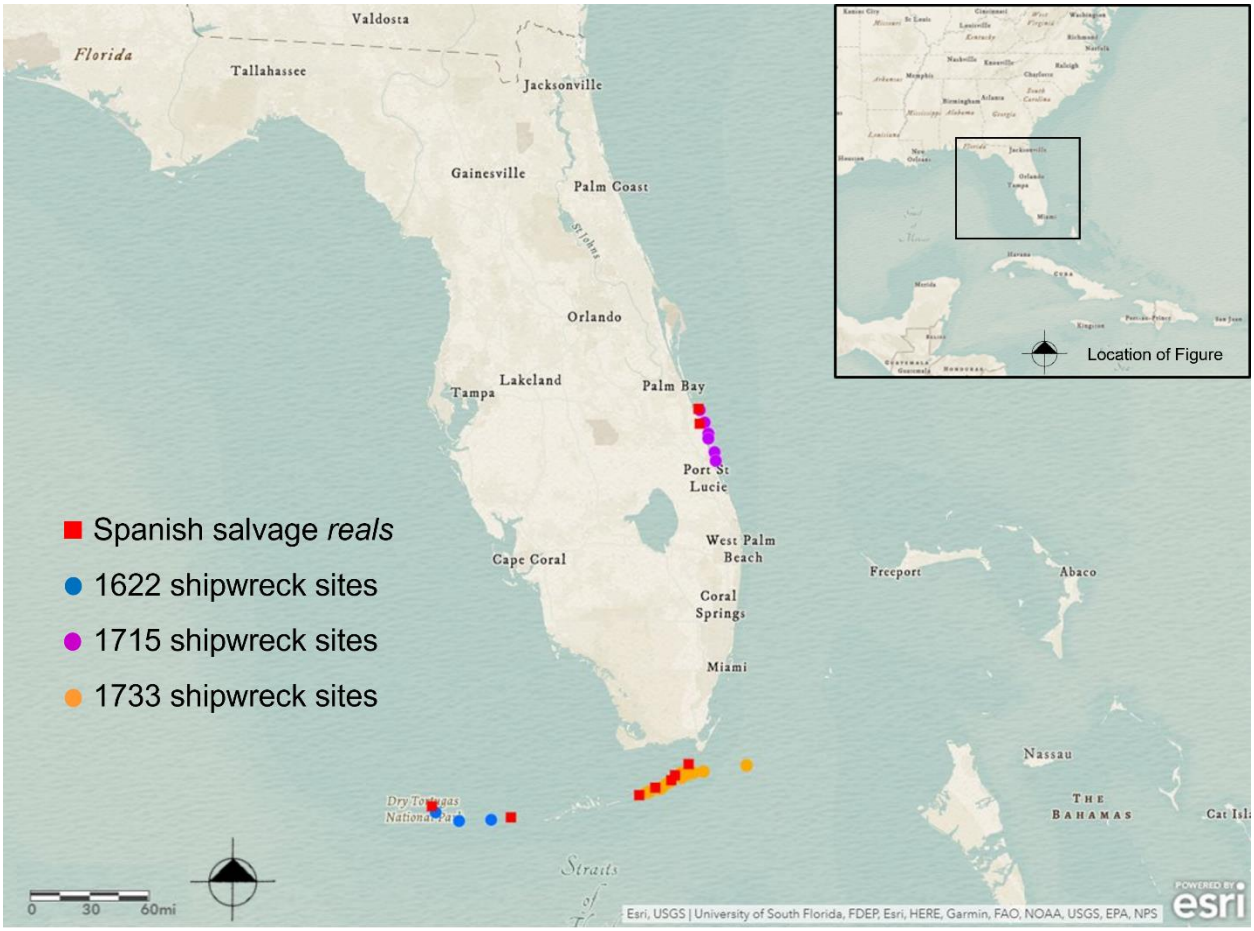

FIGURE 2.2. Plate Fleet shipwreck site locations and *reals*. Map created by author using ESRI ArcGIS.

Establishment of the Spanish Salvage Industry

By the mid-18th century, the Spanish convoy system had been established for nearly 200 years. All the while, countess fleets, and vessels were lost due to sudden and inclement weather. Salvaging wrecked cargos and repairing floundered ships were essential in maintaining the financial lifeline of Spain (Ratcliffe 2011:39). To compensate for the nearly seasonal mass wreckings of the *Carrera de Indias* "formulas were devised to solve the problem of rescuing sunken ships, both of their structural parts and of their cargoes" (Torres López 2016:2). Through the *Casa de la Contratación*, the Crown promoted all inventions or techniques that served to expand the safety of navigation which in return, also promoted the advancement of shipbuilding

methods and navigation sciences (Torres López 2016:2). It was already customary for larger vessels to have a diver, "who was simply a good swimmer accustomed to going underwater to repair damage to the 'live work' of the hill below the waterline" (Pérez-Mallaína 1998:72). Though these individuals would be the first to recover sunken cargos during a wrecking, they were not professional salvage divers; they were a part of the repair team along with the carpenter and caulker of the vessel (Pérez-Mallaína 1998:80). As such, the Crown usually financed or contracted the skills of private individuals to recover valuable sunken cargos, and soon contractors invented authentic equipment for underwater recovery using various kinds of devices (Torres López 2016:2; Ratcliffe 2011:35).

It is important to note that while the accomplishments and failures of salvage operations generated various forms of print, and historians can trace the paper trail from the archives of trading companies and courthouses, competing smaller operations did not document their salvaging endeavors for posterity. These opportunistic salvagers operated in the shadow of their legally sanctioned competitors (Ratcliffe 2011:35). Fortunately, depending on the fleet, some of the official Spanish salvagers provided intimate details pertaining to life in the salvage camps, records of manifests, deaths, and recovered cargo. Not all known and/or available records of the Plate Fleet incidents documented the salvaging process, however. For instance, in the case of the 1715 fleet, this researcher could not find any known documents that detail salvaging specifically. Such records may be archived in Seville or Cuba. In the case of the 1622s and 1733s, however, there was abundant data referring to historic salvaging.

Arguably the most significant document depicting early 17th century Spanish diving and recovery techniques is the Secretary of the Council of the Indies for Felipe III and later for Felipe IV, Pedro de Ledesma's (1623) *Description of Seven Salvage Techniques*. The manuscript is

beautifully illustrated with sepia ink with blue wash drawings of oyster and pearl harvesting and instructions for locating shipwreck sites and salvaging submerged materials (Dobcovsky 2018:54; Torres López 2016:3). While some of the techniques and equipment illustrated are quite fanciful, such as a leather dive suit, Ledesma published the manuscript a year after the 1622 Plate Fleet suggesting that the techniques described may have been employed in the search and recovery of the 1622 galleons (Torres López 2016:4). In a footnote within the manuscript, Ledesma reveals that he invented and employed the use of these techniques to locate "two galleons with silver, *La Margarita* and Don Pedro's galleon *Pasquer*, I found the one in 3 arms" (Torres López 2016:5; Ledesma 1623).

Carmen Torres López (2016), a curator of Cátedra de Historia Naval at the Universidad of Murcia, summarizes and provides historical context for Ledesma's manuscript in her article "Difundiendo el Patrimonio *Documental* de la Armada" or "Spreading the *Documentary* Heritage of the Navy." She states that the manuscript is separated into two parts. The first part, titled "Modes and Ways to Fish for Oysters Anywhere with Great Ease" examines the pearl fisheries and details how to fish for oysters (Torres López 2016:4). This section consists of five sheets of labeled drawings that describe the necessary steps for fishing at depth. The second part details the various employments of divers and search and recovery equipment used for lifting and salvaging shipwreck remains from the bottom of the ocean anywhere from 16 to 100 fathoms, or 30 to 200 meters deep (Torres López 2016:4). Part two also demonstrates how divers descend to depth by holding onto a heavy weight while maintaining a surface air supply through a hallow iron and leather breathing tubes. The majority of the manuscript, however, focuses chiefly on techniques for locating sunken vessels rather than specifically salvaging them (Dubcovsky

2018:54). Most of the illustrations depict cables, chains and hooks, nets, buoys and even cranks meant to find and lift shipwrecks to the surface.

Plate Fleet Shipwrecks, Salvage, and Archaeology

Historic Salvage of the 1622s

In early September 1622, a *flota* consisting of twenty-eight vessels departed Havana, Cuba for its return voyage to Spain. Members of the *flota* were laden with "gold and silver bullion, specie, tobacco, copper ore, indigo, cochineal, and rosewood" (Mathewson 1977:15). On September 6th, a hurricane struck the *flota,* wrecking six of the vessels "including three treasure-carrying galleons, onto the reef or into shallow water along the Keys" (Viele 2001:5). Ten days after the storm, a group of survivors reached Havana bringing news of the wrecked fleet. The governor of Havana dispatched a five-vessel salvage expedition appointing Gaspar de Vargas to manage the salvage operations (Viele 2001:5; Ratcliffe 2011:39). Unfortunately, there is no mention of the types or outfits of the vessels deployed to search and salvage the wrecked ships.

Vargas soon located the hull of *Nuestra Señora de Atocha* which was submerged in 55 feet of water with its "mizzen mast projecting out of the water" (Mathewson 1977:17). Vargas ordered divers to investigate the wreckage, but they could not access the treasure storerooms because "the hatches and ports were all battened down" (Mathewson 1977:17). Vargas realized that he would need more equipment and explosives before he could begin extensively salvaging the wreckage. Explosives enabled divers to access the deep recesses of a submerged hull. Regardless, Vargas was able to recover two bronze cannon and buoyed the wreckage with a spare yardarm marking the wreck's location and continued his search for the other vessels and survivors (Viele 2001:6; Ratcliffe 2011:39; Marques de Cadereita 1623; Mathewson 1977:17).

After buoying *Atocha*, Vargas directed his attention west to search for *Santa Margarita* but was unable to relocate the vessel. Continuing on, he soon found survivors, half-dead, clinging to the wreckage of *Nuestra Señora Rosario* (Viele 2001:6). Despite the horrible conditions of the starved crew, Vargas ordered them to begin salvaging the wreck since a good portion of the vessel was still above the waterline. To not only hide the vessel from sight, but also ease diver access to the cargo hold, Vargas instructed the wreck to be burned to the waterline. The divers recovered "all of her [sic] cargo of silver, worth half a million pesos, as well as some copper and the guns" (Viele 2001:6).

As Vargas and his salvage team continued to salvage, another storm struck the Keys, raising the sea and swamping the small island where the crew sought refuge (Viele 2001:6). When the storm passed, Vargas returned to Havana with the survivors and the first batch of cargo recovered from *Rosario*. After acquiring more supplies and salvage gear, (again there are no details about the specific tools and gear) he returned to salvage *Atocha*. Unfortunately, the second storm had torn the hull of the *Atocha* apart and scattered the wreck over a wide area obscuring the location (Viele 2001:6; Ratcliffe 2011:40; Marques de Cadereita 1623). The buoy marker was missing and there was still no evidence of *Margarita's* location. Vargas returned to Havana after his failed salvage expedition to wait the winter out (Viele 2001:6).

The following year, Vargas set out once more to relocate *Atocha* and *Margarita*. With still no sign of the vessels on the surface, the salvage team set camp "on the south westernmost key of the Marquesas group and began a search for the *Atocha*" (Viele 2001:6). To search for the submerged ship,

> Rowers in launches towed grapnels back and forth over the area while pairs of larger vessels towed long lengths of chain or hemp lines weighted with cannon balls and stones suspended between them. Whenever the grapnels, chains, or weighted lines snagged something on the bottom, divers went down to investigate (Viele 2001:7) (FIGURE 2.3).

Dragging the ocean bottom was the surest way to locate a submerged vessel as quickly as possible (Ratcliffe 2011:39). As the Havana divers continued to investigate at depths of fifty to sixty feet of water, many became too ill to continue searching (Viele 2001:7; Marques de Cadereita 1623). Aware that the enslaved Black pearl divers from the island of Margarita off the coast of Venezuela regularly dived to such depths, Vargas commissioned some of the professional divers to aid in the search (Viele 2001:7; Marques de Cadereita 1623).

Within a few months, 20 divers were sent to Vargas's salvage unit (Dawson 2006:1350). After dragging the ocean floor and diving on potential targets throughout the spring and summer with little success, efforts to relocate the wreck of *Atocha* and *Margarita* were abandoned. Before returning to Havana, an engineer on Vargas's team drafted a map that marked the probable locations of the wreck sites for future salve attempts (Viele 2001:7).

Two years later, Francisco Nuñez Melián, an enterprising politician of Havana, received a royal contract to salvage the treasure from the fleet, provided that one-third of the treasure would go to the King. Melián would receive a third of the recovered goods while the remaining third would be used to finance the salvage expedition. Melián commissioned a bronze diving-bell with glass window ports be made (Ratcliffe, 2011: 40). He also employed professional enslaved pearl divers. By promising freedom to the first diver to locate a valuable wreck, Melián coerced divers to work diligently and for long hours (Viele 2001:8; Ratcliffe 2011:40). On June 3, 1626,

enslaved diver, Juan de Casta Bañon, signaled the surface team by tugging on a line that indicated he was leaving the diving bell to investigate something he had seen through the window ports. Moments later Bañon surfaced shouting that he had found *Margarita*. He tied a line to the wreck which was situated in roughly 30 feet of water and returned with a tarnished silver *reale* proving he had found the wreck (Ratcliffe 2001:40; Viele 2001:8-9). Bañon's name was "recorded for posterity, since Melián kept his promise and freed the man, but later charged the cost to the crown in his final expense account" (Ratcliffe 2011:40).

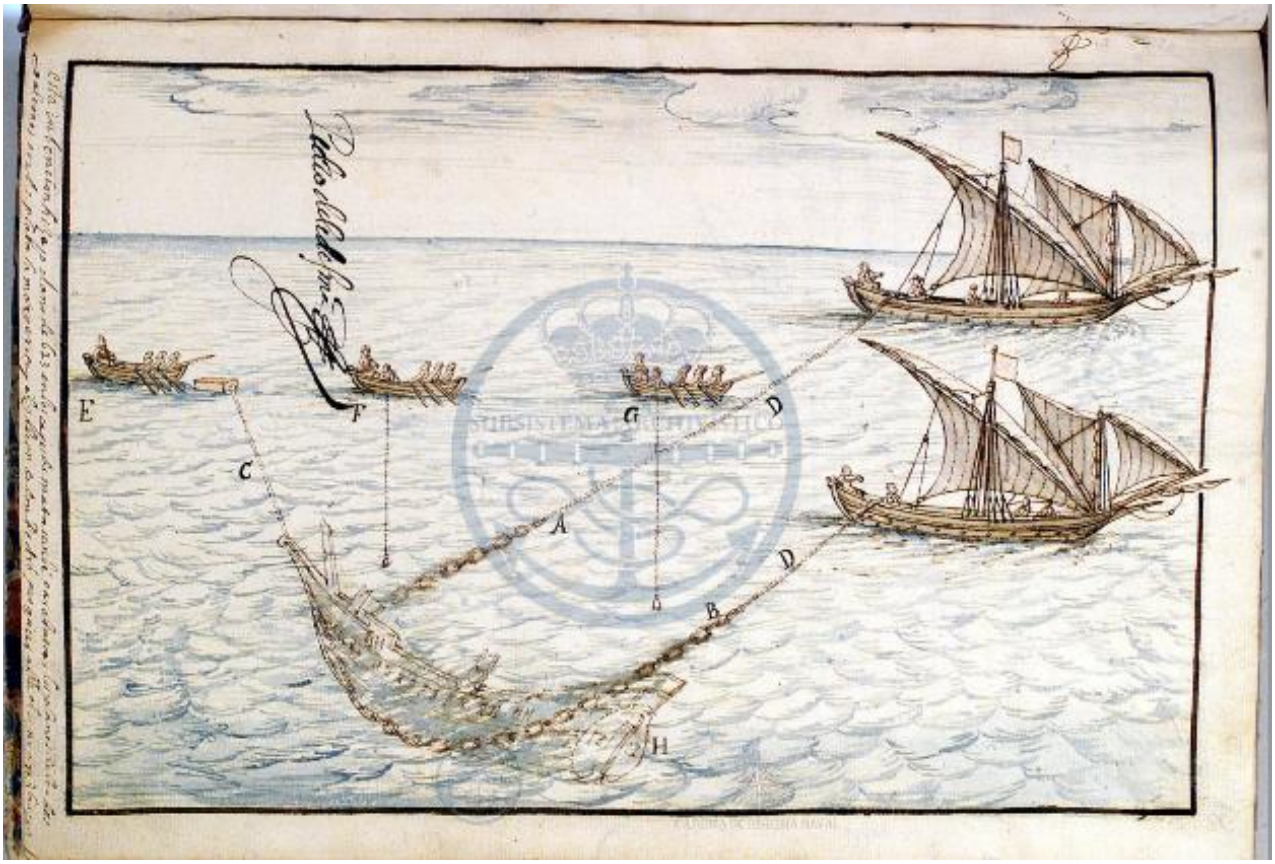

FIGURE 2.3. Depiction of Spanish salvagers dragging ocean bottom (Ledesma 1623).

Archaeological Review of the 1622s

Archaeologist Duncan Mathewson III attempted to conduct archaeological investigations in conjunction with the Treasure Hunting company, Motivation, in the mid-1970s. Mathewson published the results in an archaeological report that sought to develop an archaeological

framework to conduct "problem-oriented research within the agencies of a commercial operation…to describe and explain the wreck site of *Nuestra Señora de Atocha*" (Mathewson 1977:107). Mathewson also detailed the site formation processes acting on the site and created an inventory of artifacts recovered. While the main concern of the treasure hunters was to quickly recover valuable objects from the wreck site, Mathewson states that it is possible to work alongside commercial treasure hunters in solving archaeological problems. The process fails, however, when there is a "lack of administrative control over personnel, budget, and operation schedules" (Mathewson 1977:107). Additionally, when the collection of data phase of archaeology is complete and the process of analyzing and answering research questions, "the company soon loses its interest in supporting such research…[and] archaeological research of acceptable standards" decreases (Mathewson 1977:108). Regardless, Mathewson continued to support the idea that treasure hunter companies could successfully operate under the archaeological process.

Unfortunately, there have been no archeological investigations into the survivor and salvage camps associated with this fleet. According to Matthew Lawrence (pers. comm.), a maritime archaeologist for the Florida Keys National Marine Sanctuary (FKNMS), people have been collecting Spanish artifacts along Marquesas Keys, specifically near Mooney Harbor for years. The Marquesas Keys would have been an ideal location for the 1622 shipwrecked sailors to begin salvaging their nearby vessels (FIGURE 2.4). Lawrence (pers. comm.) mentioned that this area has the potential to be the most extensive Spanish real due to its location and constant activity throughout the historic era.

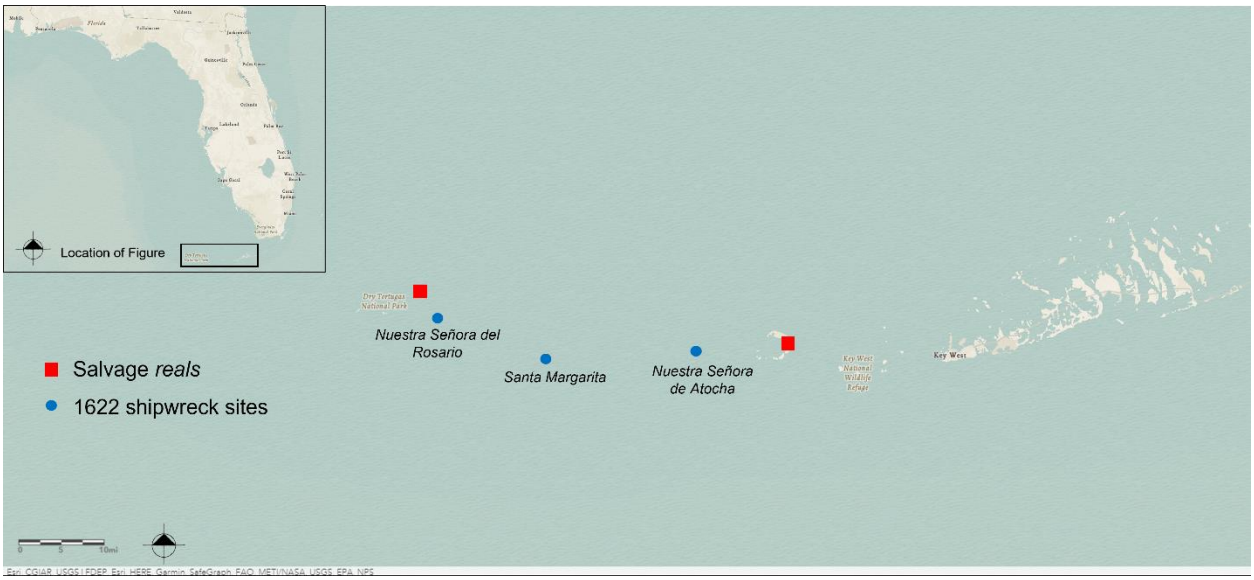

FIGURE 2.4. Map of 1622 shipwreck sites and probable *real* locations. Note that the 1622 shipwreck locations are not available due to treasure hunter permit holders. Map created by author using ArcGIS.

Historic Salvage of the 1715s

According to the Spanish Archive of the Indies, the 1715 plate fleet disaster was one of the worst losses of shipping in the history of Spain's maritime empire (Smith 1996:95). Eager to recuperate from the wars in Europe, King Philip V of Spain was in dire need of financial relief and during preliminary truce agreements, he requested a large *flota* bring back gold and silver from the Americas, which had been accumulating during the wars (de Bry 2018:1-2; Dubcovsky 2018:45-46). The *flota* was the first to depart the New World since the end of the War of Spanish Succession 13 years earlier (Dubcovsky 2018:41). The fleet suffered many delays and had been sitting idle for nearly two years. Although hurricane season was well underway, General Don Juan Esteban de Ubilla, the commander of the fleet, was pressured by Spanish authorities and ordered the fleet to sail for Spain (de Bry 2018:3).

In the early morning on the 24th of July 1715, eleven Spanish vessels departed Havana laden with raw and refined goods, fresh water, and a great number of chests filled with silver and gold coins, gold bars, and jewelry for the Spanish crown (de Bry 2018:2-3). Unbeknownst to the

sailors and crew, however, a hurricane was forming off the southeastern coast of Cuba. The first five days the voyage was relatively uneventful, however, by the 29th, large swells appeared from the southeast. The fleet continued their course and soon the storm reached alarming intensity with winds reaching 100 miles per hour (Millás 1968:172). At about 2 a.m. on the 31st, the hurricane was at its peak and the winds relentlessly drove the fleet closer to shore (Link 1996:24; de Bry 2018:4). General Ubilla ordered all ships to head into the wind and stay clear of the shallow reef and shoals, but the attempt was only marginally successful. By 4 a.m., the hurricane overtook the fleet, driving the vessels into jagged reefs and shallow sandy bottoms (FIGURE 2.5). The entire fleet apart from one vessel was lost and well over a thousand people died in the storm, including General Ubilla (Link 1996:24; de Bry 2018:4). The only vessel to survive the storm was the French warship *Griffon*, captained by Antoine d'Aire who ordered his crew to head towards the storm; he was unaware that all the Spanish ships had perished till the ship arrived in Brittany a month later (Link 1996:24; de Bry 2018:4). By midday all eleven vessels were scattered along 50 miles of the Florida coastline between St. Lucie and Cape Canaveral (Link 1996:24; Dubcovsky 2018:45-46).

The survivors made their way to the beach where bodies and debris began washing ashore. The ordeal was far from over as the marooned survivors fought off "disease-carrying mosquitos, rattle snakes, wild animals, and hostile Indians (sic), without food, fresh water…or medical supplies" (de Bry 2018:4). With General Ubilla dead, Admiral Don Francisco Salmón took command and immediately surveyed the extent of the damage. After deducing that all ships had been wrecked, he ordered the late Ubilla's pilot, Nicolas de India, and a small boat to sail back to Cuba for aid (de Bry 2018:5). Though it is not stated what type of boat was dispatched, it was most likely a *patache*, a small vessel generally used for reconnaissance and communication

within convoys (Smith 1993:45). Eleven days later, the small boat reached Havana. Spanish authorities deployed several ships loaded with emergency supplies, salvage equipment, government officials and soldiers (de Bry 2018:5). Teams of Indigenous divers from the pearl diving headquarters on Margarita Island, as well as enslaved Africans were also dispatched and within a few days the salvage crews made their way to the east coast of Florida (Weller 1987:21).

FIGURE 2.5. Map of 1715 shipwreck sites and *real* locations. Map created by author using ArcGIS.

Salmón also wrote two letters addressed to Francisco de Córcoles y Martínez, the governor of Florida stationed at St. Augustine, communicating the fate of the *flota* and the conditions of the survivors. The second letter, suspected to be a secret communiqué, "was empathetic about the amount of treasure that had been lost and the immediate need to begin salvaging it—rather than asking for food or rescue, Salmón demanded pistols, axes, rakes, and shovels" (Salmón 1715).

While the survivors awaited rescue, Salmón organized two major salvage camps, one opposite the wreckage of the *Almiranta Santo Cristo de San Roman* (Site No. IR19, also known as Corrigan's Wreck), and the other opposite the *Capitana Nuestra Señora de la Regla,* (Site No. IR14, also known as The Cabin Wreck) roughly two miles south of today's Sebastian Inlet (Weller 1987:11) they established a makeshift salvage camp to recover as much cargo as possible. According to Bob Weller (1987), a treasure hunter and amateur historian who worked closely with the commercial salvaging of the 1715s in the 1980s, details the configuration and life in the *reals* based on Spanish accounts:

> The *Regla* campsite stretched nearly 3000 feet along the sand dunes and mangroves between the ocean and the river. A fresh water well was located near the narrowest part of the island a few hundred yards north of the shipwreck. The campsite was broken up into a number of clearings with room for 50-60 survivors in each clearing, but many of the women and children spent much of their time buried up to their necks in sand to keep from being bitten by the swarms of mosquitoes (Weller 1987:11).

Recovery efforts began after the relief expedition reached the survivors camps and the surviving passengers were sent back to Havana. Soon scores of *balandras* and small boats were fishing and probing the ocean bottom searching for sections of submerged hull using "long pile poles and sounding leads" (Weller 1987:21). *Balandras,* also dragged the ocean floor for wreckage and the Havana salvage flotilla was later joined by Florida ships sent from St. Augustine to help in the recovery effort (de Bry 2018:5). Because the storm had pummeled the vessels onto the reef, ripping apart the wooden hulls, most of the cargo was scattered across the

shallow reef, the Spanish were able to recover a large quantity goods between 1715-1719 (Weller 1987:21).

The Spanish continued to operate out of *reals* until 1717, all the while working against changing tides, storms, pirates, drownings, sharks, and with little protection from the elements (Armstrong 2001:1). Of the eleven vessels that wrecked, "six were definitely located and salvaged by the Spanish" (Armstrong 2001:ii). Eventually, rough currents pushed the exposed vessels further from the coastline and into deeper waters. Efforts to recover the remainder of the cargo were abandoned. One of the leading salvagers, Clemente, "reported that as much treasure as could be found had been returned to Havana" (Weller 1987:21).

According to Weller (1987:61), the "Spanish did not dedicate the same amount of attention and time salvaging for all the vessels." In fact, the archival material suggests that "most of the entire Spanish effort was directed towards the two main vessels *Regla* and *San Roman*" (Weller 1987:61). These vessels were carrying most of the specie and precious metals meant for the Spanish Crown was on these vessels. The smaller vessels and vessels that had completely shattered and scattered along the Florida reef such as *Nieves* (Site No. 8IR046, also known as the Anchor Wreck or Colored Beach Wreck) were quickly salvaged and then abandoned (Weller 1987:61). It should also be noted that the identities of the 1715s are tentative at best and not definitive due to the lack of professional archaeological work conducted on these sites. Regardless, according to Weller (1987:61), the Spanish assumed that since the ship was smaller, lightly armed and was not designated to carry large quantities of specie and precious metals, they could focus their efforts on salvaging as much as possible on the larger ships instead. However, from what modern treasure hunters have recovered, it is reasonable to conclude that the *Nieves* was smuggling a significant amount of unregistered contraband.

By August of 1716, salvage divers had recovered enough specie and precious metals to fill two large vessels which safely sailed to Spain untouched (Dobcovsky 2018:67). Organized Spanish salvage continued three years. As the main salvage operations ended and most of the Spanish salvagers evacuated from the area, however, the absence of armed guard left a void for "many pirates ships and private divers visited the shipwreck site" (Dobcovsky 2018:67). For next several years, English, French, and possibly even Spanish salvagers regularly attempted to search the area and salvage any valuables left behind (Burgess and Clausen 1976:67-74).

Archaeological Review for the 1715s

Despite the amount of historical and archival research dedicated to the 1715 fleet revealing much about the wrecking, survival, and salvage of the incident, there have not been many archaeological permitted investigations for any of the 1715 shipwreck sites due to current treasure hunting site permits. Because the Spanish kept incredibly detailed records depicting recovery efforts, piracy attempts, and even the mundane daily details of salvage life in the Keys, archaeological investigations into the *reals* were producing physical evidence that supported the rich historical archive (Armstrong 2001:3-4).

Out of the probable eleven 1715 *reals* documented by the Spanish, only two salvage campsites, The Higgs Site (Site No. 8IR24/ 8IR26, originally designated Br 1 and Br 2) and The Winter Beach Camp (Site No. 8IR818), have been excavated. Unfortunately, the remaining 1715 *reals* were entirely obscured and destroyed by modern development or eroded into the sea before any archaeological investigation was attempted (Armstrong 2001:4). Additionally, the excavated artifacts associated The Higgs Site are stored in an off-limits area of the BAR Conservation Lab and were unavailable for examination for this study. The Conservation Lab does not conserve

any of the artifacts for the Winter Beach Camp. Therefore, this thesis utilizes the archaeological reports of these two sites to address and analyze the material culture found on these sites.

After the 1715 Plate Fleet disaster, coins and other small artifacts from the sunken fleet continued to wash ashore for the next three centuries. Now colloquially known as the Treasure Coast of Florida, the local community frequently treasure-hunted the area for generations (Smith 1949:7; Link 1996:28; Baer 2018:2). Unbeknownst to the treasure enthusiasts, they were not only collecting artifacts that washed ashore from the nearby wrecks, but they were also disturbing 1715 salvage *reals*. Amateur historian Charles D. Higgs conducted the first attempted archaeological study in the area from 1940 to 1942. Known as Higgs Site, 8IR24/8IR26, it is located on an offshore escarpment between the Indian River and the Atlantic Ocean, nearly two miles south of Sabastian Inlet, Brevard County, FL (Smith 1949:7) (FIGURE 2.6).

It is important to note that the delineation of the Higgs Site having two site numbers differs amongst the BAR Master Site Files. While Smith's 1949 report assigns Br 1 and Br 2 for the two occupation sites excavated, it was later designated as 8IR24 refer to both sites. Site files from 1969 on refer to the Higgs's Site as 8IR26, and there is confusion as to which site number was the typo. For the purposes of this thesis, Higgs Site is referred to with both site numbers.

The Higgs Site was heavily covered in palmetto, sea grape, yucca, and cabbage palm. Higgs examined Spanish documents relating to the region but directed most of his efforts to sift through the materials left in the treasure hunters' spoil (Smith 1949:7). Additionally, the transitory nature of the site coupled with dune action left Higgs with artifacts and features lacking their original provenience. These factors also led to much confusion relating to the site's occupancy. Nevertheless, Higgs identified that the dominant cultural deposits consisted of various artifacts, from Hispano-Mexican pottery, Chinese and Japanese porcelain, to aboriginal

pottery, Spanish-Moorish pottery, English pipes, glass bottles, and an assortment of small iron objects (Higgs 1942:32-33; Smith 1949:21). Higgs's investigation also located building materials consisting of limestone fragments, red clay bricks, lime plaster, and an area of tabby floor. He concluded that the Spanish must have constructed buildings at the site (Higgs 1942:32).

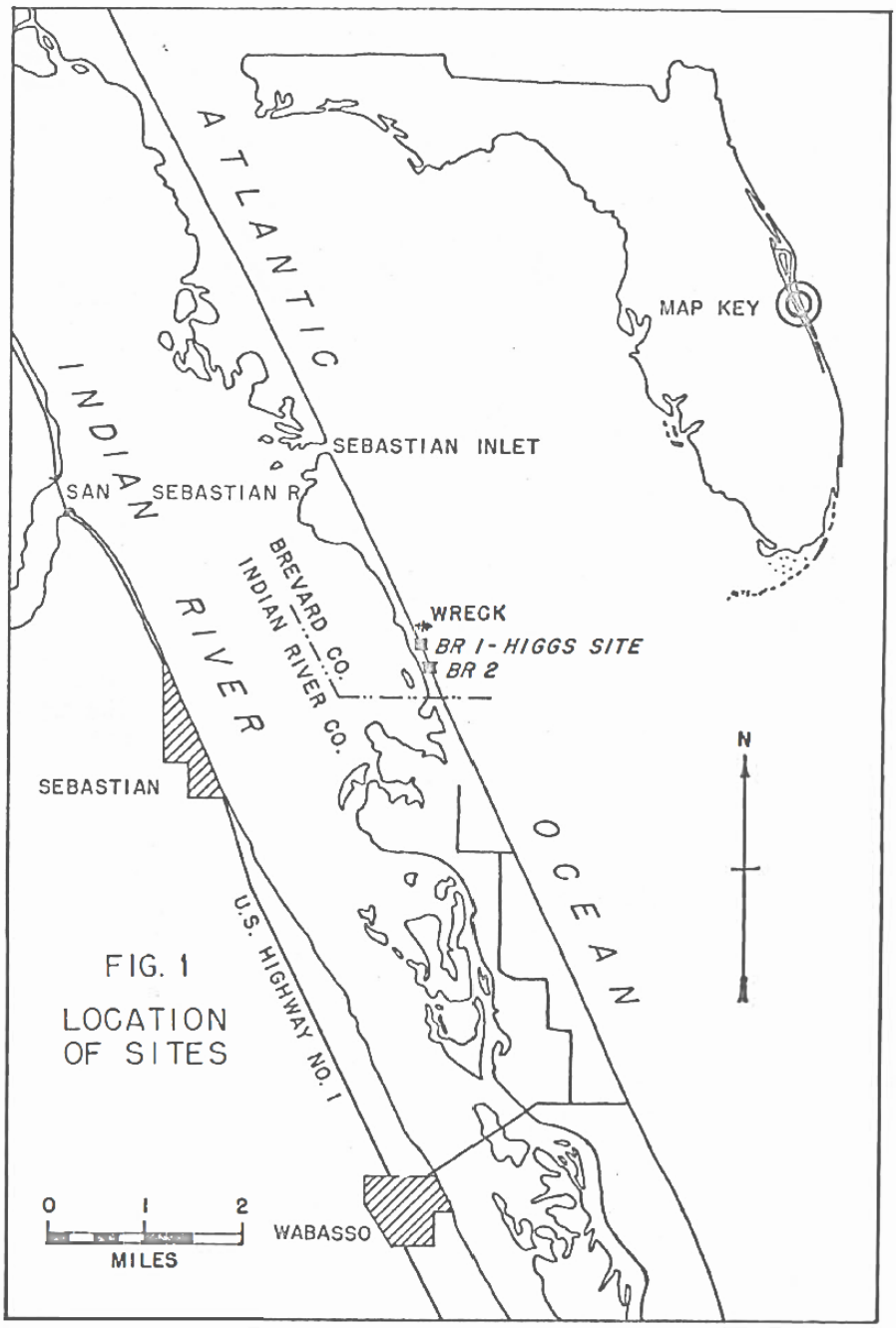

FIGURE 2.6. Location of the Higgs Site (8IR24/8IR26) Note that BR 1 and BR 2 are both apart of the Higgs Site and are now assigned as 8IR24 and 8IR26.

Ultimately, Higgs's findings suggested that the site must be a European settlement with "the aborigines (sic) clustered about it" (Higgs 1942:33). Higgs's previous work on the main village of the Ais Native Americans roughly 20 miles south of 8IR24/8IR26, along with evidence of European construction materials, led him to conclude that the site was the center "of the native (sic) wrecking operations, and hence, the locus for the colonial administration' castigatory outpost" (Higgs 1942:36). Due to the amount of Spanish material culture and building materials, Higgs believed that the site could indicate a Spanish mission or a Spanish colonial residence.

In 1946, archaeologist Hale G. Smith's conducted another archaeological excavation into site 8IR24/8IR26 to confirm Higgs's findings. Smith noted that by the time he conducted his investigations, the area of greatest cultural concentration had already been eroding into either side of the escarpment (Smith 1949:7; Rouse 1951:212). Regardless, Smith confirmed Higgs's observations but drew a different conclusion. His investigations recovered cultural material such as cannon, coins, lead musket balls, glass bottle rims, and a near-intact glass goblet, clay pipes, as well as Spanish cooking ware, Native American and European pottery and figurines, and Mexican ceramics that placed the site sometime between 1675 and 1725 (Smith 1949:10-19). The English clay pipes narrowed the site even further to date between 1700 and 1725 since the manufacture of the pipes is not known to predate 1700 (Rouse 1951:215).

Although the construction materials and tabby floor "give every indication that some form of building or buildings was in existence at the site…no foundations or sections of buildings were found *in situ*" (Smith 1949:20). Instead, Smith proposed that these building material remains are more likely a part of a deck oven taken from one of the nearby shipwreck sites (Smith 1949:20). Additionally, Smith compared the material culture to contemporary

Spanish missions, namely the one in Jefferson County, Florida, which dates from about 1650 to 1704. He noted several differences; "the known mission does not include in its cultural assemblage such items as rum, wine, or gin bottles; cannon; pipes; dice; glass goblets; Mexican aboriginal (sic) ware; quantities of Chinese sherds; or Spanish cooking pot fragments" (Smith 1949:23). The Higgs Site also lacked any religious paraphernalia. Additionally, the various cultural material was found within the only occupational layer of the site, suggesting that the Europeans and Native Americans lived there at the same time (Smith 1949:22). Ultimately, Smith discredited Higgs's interpretation that the site was a Spanish mission or an Ais village active in salvaging wreckage along the coast and more likely a temporary European settlement (Smith 1949:24).

Instead, Smith proposed three possible conclusions regarding the identity of the site. First, the site could be a castigatory outpost that was primarily inhabited by Spanish soldiers to prevent Native Americans from looting wrecked ships; however, “the number of English clay pipes is inconsistent with the cultural picture of a Spanish site” (Smith 1949:24). Second, the site may have been an intermittent hangout for an English or Dutch pirate crew, which were known to have traded with the Ais and used their inlets as bases to raid Spanish shipping. In fact, Smith found a Spanish document mentioning a pirate’s hangout at Palmar of Ays, which was in the vicinity of the Higgs Site (Smith 1949:24). Henry Jennings, a notorious English pirate, working under an expired privateering license issued by Jamaican authorities, was also known to operate in the area (Link 1996:27). Despite the site being predominantly culturally Spanish, it is not unlikely that crews other than Spanish could use the items found at the site (Smith 1949:24). The last and most likely scenario for the site’s identity is that of a Spanish *real*. The cultural material

places the site within the period of the Plate Fleet wreck of 1715, which could have also operated as a pirate hangout after initial Spanish salvage operations (Smith 1949:25).

Smith's investigation also located a second concentration of cultural material. Previously referred to as Br 2, (which is where the confusion of the site numbers may have originated as this second camp may have been assigned 8IR26) became the second location of the Higgs Site. It is located roughly 0.35 miles south of the main site and consists of an extensive kitchen midden. The site comprises several alternating shell-strata that suggest that the site was not continuously occupied (Smith 1949:26). Additionally, the shell and sand strata of the midden are heavily comingled with charcoal which led Smith to conclude that the site was used as a village. Various pottery types, including St. Johns Check Stamped sherds, Glades Plain, and Belle Glade Plains, as well as limestone sharpening stones, limestone pounder, net sinker, and polished pendant-like fragments, were also identified at the site. Based on the presence of the checked-stamped pottery and limestone tools, Smith concluded that this site fell within the Malabar II range, a period roughly between 1200 to 1650 (Smith 1949:29). Thus, the second section of the Higgs Site is not associated with the Spanish salvage efforts.

Overall, due to the transitory aeolian nature of sand formation, wave disturbance, and amateur treasure hunters, most of the material culture associated with the 1715 salvage *real* is scattered and lacking original provenience (Smith 1949:21). Furthermore, the treasure hunting boom of the 1960s and 1970s prevented proper management and protection of the campsites and the associated shipwreck sites. Today, The McLarty Treasure Museum and a historical marker erected by the Treasure Coast Chapter for the National Society of the Daughters of the American Revolution (NSDAR) in cooperation with the Florida Department of State mark the general location of the survivors and salvage camps of the 1715 fleet.

The other investigated 1715 salvage camp, the Winter Beach Site (No. 8IR818), is located further south and is also situated on an offshore bar between the Indian River and the Atlantic Ocean (FIGURE 2.7). Douglas R. Armstrong conducted archaeological investigations into the Winter Beach Camp from 1985 to 1987. Armstrong noted that while the northern Higgs Site became the headquarters for the initial salvage effort for the 1715s and where Admiral Don Francisco Salmón gathered the survivors, the Winter Beach location became the supporting camp that could support no more than thirty of forty people at one time (Armstrong 2001:1, 12). In fact, when Jennings attacked the salvage crews in 1716, he used the campfires from both *reals* to guide him to shore (Armstrong 2001:1).

Unfortunately, modern treasure hunters unearthed the *real* and thus heavily impacted the site, more so than the Higgs Site. Subsequently, when archaeological investigations began, “the general area revealed a landscape riddled with innumerable holes and trenches” (Armstrong 2001:4). Additionally, modern construction occurred alongside the archaeological investigations, consequently impacting the site's southern edge, which was believed to be the general camp area. The entire site consisted of several small living areas with multiple fire pits. As investigations continued, Armstrong noted that the camp was split into two primary locations with a well-established trail between them. One camp was situated near the sea beach, while the another was located several meters inland along the Indian River shoreline (Armstrong 2001:11). The inland camp most likely served as a "source of freshwater wells and shellfish for the entire Winter Beach complex" (Armstrong 2001:6), while the seaside camp acted as the main base of operations. The path between the two locations was still visible up until 1999, when the construction of a golf course and road obliterated it. Metal detection surveys of the path revealed

musket balls, silver coins, iron spikes, scraps of copper, and lead scatterer (Armstrong 2001:5-10).

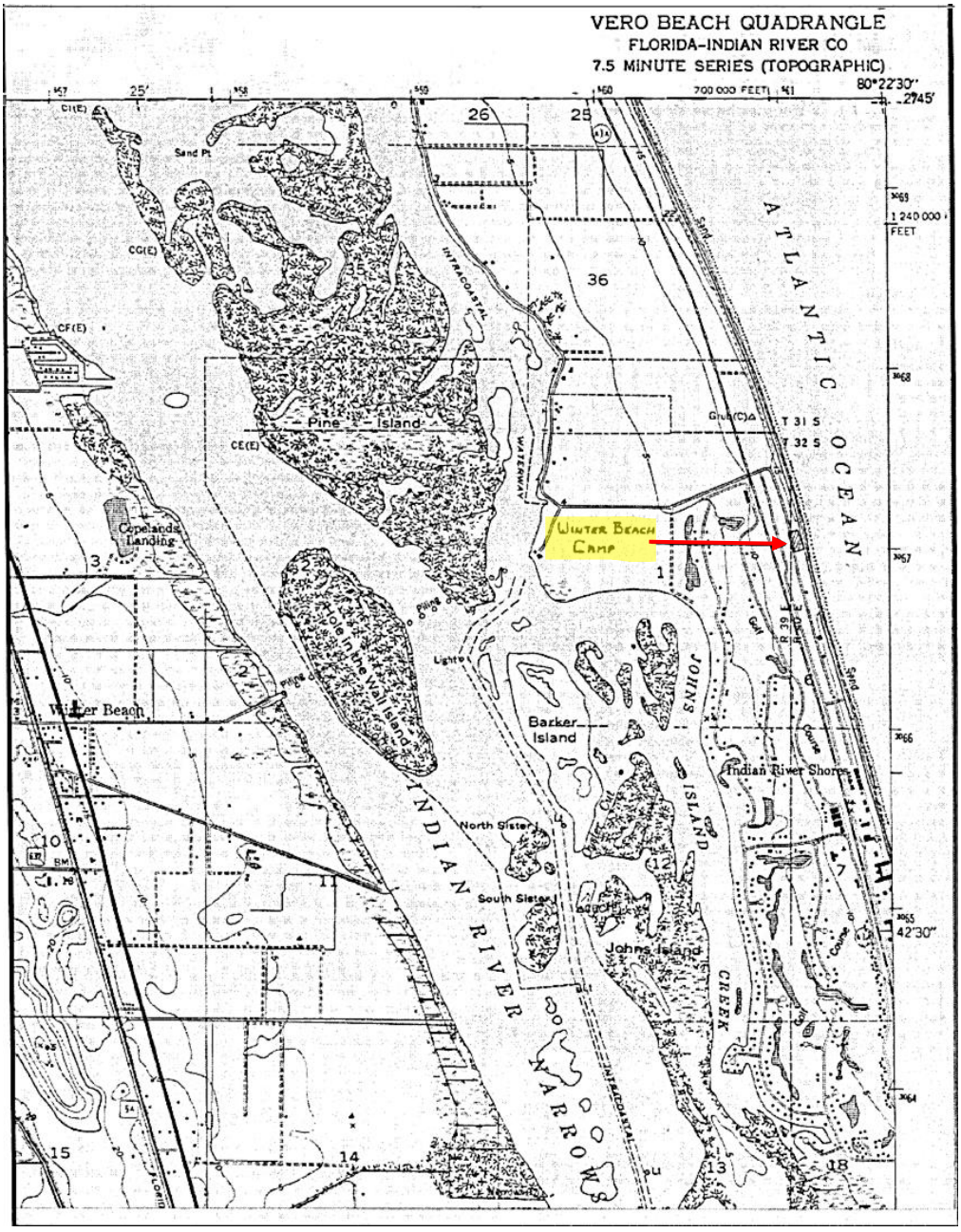

FIGURE 2.7. Location of the Winter Beach Camp Site (Site. No. 8IR181) (Armstrong 2001:75).

Armstrong also noted a thin layer of charcoal on the 1715 occupation layer that indicated that the site was created using the slash-and-burn technique (Armstrong 2001:6). While there was no evidence of permanent structures, Armstrong noted several fire pits throughout the site

and suggests the salvagers created simple pole-and-thatch huts or *bohios*, which roughly translates to "miserable little shacks" (Armstrong 2001:6). These temporary houses were common among the Native Americans living in the region and "were readily adopted by the Europeans" (Armstrong 2001:6). Unfortunately, these structures do not typically survive in turbulent coastal environments. The camp may have also been defended by at least one small gun emplacement due to the several two-pound cannonballs, and lead canister shot excavated from the site (Armstrong 2001:6). Additionally, a few iron tools, some tackle, and a cache of silver coins were found associated with the gun, which date to the Plate Fleet era (Armstrong 2001:6).

Armstrong (2001) organized the artifacts recovered into five groups. The first group contained artifacts associated with shipwreck material such as firewood, iron spikes and nails, copper nails and tacks, iron pins, fittings, fasteners, and eyebolts. The second group contained weapons and armor including small arms and lead shot, cutlass blades, and pistol parts. The third group included clothing and personal ornamentation artifacts like buttons, buckles, beads, and jewelry. The fourth group were personal objects such as coins, toys, luggage and cargo, gaming pieces, utensils, pipes, and fish net weights. Lastly, the fifth group was an introductory analysis of the numerous glass and ceramics recovered throughout the site.

Although his investigation did not encounter any human remains, Armstrong notes that it is probable that burials may still exist in the vicinity. The Spanish documented several casualties as salvage work progressed throughout the years (Armstrong 2001:7). Armstrong suggests two reasons for the lack of human remains on the site. One, the early burials made after the initial shipwreck as bodies washed ashore, were done in haste, and shallow graves were dug near the beach, which naturally eroded away. The later burials made after the camp was formally

established would have been dug deeper and perhaps outside the camp's borders to prevent animal disturbance (Armstrong 2001:7).

Spanish seafarers were no strangers to death at sea and sailors in particular faced difficulties in securing a dignified burial. According to Christian beliefs, “when the Day of Judgment arrived the dead would leave their tombs in their mortal body to approach God” (Pérez-Mallaína 1998:186). While they believed the Day of Judgment was a miraculous thing that would resurrect the dead in any condition, having a burial on land was far more desirable and secure than a sack and cannonball as a coffin on the ocean floor (Pérez-Mallaína 1998:187). The further inland and deeper the graves, the safer the bodies would be.

The archaeological investigations into the Winter Beach site also revealed an additional nearby British camp (Armstrong 2001:10). The English artifacts, including flintlock parts, distinct buttons of the 60th British Regiment of Foot (Royal Americans), and iron ship rigging (Revolutionary War period cargo hooks and iron decking spikes), in slightly shallower strata, indicating that the site was younger than the Spanish *real*. The Royal Americans were generally stationed in the Caribbean, with some units operating out of St. Augustine during the American Revolution. Armstrong suggests that a few Royal American troops may have attempted to find a bit of Spanish treasure within one of the well-known abandoned salvage camps. Regrettably, the entire British campsite was bulldozed in 1986 to make way for home construction (Armstrong 2001:48).

Ultimately, Armstrong concluded that the Winter Beach camp was a typical emergency work camp that "were often set up as needed in primitive areas surrounding many of the Spanish shipwreck sites" (Armstrong 2001:12). He also noted that while it is impossible to know for sure, evidence suggests that "no more than thirty or forty people occupied the camp at one time"

(Armstrong 2001:12). Additionally, the slash-and-burn evidence suggests that the entire site was not in use at one time; instead, the small clearings were cut out and used over two to three years at a time, which was not uncommon with the Spanish salvaging schedule (Armstrong 2001:12).

Historic Salvage of the 1733s

As with the two previous fleets, on Friday the 13th of July 1733, a *flota* comprised of 22 ships departed from Havana, Cuba, for their return voyage to Spain. A day into their homeward-bound voyage, the *flota* was nearing the Florida Keys when the winds abruptly shifted as a hurricane formed off the coast of Florida (BAR, DHR 2005). Sensing the growing storm, the commander of the fleet, Captain-General Rodrigo de Torres aboard the newly build *Capitana El Rubi Segundo,* ordered the ships to turn around and sail back to the safety of Havana's port. Unfortunately, the fleet's attempt to turn back was futile, and most of the ships were driven westward into the shallows, wrecking across 80 miles of Florida reef (FIGURE 2.8). One vessel, the 500-ton *Nuestra Senora de Rosario,* made it safely back to Havana while the newly built galleon *El Africa,* managed to sail ahead of the hurricane to Spain relatively undamaged (BAR, DHR 2005; McKinnon 2006:86).

Due to the fleet's proximity to shore, nearly all the vessels ran aground in relatively shallow water between six and twenty feet deep (BAR, DHR 2004). Most of the individuals aboard the vessels survived the initial shipwreck event (Viele 2001:13). Spanish reports indicate that only two vessels suffered casualties; *El Gallo Indiano*, which served as the *Almiranta* in the fleet, noted four deaths including a child, and *Capitana,* suffered the deaths of two sailors who had flung themselves into the sea, and a sailor who was crushed by the tiller when the vessel struck bottom (BAR, DHR 2004).

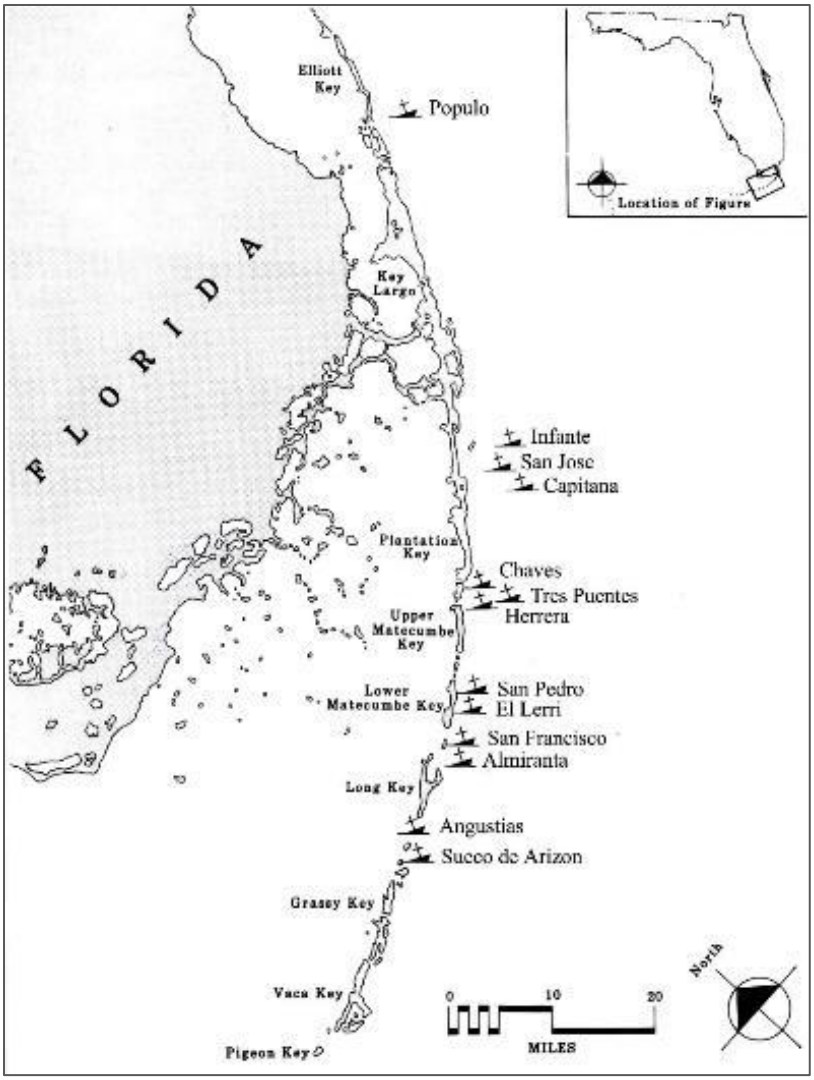

FIGURE 2.8. Shipwreck site locations of the 1733 New Spain Fleet (Smith et al. 1990:12).

The castaways gathered in *reals* near the location of their wrecked vessels (FIGURE 2.9). Using the debris that had washed ashore, they banded in small groups throughout the low islands and built crude shelters made from "palmetto fronds and wreckage that had drifted onto the beach" (Viele 2001:13). Unfortunately, the ordeal was far from over for the castaways. With more than a thousand stranded crew, passengers, and soldiers, limited provisions and the severe lack of fresh water daunted the survivors. The summer heat was intense, and the humidity was suffocating. The blistering sun scorched their exposed flesh during the day and "hordes of voracious mosquitoes descended on the castaways in the evening" (Viele 2001:13). Although a

few barrels of raw flour were recovered from a small sloop that survived the shallow reef, it was distributed in small rations that did little to alleviate their growing hunger. The burning thirst was barely allayed by the brackish waters they found in the few sinkholes scattered throughout the Keys (Viele 2001:13).

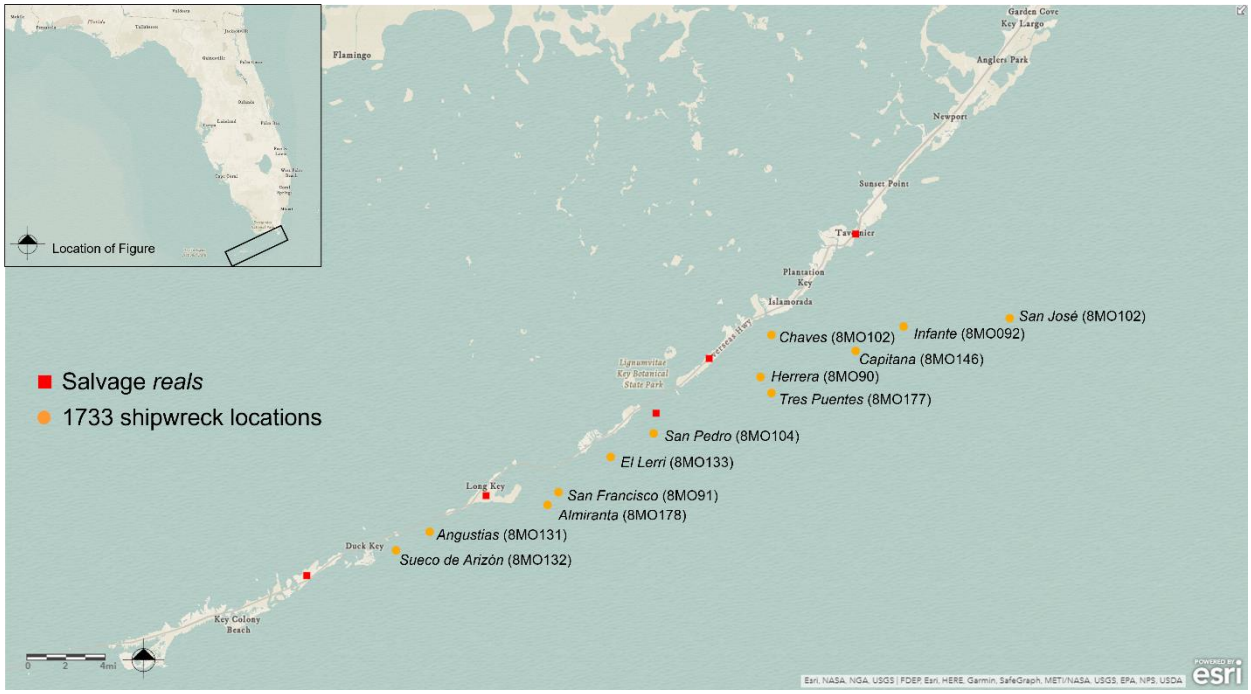

FIGURE 2.9. Map of 1733 shipwreck sites and estimated *real* locations. Map created by author using ESRI ArcGIS.

Although most of the vessels had run aground without must destruction to the integrity of the hulls, the distance between each ship made it difficult for the survivors to assist each other and share the little provisions not damaged by seawater (Weller 2001:28). Regardless of the miserable conditions and lack of aid, the commanders did not delay putting the survivors to work salvaging the vessels (Viele 2001:12). While the flagship *Capitana* ran aground near Key Largo, Commander de Torres decided to establish his headquarters farther south on Upper Matecumbe Key, because of its access to a fresh water source (BAR, DHR 2004; Viele 2001:13). Second in command, Don Bernadino de Maturana aboard the *Almiranta*, established another camp further south on Long Key along with the survivors from *San Francisco*. The survivors from *El Infante*

and *San Jose* attempted to establish a *real* on Tavernier Key but were ultimately unsuccessful due to the swarms of horse flies and joined the others at Upper Matecumbe Key (Weller 2001:29). Salvage camps were also set up on Indian Key and Key Vaca, also known as Grassy Key (Viele 2001:13).

Concerned for the safety of the fleet, Spanish admiralty officials in Havana, deployed a *balandra* to "discover amongst the islands whether or not the *flota* had come to damage" (Weller 2001:27. Before the *balandra* could return, *Rosario, one of the surviving sloops of the fleet,* arrived in the harbor and reported that the rest of the fleet had grounded near a place called Head of the Martyrs, now known as the Florida Keys (BAR, DHR 2005; Weller 2001:27-28). After locating the shipwreck sites and surviving crew members, Spanish officials mounted a rescue expedition outfitting nine vessels with supplies, food, and salvage equipment to provide relief to the survivors (Smith and Dunbar 1988). Within ten days, the rescue teams reached the survivor's camps and organized salvage began (Viele 2001:12).

General de Torres oversaw the salvaging of the fleet from his headquarters at Matecumbe Key. Concerned about the possibility of pirates or lurking wreckers, he instructed the sailors and soldiers to construct two forts equipped with four small cannon to protect the main camp and the salvaged materials. He also sent urgent requests to Havana for additional guns and ammunition (Viele 2001:12). de Torres also appointed various jobs to the fleet's deputies that made up his general council of commerce. A deputy was assigned to each camp and oversaw the salvage proceedings of the closest shipwreck sites. They kept detailed accounts of recovered goods as well as administered the specific rules and regulations the salvagers must follow for transporting goods. The deputies were also responsible for scouting the beaches along the wreckages and

recover any items washed ashore (Weller 2001:31). An armed *balandra* would sail up and down the keys between the camps, being sure to keep a line of sight of the *Capitana* to thwart pirates.

Financing the salvage operations was not going to be cheap. The salvage vessels, supplies and crews of Havana were expecting to be paid for their services. Don Joseph Diaz Guitian was named accountant and tasked with attending to "money drafts, inspecting the various invoices for supplies and services and 'paying for the imports of Don Mathias Bustillo to whom is entered the support of the letters of payment for the wealth which is entered into his power'" (Weller 2001:31 quoting *Contratación* 5147). He was stationed at the Matecumbe Key *real* to oversee the salvaged inventory from the wrecked vessels. The treasurer of the *flota,* Don Balthesar de la Torre also helped pay for the "'furnishings and crews of the three expressed *Navios* used in the salvage to the respect of 20 *Reals* per man per day'" (Weller 2001:31 quoting *Contratación* 5147). According to Weller (2001:31) this was a decent *per diem* for the time. Additionally, "the treasury also paid some of the naval personnel, infantry, armory officials, and passengers from 50 to 250 pesos each, depending upon their pay and work" (Weller 2001:31 quoting *Contratación* 5147).

By August 4th, nearly all the treasure on *Almiranta* had been recovered and within the next ten days, all the submerged boxes of silver from *Infante* and 1,900 boxes were recovered from *Capitana,* leaving only 10 registered boxes unfound according to the manifests. Efforts to recover the remaining cargo such as cochineal, indigo, and copper ingots continued over the next several months. Spanish records note that the leather bags containing the cochineal and indigo dyes made the water murky and burned the divers' eyes (Viele 2001:13). The salvage continued and "much of the cargo was recovered, dried, and shipped back to Havana" (Viele 2001:13).

The Spanish continued to salvage seasonally for the next four years (Viele 2001:14). The amount of unregistered gold and silver recovered greatly outnumbered what was recorded on the original manifests when the ships left Havana. In all, the recovery efforts for the 1733 *flota* was one of the most effective and successful salvage operations ever undertaken by the Spanish.

Archaeological Review for the 1733s

Although archaeologists have surveyed and mapped the thirteen 1733s, no professional archaeological excavation has been recorded (BAR, DHR 2005; McKinnon 2006:86). Much like the previous two fleets, the 1733s were relocated through aerial reconnaissance and magnetometers and consequently damaged by commercial treasure hunters and adventure divers (Smith and Dunbar 1977). Apart from the *Capitana (El Rubi Segundo)* and *San José y Las Animas*, however, the 1733s proved to hold very little economically valuable 'treasure' when compared to the 1715 fleet. The thorough salvage operations conducted by the Spanish were successful in recovering much of the raw goods and materials onboard the vessels. Unfortunately, the fruitless treasure hunting endeavors continued, and "the historical and archaeological value of the wrecks has suffered from repeated looting and destruction during attempts to find nonexistent treasure" (Smith et. al. 1990:12).

The first professional archaeological survey for the 1733s was conducted in 1977 (Survey No. 13489) by field archaeologists Roger Smith and James Dunbar working with the Division of Archives, History, and Records Management, now known as the Division of Historical Resources (DHR) (McKinnon 2006:88). Smith and Dunbar oversaw the "salvage operations and attempted to systematically record as much of the sites as possible" (McKinnon 2006:88). The project's goal was to locate and map all the shipwreck sites and produce the first archaeological

report on the 1733 Spanish Plate Fleet (Smith and Dunbar 1977). The final report summarized and detailed eight out of the thirteen wrecks. The report noted that many of the ships were built by several European nations, and therefore, an "archaeological comparison of contemporary building techniques among early eighteenth-century shipyards of varying nationalities would add much to the history of naval architecture" (Smith and Dunbar 1977).

Nevertheless, the shipwreck sites associated with the 1733 fleet are barren of artifacts and have been thoroughly disturbed. In some cases, most of what remains of the wreck sites are piles of ballast. Some of the wrecks, however, retain remnants of undisturbed wooden ship structure beneath ballast stones and sand (Smith et. al. 1990:12).

One of the wrecks, *San José*, had been initially relocated and exposed by treasure hunters using magnetometers in 1968. The vessel wrecked in deeper water, and compared to the other 1733 vessels, the Spanish recovered comparatively less cargo, thus becoming a prime target for modern treasure hunters. The 1968 treasure hunting operations uncovered thousands of artifacts ranging from coins, gold rings, rosary beads, fine jewelry, large silver chargers, armaments and cannon, and an enormous amount of pottery. The success of the 1968 treasure salvage operation fueled future treasure hunting endeavors, and in 1985, the site was exposed again. In response, FBAR sent archaeologists David Moore and Jim Dunbar to survey and map the shipwreck sites after being exposed by treasure hunters (McKinnon 2006:88).

Three years later, in 1988, Indiana University and Florida State University students conducted a field school that surveyed all thirteen 1733s “in order to locate a likely candidate for Florida’s second Underwater Archaeological Preserve” (Smith et. al. 1990:11). Once all the ships were surveyed, the team then “develop[ed] a list of criteria that could be used to rank the potential park candidates” (Smith et. al. 1990:16). It was determined that *San Pedro* was the best

candidate for nomination due to its location, water visibility, aquatic life, and the fact that its ballast remained well intact after its repeated salvage and treasure hunting attempts. Thus in 1989, *San Pedro* became Florida's second archaeological preserve.

The latest archaeological survey of the 1733s was conducted in 2004. Four archaeologists from FBAR partnered with the Florida Keys National Marine Sanctuary (FKNMS), John Pennekamp Coral Reef State Park, and Biscayne National Park (BISC) conducted a one-year project to inspect and document the 1733 Spanish Plate Fleet shipwreck sites (McKinnon 2006:85). The goal of the project was to create a "Spanish Plate Fleet Heritage Trail" where divers could tour "real life" Spanish shipwrecks (McKinnon 2006:85). The Trail would also function as a public outreach tool to dispel popular ideas of treasure hunting and promote preservation and stewardship of the 1733s (McKinnon 2006:91). The project also created an engaging booklet to provide the non-diving public and any interested readers in not only the authentic story that underscores the importance of conservation and preservation, but it also centered on reeducating the public about the true history of the fleet—that the 1733 fleet was "a convoy of ships traveling from Havana to Spain loaded with raw and finished materials, and *not* a 'treasure fleet'" (McKinnon 2006:91).

The 2004 archaeological investigation also conducted a quick survey at one of the known survivors and later *real* located on Tavernier Key, Florida; however, no extensive archaeological investigation has been conducted on the known Tavernier Key camp (Jennifer McKinnon 2020, pers. comm.). Spanish records indicate several *reals* operating and survivor's camps throughout the Keys after the 1733 wrecking. In fact, one of the fleet survivors of *Nuestra Señora de las Angustias*, Joseph Ignacio de Toca Velasco wrote a sixty-page epic poem titled *Triaca producida de un veneno. Naufragio de Española flota* (A tree (?) produced from poison. Spanish fleet

shipwreck) detailing the fleet's demise. Velasco uses biblical and historical figures to describe the wrecking event and includes the location of the wreck sites, the survival camps, salvage operations, and the overall conditions they endured as they struggled to survive (Gurulé 1997:vii). Today, the known camp on Tavernier Key is situated on the property of Island Christian School and is visible as depressions in the landscape (BAR, DHR 2004). Apart from this one survey, no other attempts at locating or understanding the 1733 salvage camps have been initiated. Consequently, there are no material culture or archaeological assessments associated with this or any 1733 salvage campsites.

Conclusion

This chapter has discussed the establishment, process, and utility of the Spanish transatlantic convoy trade system throughout the Spanish Main. Additionally, this chapter provided a history of the development of the professional salvage industry that supplanted the emergency recovery efforts Spanish authorities employed to recover the lost cargo during wrecking events. A history of each Plate Fleet's wrecking event, historical salvage operations, and archeological review was also provided.

Chapter 3. Theoretical Framework and Literature Review

Introduction

This chapter is divided into two sections. The first section critically reviews two theoretical frameworks: maritime cultural landscapes (MCL) and critical race theory (CRT). Combined, these frameworks help illuminate and analyze the Spanish salvage industry of the 17th and 18th centuries. The establishment of MCL theory as outlined by Christer Westerdahl (1992) investigates the culture of maritime peoples within a spatial context while also analyzing the relationships humans have to the landscape. Under a MCL approach, the geospatial elements of the Spanish salvaging process coupled with Spanish colonial culture can help understand a global maritime culture's overarching networks and systems. CRT seeks to produce a more holistic understanding of the past by identifying the lost narratives of subjugated peoples. This thesis uses techniques derived from CRT to identify and understand the enslaved individuals partaking in the salvaging process. The second portion of this chapter is dedicated to understanding the problems associated with conducting archaeological excavations alongside commercial treasure hunters and the irrefutable damage left behind on these sites.

Maritime Cultural Landscape Theory

In 1992, Westerdahl published “The maritime cultural landscape,” a paradigm-shifting article that changed the subdiscipline of maritime archaeology (Westerdahl 1992; Flatman 2011). Westerdahl’s introduction of MCLs was set against a backdrop where significant changes in theoretical thought were erupting from the processual and post-processual archeological movements. As such, MCL was seen as a “reaction against the particularism within archaeology underwater” and became “a tool to achieve a more holistic approach within the discipline”

(Tuddenham 2010:6-7). With this, Westerdahl's article essentially unified the rift between terrestrial and maritime disciplines under a philosophy of simply doing good and meaningful archaeology (Flatman 2011:311). The introduction of MCLs bridged the gap between terrestrial and maritime archaeology in its theoretical approach of uniting land and sea.

While conducting an archaeological survey of the Swedish Norland coastline in the late 1970s, Westerdahl (1992) realized that the boundary between land and sea is fluid and that there was a need for a scientific term to describe the unity of remnants of maritime culture on land as well as underwater. Settling with the term maritime cultural landscape (MCL), Westerdahl explains that it "signifies human utilization (economy) of maritime space by boat: settlement, fishing, hunting, shipping, and its attendant subcultures, such as pilotage, lighthouse and seamark maintenance" (Westerdahl 1992:5). As the maritime archaeological field matured, the MCL theory also incorporated "the whole network of sailing routes, old as well as new, with ports and harbours along the coast, and its related constructions and remains of human activity, underwater as well as terrestrial" (Westerdahl 1992:6). In essence, MCLs refer to the interaction between human processes and the maritime environment, both on land and underwater.

Within archaeology, "landscapes exist at the intersection of culture and space" (Ford 2011:1). Space functions as a medium for human activity and provides a place for culture (Tilley 1997:10; Ford 2011:1). Because place and culture are part of the human experience, places are everywhere culture is. Thus, "a person is 'in place' just as much they are 'in culture'" (Tilley 1997:18). Consequently, places are culturally determined, and cultures are strongly influenced by their spaces which form within landscapes. Perceptions of landscapes then "in turn influences the actions of those who inhabit it, which in turn have implications for their culture and the physical

environment both in the immediate present and in the future. There is no way to separate culture, time, and space from the landscape" (Ford 2011:2).

Because landscapes incorporate both the tangible (physical) sphere and intangible (cultural) sphere, they cannot be interpreted separately. Thus, to study a landscape, researchers are also interpreting a cultural landscape—an approach that focuses on both the physical and cultural realms. The idea of cultural landscapes emphasizes two different components. First, it classifies the landscape as a material object or the "tangible scene." Second, it asserts the existence of a common linking factor (Ropp 2016:15-16). In order to find and interpret the linking factor between culture and the landscape, geographers and archaeologists implemented cultural theories that inevitably connected the conceptual and the physical (Ropp 2016:16; Gosden and Head 1994:115). According to Chris Gosden and Lesley Head (1994), this also incited interest "in the spatial form of human culture," which incorporated geospatial, economic, and social structures (113-115). In essence, landscapes incorporate not only the spatial and environmental features "such as the climate and the locations of water, arable land, fuel, and raw materials," but they also encompass the "social, political, and ideological components, all of which are interrelated and cannot be understood without reference to each other" (Ford 2011:2).

This definition effectively describes the connection between the physical and the cultural spheres. Archaeologists study the meaning and develop interpretations based on the remains from the connections between the physical and cultural marks leftover in the environment (Ropp 2016:15). Therefore, the landscape is essentially a part of a society's material culture and "culture is alive in place and written on space" (Ford 2011:2). Thus, "the study of landscapes provides an opportunity to access new understandings of past cultural behavior within any given environment" (Duncan 2006:7).

Overall, treating the landscape as both tangible and intangible evidence has enabled the archaeological field to move toward a more holistic understanding of history. The introduction of the maritime element further achieved this goal. Additionally, using the study of landscapes in maritime archaeology developed not only MCL but also created the idea of seascapes. A seascape is a construction of various factors such as stars, currents, winds, clouds, or the use of navigational instruments that "allow an individual to perceive his or her location out of sight from land" (Ford 2011:4). Seascapes can also be used to describe a landscape as perceived from the sea, such as "seamarks, harbors, reefs, islands, shallows…and other land-based phenomenon" (Ford 2011:4). With this in mind, MCL essentially combines "physical aspects of landscape and seascape to analyze the culture of maritime peoples within a spatial context, while retaining the recursive culture-nature relationship of landscape study" (Ford 2011:4). As such, the study of seascapes, or the landscape of sea and coast, is principally a collaboration between maritime and landscape archaeology (Van de Noort 2004:405). It acknowledges the fact that people in the past actively engaged with the sea, and that the study of seascapes aspires to go beyond asking how the sea was perceived from the shore.

Techniques Drawn from Critical Race Theory

This thesis will offer an interpretation of the experiences of the forgotten enslaved divers using techniques drawn from critical race theory (CRT) as applied to archaeology. CRT is a movement that seeks to transform the relationships between race, racism, and power (Delgado et.al 2017:3). The movement consists of activists and scholars that tackle issues of civil rights and ethnic studies "but also places them in a broader perspective that includes economics, history, setting, group and self-interests, and emotions and the unconscious" (Delgado et.al

2017:3). Stemming critical legal studies pioneered by Derrick Bell (1980) in the paradigm-shifting work "*Brown v. Board of Education* and the Interest-Convergence Dilemma," Bell advanced the idea that civil rights advancements in the United States typically coincided with changing economic conditions and the self-interest of elite whites (Bell 1980:523; Delgado et.al 2017:22). Essentially, Bell's work exemplifies the institution that African Americans and Africans are recoded along the periphery of the dominate white-centered narrative of history.

CRT also adopted components of radical feminism which questions "the relationship between power and the construction of social roles" (Delgado et.al 2017:5). Kimberlé Crenshaw is another pioneer in the development of CRT, specifically in the development of giving voice to minority groups, or intersectionality studies. Crenshaw's work on intersectionality states that the concepts of gender, race, sex, economic status, class, ethnicity, religion, national origin, disability, or sexual orientation play out in various combinations and settings to create different means of discrimination and privilege (Delgado et.al 2017:58). Essentially, these social identities define who is oppressed and who is empowered in society. Intersectionality studies aim to reveal inherent discrimination or oppression. While CRT embodies several bodies of thought, where it is relevant for this thesis is in its tenants of identity, narrative, and giving voice to marginalized people.

Within archaeology, V. Tarikhu Farrar (2020) applies CRT in his work *Precolonial African Material Culture: Combatting Stereotypes of Technological Backwardness*. Imbedded in Western history is the idea that African culture contributed little significance in the world theater apart from being a source of slave labor (Farrar 2020:4). Farrar challenges the preceding notion of African's racial inferiority by tracing the origins of modern European race theory over the centuries while juxtaposing them against African technology via the archaeological and

historical record. In doing so, Farrar reveals an alternative narrative of African history, one that demonstrates how African technologies impacted European colonies economically, technologically, politically, and culturally (Farrar 2020:265). Specifically, within the metalworking, agricultural, and textile manufacturing industries, African technologies are at the epicenter of European productivity. Farrar (2020:264-265) explains that from the methods of manufacture to the tools, botanical knowledge, and even shipbuilding techniques, African technologies and material culture played a definitive role in the success of several European enterprises. Additionally, Africans and their descendants both free and enslaved, actively participated in these enterprises (Farrar 2020:265). Farrar's work embodies CRT as it re-interprets the dominate standard of literature to bring forth the active narrative of African technology.

Since Franz Boas first established that "culture cannot be equated to or directly derived from race, and nor can it be judged on an ethnocentric yardstick" (Johnson 2010:69), racist theories of culture that assume race is determined by biological factors have largely been rejected. Instead, ethnicity is rooted in cultural expression and identity while race is a social construct that presumes biological differences. That being said, "many archaeologists have come to recognize that archaeology is based on, and generally reflects, the values of Western cultures" (Atalay 2006:280). Because archaeology does not exist in a vacuum unaffected by surrounding political and social movements, it has been used as a tool to "justify imperialism, the displacement of Native Americans and Indigenous peoples from their lands, scientific racism, ethnocentrism, and xenophobic nationalism" (Franklin et. al 2020:754).

Historiographically, archaeological agendas have legitimized racist thought through the idea that European whites exemplify ultimate progress and civilization (Franklin et. al

2020:754). Archaeologists, however, have worked to expand the discipline in tandem with social and civil rights movements like the lesbian, gay, bisexual, transgender, queer, asexual, and intersex individuals (LGBTQAI), and the Native American Graves Protection and Repatriation Act (NAGPRA). These movements served as opportunities for reflection and revisitation within the archaeological field and question previous discourse while adding the lives of traditionally marginalized communities into the narrative of history (Franklin et. al. 2020:755).

More recently, these movements have also inspired the Black, Indigenous, and People of Color (BIPOC) archaeologists that seek to dismantle racism in the field of archaeology "as part of the broader social justice aims of the Black Lives Matter Movement" (Franklin et. al. 2020:755). In their article "The Future is Now: Archaeology and the Eradication of Anti-Blackness," (Franklin et. al. 2020) the authors discuss the rise of African Diaspora archaeology and Black representation within the field of archaeology. The authors note that the growth of archaeological research focused on African Americas is partially due to the increasing number of Black archaeologists. This has led to broadening the scope from African American studies to African Diaspora archaeology which "underscores a global reach... [of] the diversity of Black experience not only across space but time" as more archaeologists "explore life after emancipation and the 'materiality of freedom'" (Franklin et. al. 2020:755). The history of archaeology has deeply seated undertones of racism stretching back to the beginning of the discipline. The authors note that "the systemic racism will not passively go away and requires ardent change" (Franklin et. al. 2020:762). By recognizing the substantial value of Black life, BIPOC scholars and archaeologists of the Black Lives Matter social movement, can reconfigure the archaeological field.

The principles of this movement can also be seen within the maritime sphere. In the article "Have Confidence in the Sea: Maritime Maroons and Fugitive Geographies," Justin Dunnavant (2020:884) provides new insight into self-liberated Black maroons by using geospatial techniques and ocean cartography to reveal how these maroons used "ocean literacy to actualize their quest for freedom and their experience in their new homes." Dunnavant (2020:885) explains that enslaved Africans often navigated very remote and isolated geographies outside of the colonial official's purview in their search for liberation. Previous studies of African marooners, however, often "ignore the maritime aspects of flight and maroon life" (Dunnavant 2020:886). While these maroon settlements enabled freed Africans spaces to build communities and make a life in the Americas, many of the settlements were also semi-permanent.

The transient quality of these settlements not only makes it difficult for archaeologists to locate maroon sites, but it also poses a challenge of "placing Black people within multiple and uneven geographies" (King 2016:1024). It requires a theoretical framework that utilizes ocean current data to recreate maroon livingness on the sea while also considering Black literacy in navigating not only by land but by sea and island boundaries (Dunnavant 2020:901). Dunnavant (2020:895) explains that "enslaved Africans were regularly employed to assist ships in navigating the complex channels and ports of the Caribbean" and that "they had extensive knowledge of waterways, fisheries, and other 'ocean literacy' that would have enabled them to skillfully navigate the sea by day or night." Enslaved Africans utilized their knowledge of the seascape to "exploit the dialectics of the ocean" (Dunnavant 2020:901). Thus, these seascapes become historic places in the Black Atlantic world. By combining geospatial data of maroonage movement through ocean current modeling while also understanding the relationship enslaved

Africans had with the sea, archaeologists can reveal Black Atlantic livingness across the Caribbean (Dunnavant 2020:900). Studies like Dunnavant's provide a deeper understanding of African Diaspora and colonial history while also expanding the diversity of Black experience within archaeology.

In order to establish a better understanding of slavery and the African experience, recent scholarship has also incorporated elements of CRT to study the strategies utilized by enslaved Africans to resist, cope, and leverage their power within the violent and oppressive conditions of the 17th and 18th century. Because documentation concerning the thoughts, actions, or ideologies of enslaved Africans and African Americans is slim, and most representation of African thought is from Western, slaveholder perspectives, researchers are finding ways to consider the complexity and identity of enslaved Africans before, during, and after the African Diaspora. Implementing the idea of resistance to the study CRT can uncover the agency and identity of enslaved Africans within the oppressive environments.

Although the enslaved African experience is rarely documented firsthand, evidence of resistance can be seen by revisiting Western accounts and reading against the grain. For instance, in "Mastering Charleston: Property and Patriarchy in British-Occupied Charleston," Lauren Duval (2018) reveals that within the British occupation of Charleston, enslaved persons "navigated the competing authority of slaveholders and the British army and made choices about how to best survive military occupation" (612). Duval explains that initially, the British army did not have a clear policy on enslaved people, and depending on the situation, they were treated as refugees, property, or labor. As the British occupation of Charleston became more complicated and the colony's crops were suffering due to lack of enslaved labor, decisions were made to reassert Charleston's racial hierarchy and affirmed that black freedom was a temporary state

(Duval 2018:613-614). It was hoped that reestablishing the racial and social hierarchies between blacks and whites would provide stability to the turbulent city. Enslaved people seized this opportunity of destabilization between the slaveowners and the British army to claim ownership of their bodies, labors, and families and leveraged their much-needed skills to alter their circumstances. Duval (2018:615) explains that in some instances, enslaved laborers even stipulated the conditions of their return, thereby taking control away from slaveowners. The enslaved laborers of Charleston were leveraging the power they had within the rigid hierarchy to alter their circumstances, thereby upsetting and restructuring the racial hierarchies of plantation society.

Duval utilizes Board of Police Records and correspondences of slaveholders and British army officials to deduce an enslaved Charleston's perspective. Through these accounts, Duval argues that the enslaved were exploiting the opportunity of disarrangement in the hierarchy to gain some measure of control over their lives. Duval seeks to understand enslaved African resistance by getting to the identity and perspective of the African experience. Duval confronts the lack of African perspective by analyzing accounts from the perspectives of European and Western slaveholders.

Studies of the African Diaspora have also considered that Africans and African Americans were political beings actively resisting and negotiating their circumstances. In his article "Resistance and Collaboration: Political Strategies within the Afro-Carolinian Slave Community," Perry Kyles (2008) seeks to dismantle the preceding emphasis on "the region of origin or ethnic background as the most influential factors in the development of accommodationist strategies or a culture of resistance among Africans and African Americans" (506). Kyles (2008:497) asserts that previous studies attempting to explain Africans' responses

to captivity, enslavement, and the Middle Passage tend to establish general conclusions that inevitably tie the thoughts, actions, or ideologies of enslaved Africans back to Africa. In other words, that the responses to the acts of violence and oppression enslaved Africans endured, was based on European ethnocentric ideas of what part of Africa the individual was from, thus implying racial attributes based on regional ethnic groups. Kyles (2008:506) warns that this train of thought infers that Africans and African Americans are culturally stagnant and unable to adapt both culturally and politically to new situations. Particularly within the context of South Carolina plantation society, Kyles reveals that enslaved Africans and African Americans actively resisted changing their position or status within the plantation hierarchy. The enslaved Afro-Carolinians were responding to circumstances they faced in America, not because they were from certain African regions. In essence, Kyles's article reveals that African "religious and political ideologies were transformed into situation appropriate worldviews that were relevant to life in the Americas" (2008:499).

Kyles asserts that enslaved Africans were actively resisting the hierarchical social norm of plantation society. Kyles exercises the concept of African resistance to show that the political strategies enslaved communities employed on the plantation reveal how they sought to change their circumstances. In doing so, enslaved Africans were forging an identity based on the collected experience of slavery within the highly racialized American plantation society. Kyles is ultimately arguing that enslaved Africans in South Carolina were forging a new American identity apart from Africa.

Following similar lines of thought in African Diaspora Studies, in the book *The Banjo: America's African Instrument*, Laurent Dubois (2016) uses the history and development of the banjo as an instrument and a metaphorical tool to exemplify a pan-African movement of

enslaved Africans seeking a sense of solidarity and consolidation in plantation life outside of Africa. The biography of the banjo is rooted within the central industry of the American economy, slavery (Dubois 2016:8). According to Dubois, the banjo "embodies a story of crossings and exchanges that go far beyond the mainland United States, highlighting the constant connections between the Caribbean and North America" (Dubois 2016:9). Through European travel narratives, Dubois finds evidence of similar and varying string instruments across Africa. The banjo represents a consolidation of sounds that resulted in an instrument that brought together diverse peopled from different parts of Africa without being tied to one specific group, but a collective of people uprooted from their homeland and forced into oppression. In essence, the banjo was created at the crossroads of diaspora, loss, and survival that became an outlet for a sense of "rootedness in the midst of displacement" (Dubois 2016:10). In this way, the banjo is a symbol of resistance; it is a Caribbean instrument that enabled enslaved Africans and African Americans to recover their ancestry and diverse cultures while creating a pan-African identity and community. Both Kyles and Dubois are tackling the concept of enslaved Africans establishing an American identity based on the experiences after the Middle Passage. In *The Banjo* (2016), this identity pays homage to African roots yet is developed by the descendants of captured Africans.

While these studies develop and implement a diverse array of methodological approaches to the study of African Diaspora, they ultimately add to the broader narrative of history by creating a more holistic interpretation and understanding of the past. Because personal accounts of captured Africans and enslaved Africans and African Americans are rare, identifying these persons' experiences, ideologies, and agency is challenging. Each of the works discussed attempts to provide an enslaved African and African American experience. Duval, Kyles, and

Dubois reveal that through resistance and adaptation enslaved Africans were continually fighting and manipulating hierarchal confines to regain control over their lives and bodies. In doing so, they were also forging new identities that distinguished them from Africa yet embraced the collective experience of slavery and the Middle Passage.

Similarly, the same thing can be seen in Indigenous and Native American oppression and enslavement. For instance, in Alejandra Dubcovsky's (2018) article "When Archaeology and History Meet: Shipwrecks, Indians, and the Contours of the Eighteenth-Century South," Dubcovsky attempts to bridge the gap between history and archaeology using archaeological data and the rich archival record to seek an Indigenous narrative to the 1715 Spanish Plate Fleet wreck event. While both salvage camps, Higgs Site (8IR24/8IR26), and the Winter Beach camp (8IR818), include Native American and European artifacts, most narratives surrounding the fleet have neglected to incorporate the Native American history that coexists alongside these sites (Dubcovsky 2018:43). Dubcovsky's research seeks to uncover "two stories that are not usually connected: one about European empires, wars, and shipwrecks, and the other about Indian (sic) mobility, slavery, and politics" (Dubcovsky 2018:43).

When the Plate Fleet wrecked in 1715, the Spanish had no idea if the local Native American groups were friendly after the confrontations of Queen Anne’s War between Spanish Florida and the Native American forces from South Carolina. The conflicts resulted in the decimation of the Native American population in northern Florida, Georgia, and Alabama. Furthermore, it led to “the massive expansion of the Indian (sic) slave trade sponsored by the English” (Dubcovsky 2018:49). South Florida Native American populations were forced to navigate between enslavement by expanding imperial powers and maintaining their independence and mobility in the region. Fortunately, for the marooned Spanish in 1715, with

the onset of the Yamasee and Lower Creek War which decreased the Native American slave trade in the region, the local Ais population had taken a more friendly approach to European powers. With a wrecked fleet in need of continuous salvaging expeditions, the Spanish were going to be in Ais territory seasonally for the next several years. The ease of salvage efforts depended on getting access on Ais land and maintaining an open path between St. Augustine and the fleet through territory owned by the Costa peoples (Dubcovsky 2018:52-53).

Dubcovsky develops a detailed narrative surrounding the wrecking of the 1715 fleet and the constant negotiations between the marooned and resource-depleted Spanish powers and the political interests of the local Native American communities. Dubcovsky attempts to place Ais, Apalachee, and Yamasee peoples at the camp by suggesting they supplied and used many of the Native American artifacts at the site, namely the San Marcos Pottery, and the English clay pipes since these groups had a long history of interaction with the English and trade networks with Native American groups to the west such as the Guales who invented the San Marcos pottery style (Dubcovsky 2018:56). The San Marcos pottery present at the Higgs Site reveals the trade, intermarriage, and diplomacy in the expansion of this pottery tradition across multiple Native American groups (Dubcovsky 2018:58). Using the material culture associated with the Higgs Site, Dubcovsky argues that the Ais were quick to adapt to new cultural traditions and were clever in their negotiations of colonial pressures. The Ais were self-identifying as Ais while also embracing the new social and economic relations of Spanish Florida (Dubcovsky 2018:63). Ultimately, while some of Dubcovsky's points are based on misinterpretations of the material culture associated with the Higgs Site, she developed a Florida Native American community narrative that reveals the "mobility, adaptability, and resilience of Native groups threatened by

slavery and warfare; and also evince the centrality of Native alliances and aid to the Spanish experience in the region" (Dubcovsky 2018:63).

Together, the concepts of MCL and CRT are used to provide the theoretical framework for this thesis. MCL provides the foundation for how Spanish salvagers viewed themselves not only within the landscape, but also within the greater overarching economic structure of Spain's global trade network. It will also help reveal the social and economic connections between the salvagers, Spanish authorities, and enslaved divers operating out of *reals* and understand the spatial relationships between the *reals,* the wreck sites, and Havana. The use of CRT will help reveal the untold stories of the enslaved divers. Through this framework, this thesis explores the physical conditions enslaved divers endured and how they navigated and manipulated the social hierarchy during the salvaging process.

Archaeology vs Commercial Salvage

Due to the presence of several shipwrecked Spanish galleons, coupled with its clear, warm waters, the Florida Keys has long been a bastion for the treasure hunting industry (Smith 1988:96–103). Consequently, every shipwreck sites is thought to be loaded with chests of silver and gold. The treasure hunting frenzy that erupted from the "discovery" of sunken Spanish galleons in Florida "sprang from a booming get rich quick society that has little historical past" (Throckmorton 1988:79). Yet, this frenzy was overwhelmingly accepted by the public due to claims of "good old American enterprise at its best and that history and archaeology are boring and unnecessary pursuits" carried out by academics that kept the treasure for themselves (Throckmorton 1988:75). Treasure hunters perpetuated the idea that it is their right to claim these lost treasures as their own due to the conventional appeal for the "finder-keepers" mentality. This

outlook that defines the treasure hunting culture persists today and has "resulted in a limited and superficial view of the value of submerged cultural resources" (Scott-Ireton 2003:95).

In his article "The Fig and The Spade: Countering the Deceptions of Treasure Hunters," Jerome Lynn Hall (2007:1-2) defines treasure hunters as the biggest threat to submerged heritage resources, not only because their methods are incredibly damaging, but also because they have succeeded in manipulating public opinion in their favor. Hall explains that treasure hunting companies have operated under several deceptions that have enabled them to continue their operations within the public's good graces. Their activities, however, are at the expense of the archaeological record. Treasure hunters claim that leaving sites and artifacts underwater, or *in situ*, is equivalent to the "destruction or loss of property and history" (Hall 2007:3). Today, there is monumental evidence suggesting otherwise and leaving sites undisturbed is the preferred option for preserving a site since shipwrecks and other cultural material "reach a state of equilibrium over time [where] little to no deterioration occurs" (Hall 2007:3).

Additionally, private treasure hunters claim that they should have access to underwater cultural resources because they have the financial and technological means to access shipwreck sites. Their funding could be potentially bottomless depending on the private investors, which aids in extravagant and costly operations (Hall 2007:3). Unfortunately, despite the extra finances, little attention is paid to adequately conducting the archaeological process. Archaeologists working for academic institutions, private non-profit organizations, or government institutions, on the other hand, must rely on funding from government or corporate grants (Hall 2007:3). Thus, archaeologists adhere to professional archaeological standards of scientific and ethical accountability while no such oversite exists for private treasure hunters.

Furthermore, because archaeologists operate under a set of standards outlined in the Annexed Rules to the UNESCO Convention, all results and findings are publicized and disseminated to the public (Hall 2007:4). Despite claims of transparency concerning artifacts, treasure hunters often sell collections to private individuals where "public access for future research, education, and appreciation is denied, and there usually follows no final report or publication" (Hall 2007:4). The ethical, scientific, and methodological differences between archaeologists and treasure hunters have resulted in deep and legitimate grievances between the two sides (Hall 2007:4).

In response to the amount of treasure hunter frenzy with no government oversight, the State of Florida passed legislation that under Florida law, the State of Florida owns all materials abandoned on the seabed within its waters (Cockrell 1998:90-91). Treasure hunters and salvage companies can file for a permit with the Exploration and Recovery Program (formerly known as the Exploration and Salvage Program) to recover artifacts from historic sites (Cockrell 1998:91; Price 2015:23). While operating under this law, "the treasure hunter is legally acting as a subcontractor or employee of the State of Florida" (Cockrell 1998:91). As dictated, Florida receives a percentage of artifacts from the treasure hunters, which serves as a "payment to the state for permitting salvors to legally work historic, publicly owned sites" (Price 2015:23). Although this agreement serves as the State's oversight, though limited, and at the very least permits the State to some cultural material, it "ultimately caused the mining of nonrenewable cultural resources under government supervision" (Price 2015:23).

Despite the rift between treasure hunters and archaeologists, some archaeologists like R. Duncan Mathewson attempted to collaborate with commercial salvage companies to conduct archaeology within the salvager agenda. Mathewson worked with Mel Fisher and his salvage

company, Treasure Salvors, Inc., in the 1970s to salvage the 1622 Spanish Plate Fleet galleon, *Nuestra Señora de Atocha* (Mathewson 1977; Mathewson 1998). The arrangement resulted in excavating through an organized archaeological procedure that mapped and recorded the shipwreck site and created an exhibit that displayed artifacts for the public (Mathewson 1998:100). Although the excavation was not as precise and methodical as an ideal archaeological excavation due to pressure to work quickly, Mathewson believed he developed a methodology to unite the treasure hunter and archeology rift (Mathewson 1998:101). Ultimately, however, the fundamental goals of the two sides oppose each other. While both are destructive to sites through excavation, the archaeological approach centers on data acquisition backed by research questions and the scientific method; treasure hunters seek out economically valuable artifacts for personal profit (Cockrell 1998:89).

Salvage Permits and Management of the Spanish Plate Fleets

Under Florida's antiquities law (Chapter 267, *Florida Statutes*), the Florida Division of Historical Resources (DHR) governs all "publicly-owned archaeological and historical resources located on state property, both on land and underwater" (Florida Department of State 2021). Submerged historical resources are protected in all state-owned inland navigable waterways and offshore waters for 10 miles into the Gulf of Mexico and 3 nautical miles into the Atlantic Ocean (Florida Department of State 2021). The DHR also oversees the salvage contracts and permits for submerged historical resources. The known 1622s and all but one of the 1715s (*Urca de Lima* is protected as a part of the Florida's Underwater Archaeological Preserves) are under lingering contracts and current permits issued to various treasure hunter companies before the revision of the Exploration and Salvage Program (now the Exploration and Recovery Program) in 2006. The

Florida Administrative Code (Chapters 1A-31 and 1A-32) has implemented the Exploration and Recovery Program which "grants permits to individuals or companies for the survey and recovery of submerged cultural resources offshore in State waters" (BAR, DHR 2021). Under this program, current contracts could exist, but once they expired, treasure salvors had to apply for the new 1A-31 permits (Melissa Price 2022 pers. comm.):

> There are two phases under the 1A-31 permit process for individuals attempting to commercially salvage historical sites on state lands. The first phase is a permit given for "exploration." To apply for such a permit, the applicant must supply a research design and is only allowed to conduct non-invasive investigations, such as remote sensing. The second phase concerns the "recovery" permit, which allows for the excavation of a site and collection of artifacts and requires that an archaeologist be present during those activities (Price 2015:7).

Because remaining legacy contracts in effect today were issued before the Federal Abandoned Shipwreck Act and the Abandoned Shipwreck Act of 1987, treasure hunter companies filed admiralty claims for several of the shipwreck sites which granted them jurisdiction of title to historic shipwrecks based on the law of finds (Price 2015:5). Although the State of Florida "no longer supplies "contracts," admiralty claims allowed for some contracts to continue to be renewed each year" (Price 2015:7). Essentially, "contracts in existence that were tied to admiralty arrests were allowed to be grandfathered (sic) in" (Melissa Price 2021, pers. comm.). As a result, these admiralty arrest contracts are separate from the 1A-31 permits. Owners of admiralty arrests can also sell or relinquish their titles instead of letting them expire.

Price notes, however, that "most of these contracts are no longer worked, but merely held much like unused real estate" (2015:7). Additionally, the 1A-31 permit is not valid for the admiralty arrests within the jurisdiction of the FKNMS. It only applies to arrests within Florida State waters. The FKNMS is a federally regulated sanctuary under National Oceanic and Atmosphere Administration (NOAA).

As of 2021, there are two permits issued to Seafarer's Quest, LLC salvage company and eleven contracts that are held by the 1715 Fleet Queen's Jewel's which primarily operate on the 1715s (FIGURE 3.1). There is one other legacy admiralty arrest that is currently opened at Juno Beach as well (Melissa Price 2021 pers. comm.). In essence, the Florida Exploration and Salvage Program acts as a way for the State of Florida to manage historic shipwreck sites in state waters and the holdover of admiralty arrests pre-ASA.

The 1622s reside within the FKNMS (FIGURE 3.2). The FKNMS is a part of the NOAA's National Marine Sanctuaries Program which provides comprehensive protection to the ecological, recreational, and aesthetic marine resources in the Florida Keys including comprehensive management of its historical resources (Terrell 2003:151; Programmatic Agreement 2009:1). Maritime heritage resources are managed through a partnership between NOAA, the State of Florida (DHR), and the Advisory Council on Historic Preservation (ACHP) (Office of National Marine Sanctuaries 2007:131).

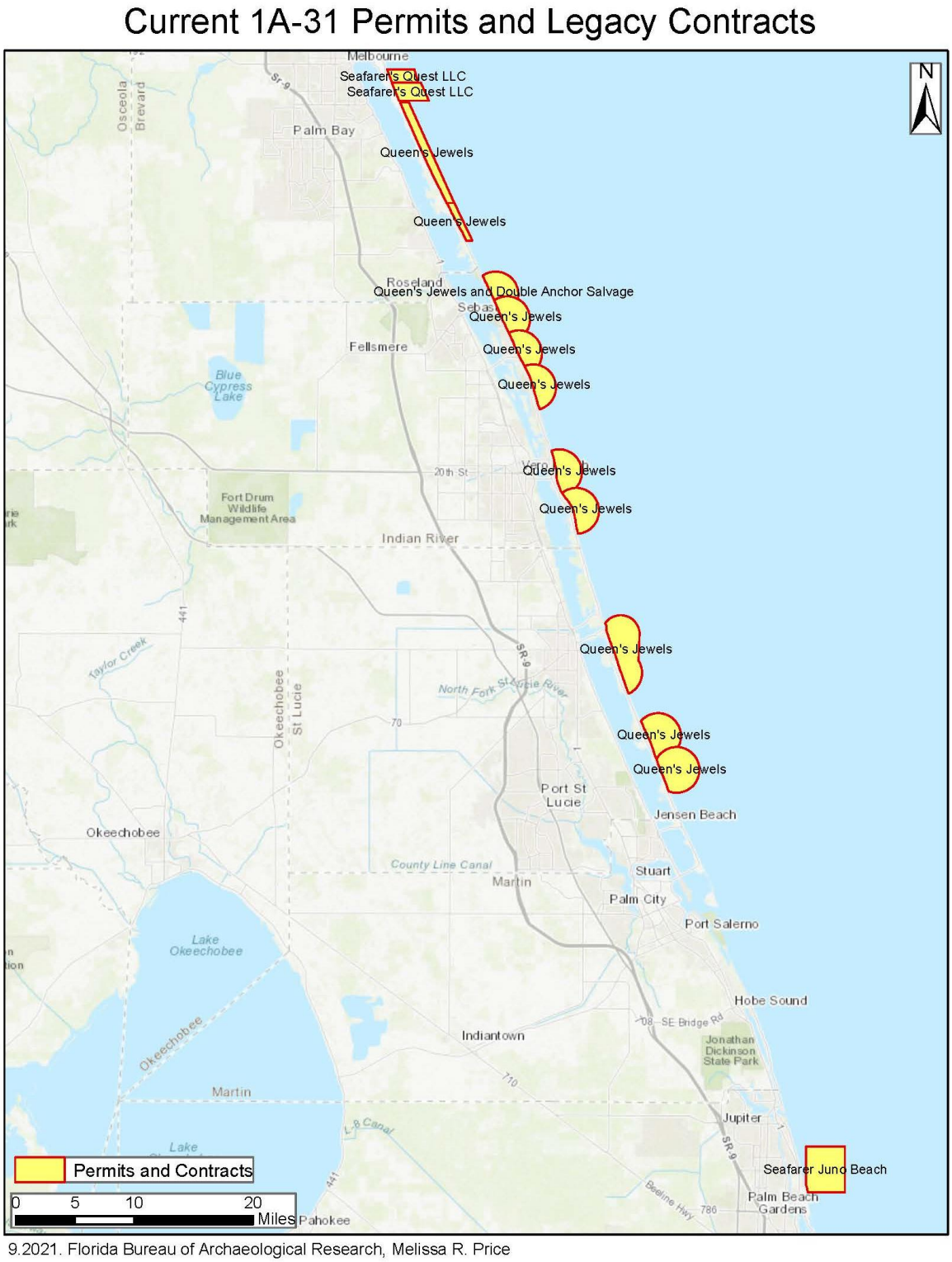

FIGURE 3.1. 1A-31 Permits and Legacy Contracts. Courtesy of Melissa Price, BAR, DHR.

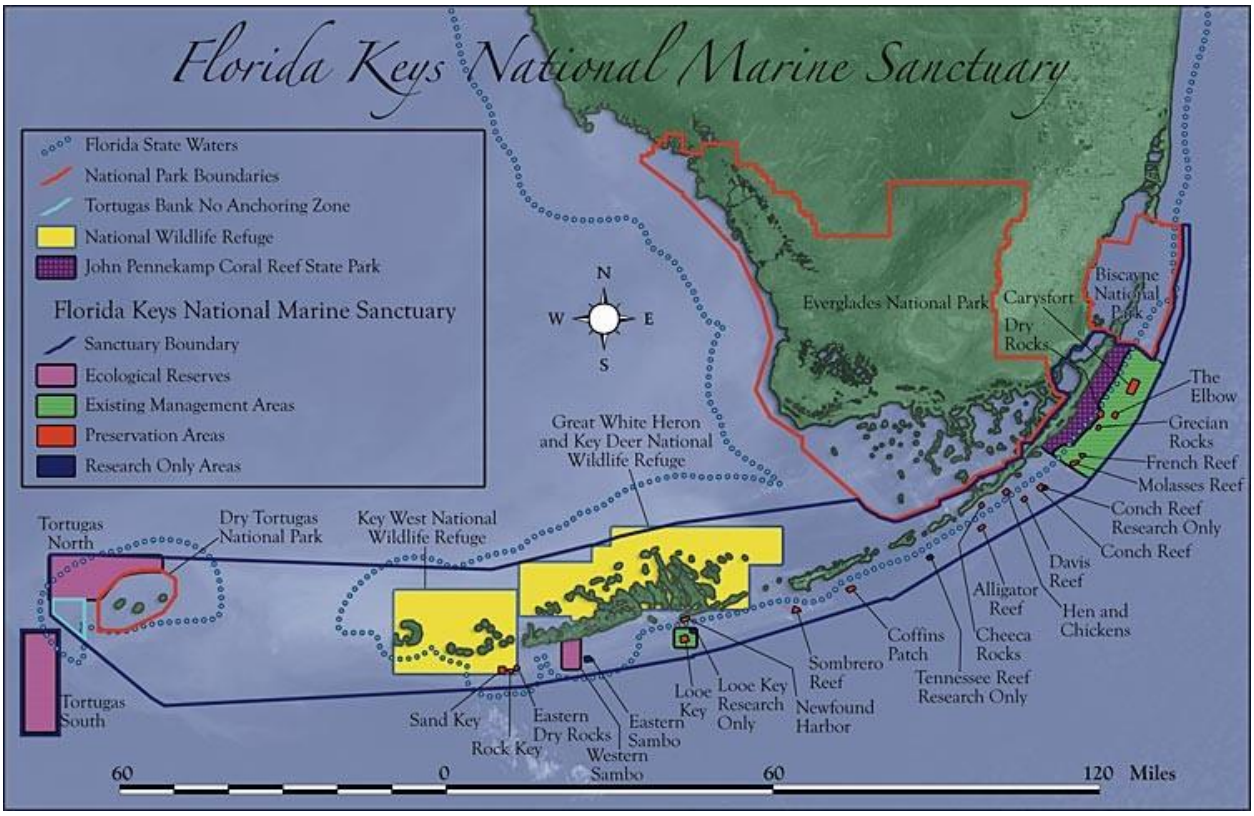

FIGURE 3.2. Map of the Florida Keys National Marine Sanctuary. Courtesy of the BAR, DHR.

When the FKNMS permitting system was established in 1997, the preexisting admiralty arrests that were in effect prior switched over to the new permitting system (Randolph and Sinclair 2018:4). Motivation Inc. (Motivation) founded by Mel Fisher is the treasure hunting company that currently owns the titles of two 1622 vessels, *Nuestra de Señora de Atocha* and *Santa Margarita* under admiralty law. After renewing their permits for *Atocha* (permit #FKNMS-2016-052) and *Margarita* (permit #FKNMS-1998-110-A14), Motivation "continues to survey, recover, conserve and exhibit the artifacts" (Randolph and Sinclair 2018:2) excavated from the several sites associated with the two wrecks. Each wreck site consists of large debris fields that Motivation has been hunting for the past five decades. As directed under Rule 1A-31 of the *Florida Administrative Code* for the procedures for conducting exploration and salvage of historic shipwreck sites, Motivation (along with all other treasure hunting companies operating in Florida) creates reports of the results of archaeological and historical fieldwork activities to be

submitted to the FKNMS for review (Florida Administration Code 2021). It should also be noted that the Mel Fisher Maritime Heritage Society and Maritime Museum is a non-profit organization that exists separate from the Motivation treasure hunting company and curates the artifacts recovered from Motivation. The Mel Fisher Maritime Heritage Society and Maritime Museum, however, has no current no affiliation with the admiralty arrests (Matthew Lawrence 2021 pers. comm.).

The 1733 shipwreck sites, although initially impacted by treasure hunters, reside in state and federal waters and are protected by the State of Florida through the FKNMS and BISC. Today, twelve of the 1733s are a part of the 1733 Spanish Galleon Trail, a submerged cultural heritage trail that encourages divers and snorkelers to explore each shipwreck site in a non-intrusive manner and learn about the Fleet's history. The northernmost wreck site, *Populo*, is not open for public visitation and is under the jurisdiction of Biscayne National Park, and park personnel monitor the site to prevent vandalism and unauthorized exploration (BAR, DHR 2005). *San Pedro* is also a part of Florida's Shipwreck Preserves, another underwater preserve that originated to respond to public request (Price 2015:228) (FIGURE 3.3). Each shipwreck site is nominated and sponsored by the pubic, and a series of steps are taken for the wreck site to become protected and included in the preserve. Maintenance of the preserves stems from the involvement of the local community. The establishment of Friends groups provides project funding, support, and management to each wreck site (Scott-Ireton 2003:99-100). Usually, local dive shops in the area adopt a wreck and make regular trips to the site to maintain and care for the underwater resource (Price 2015:228). The preserves program also initiates "public meetings to address concerns, disseminate educational materials, and discuss economic benefits are also key features to encourage community partnership for a new preserve" (Wright 2015:126).

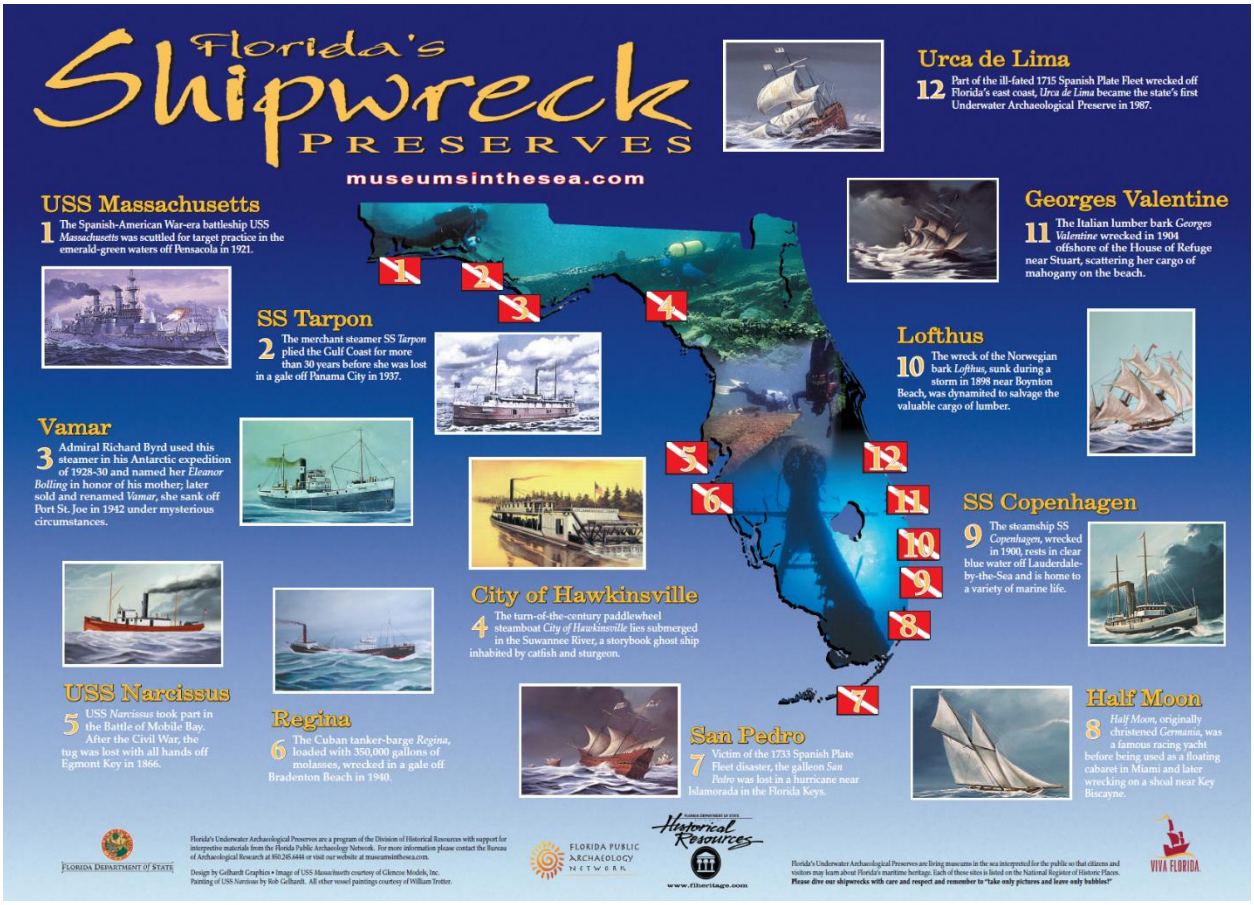

FIGURE 3.3. Florida's Underwater Archaeological Shipwreck Preserves. Courtesy of the BAR, DHR.

Submerged cultural resource management agencies, like the maritime archeological branch of BAR, DHR, have developed these shipwreck preserves in an attempt to make historical resources accessible to the diving community (Terrell 2003:154). Preserves have proven to be "excellent ways to provide educational experiences to communities on topics ranging from history to preservation of underwater resources" (Terrell 2003:154). In the past, before the sanctuary hired a full-time marine archaeologist, it relied on talented volunteers to monitor the sites. Now, these programs facilitate an active community education program that encourages the protection and preservation of submerged cultural heritage. The 1733 Spanish Galleon Trail and the Underwater Archaeological Preserves program provide public access to historic sites while educating them on the local maritime heritage. They are long-term

management strategies that permit unrestricted access to these specific shipwreck sites. Backed by an understanding of the historical value of these shipwrecks, people will be less likely to collect and damage underwater sites and instead be more inclined to protect and conserve (McKinnon 2006:94). In essence, these programs offer an effective method for the management and protection of submerged cultural sites while also encouraging programmatic aspects of community involvement and interpretation (Scott-Ireton 2005:104).

Conclusion

While the first section of this chapter discussed the theoretical frameworks that shape this thesis, the second section provided a detailed analysis of the treasure hunting, archaeology, and management of the Spanish Plate Fleet shipwreck sites and their associated terrestrial salvage camps. This section also discussed Florida's treasure hunter permitting process to reveal the limited archaeological work and loss of material culture associated with the *flotas*. Additionally, due to modern development and the turbulent nature of the Florida coastline, many of the Spanish *reals* no longer exist. Only two *reals relating* to each fleet have been excavated using archaeological methods. Although dated, these excavations are the only source of information in existence regarding the conditions, life, salvage operations, and inhabitants operating out of the Spanish *reals*.

Chapter 4. Methodology

Introduction

This thesis incorporates various methodological approaches, including historical and archival inquiry, a material culture analysis, and an ESRI Story Maps application to spatially display findings. The Florida State Archives, located in Tallahassee, Florida, was visited to gather information regarding the Spanish Plate Fleets found in the *Archivo General de Indias*. In conjunction with the primary documents collected at the State Archives, archaeological reports provided by BAR, DHR and the State of Florida Archaeological Collections were also examined during the literature review. In addition, several secondary historical sources and previously conducted studies on enslaved divers, Caribbean ship construction, and Spanish Plate Fleet studies were also accessed. Treasure hunter adventure novels were consulted to provide supplementary historical and modern salvage context.

Furthermore, a visit to the State's Collections provided an opportunity to examine artifacts associated with the 1715 and 1733 Plate Fleet shipwreck sites. Unfortunately, the BAR Conservation Lab does not curate artifacts from any of the 1622 vessels. Therefore, this thesis did not incorporate a material culture analysis of pertinent artifacts from this fleet. Although Collections did not curate the artifacts associated with the 1715 Winter Beach salvage camp site, and the artifact assemblage from the Higgs Site were unavailable for viewing during the pandemic, the archaeological reports for each site were used to provide a material culture analysis.

Lastly, the results of this thesis are shared using ESRI's online GIS application known as Story Map to explain and preserve knowledge about the 17th and 18th century Spanish salvage industry off the coast of Florida. Implementing a Story Map is a helpful tool in not only retelling

the history of Spanish salvage but also reveals the geospatial relationships between the various networks acting within the salvaging process through visual representations.

Literature Research

The first component of the research methodology for this thesis is historical and archival inquiry. The microfiche collection from the *Archivo General de Indias* consists of correspondences, reports, cargo manifests, and investigations regarding the expeditions of the 1622, 1715, and 1733 Spanish Plate Fleet shipwreck sites. While as many primary sources as possible were consulted, due to the translation ability of the author and the condition of some of the documents on the microfiche, much of the research gathered for this thesis is from secondary sources that summarize and refer to known primary Spanish accounts. Ledesma's (1623) *Description of Seven Salvage Techniques*, however, was the most significant primary source this thesis incorporated that directly explains and illustrates the various salvaging methods the Spanish employed.

Several secondary sources provided background information regarding Spanish colonialism, trade, and life among the survivor and salvage camps. Much of this information resided in archaeological reports in the Florida Master Site File and popular adventure books written by modern treasure hunters about their exciting and sometimes harrowing exploits of the salvaging of the 1622, 1715, and 1733 fleets. Melissa Price (2015) summarizes what these adventure novels entail in her thesis, "Intellectual Treasure Hunting: measuring Effects of Treasure Salvors on Spanish Colonial Shipwrecks Sites:"

> Written by treasure salvors who both legally and illegally salvaged the sites from the 1960s to 1970s, popular treasure salvor publications were written for a general audience

> and detailed the various salvage activities conducted on underwater sites in Florida. The type of information presented in the books was not meant to provide details of site measurements or artifact counts, but instead to introduce readers to treasure salvage (2015:62).

While these novels are often structured to entertain, they also provide relevant historical and sometimes archaeological data. For instance, Robert Weller's (1987) *Sunken Treasure off Florida Reefs: The 1715 Spanish Plate Fleet* and *Galleon Alley: The 1733 Spanish Treasure Fleet* (2001), provided this thesis with information regarding the materials found on the 1715 and 1733 fleets shipwreck sites, and although most of the archival facts are not cited in-text, these novels provided a references list for further research. In the case of Weller's novels, his research enabled this thesis to discover more about the Spanish salvage activities and tools.

Material Culture Analysis

This thesis also incorporates a limited material cultural analysis of various tools and items that could be associated with historical salvage. Working from secondary sources and previously translated manuscripts from the Archive, the author pieced together equipment that the Spanish recorded using. Items such as sounding leads, long pile poles, cargo hooks, wrecking bars, nets, and chains were recorded across various sources. An overview of each of these items was provided to describe their original purpose and function while arguing for their multipurpose use in historic salvaging. Examples of these items were selected measured, weighed, photographed, and described from the 1733 artifact collections curated at the BAR, DHR Conservation Lab.

Furthermore, the list of relevant artifacts implemented in the historical salvaging process was compared to an Excel spreadsheet which listed all the artifact assemblages associated with the 1715 *real* sites and each shipwreck site from the 1715s and 1733s curated at the Conservation Lab. From there, tables were made to account for the number of times these artifacts appeared in the assemblages for each site.

The collection of 1733 artifacts in the State's Collection were recovered under Florida salvage contracts during the 1970s and 1980s. In fulfillment of Florida Law, the State kept a percentage of the artifacts found by the treasure hunters (Wilder 2000:96). The 1733 artifacts residing in the State's collection represent a mere fragment of the total cultural material found across all 1733 shipwreck sites. Because there has not been any archaeological excavation or sanctioned salvage operation on any of the associated salvage campsites, there is also no material culture to examine that ties explicitly back to the 1733 Spanish *reals*.

Additionally, at the time of data collection for this thesis, the artifacts associated with the Higgs Site (8IR24/8IR26) were held in the 'Vault' of the State of Florida Collections. Due to time restraints and Covid-19 protocol, the researcher could not access the artifacts associated with The Higgs Site while visiting the collections. Consequently, this research uses Smith's 1949 archaeological report to conduct a limited material culture analysis of the artifacts recovered from this site. The Conservation Lab also provided an Excel spreadsheet of all the artifacts belonging to the Higgs Site. From the descriptions of the 92 artifacts in the assemblage, it appears that most of the artifacts are personal effects or cargo. The Conservation Lab did not curate the artifacts from the Winter Beach salvage site (8IR818). Likewise, this thesis relies on Armstrong's 2001 archaeological to analyze the material culture excavated from this site.

ESRI Story Map Application

Results from this thesis are shared using ESRI's online GIS application known as Story Map to demonstrate the MCL of salvage operations and preserve knowledge about 17th and 18th century Spanish salvage industry off the coast of Florida. The ArcGIS Story Maps application combines maps with narrative text, images, and multimedia content in an easy-to-build webpage without requiring excessive computer programming skills (ESRI 2021). Story Maps allow viewers to see the connections, patterns, and relationships between data through points on a map. Thus, the Story Map platform provides a unique opportunity for researchers, scientists, analysts, businesses, and various other fields to distribute information on a free online publication with universal access (Tan 2020:84).

Archaeologists are constantly incorporating new forms of technology to "challenge previously held hypothesis and expand the capabilities of current research" (Scott and McFeaters 2011:103). Accordingly, the use of GIS in the archaeological field has created a "dynamic environment for archaeologists to record, integrate, investigate, and analyze data including but not limited to: artifacts, environmental factors, sites, and boundaries" (Wheatley and Gillings 2002:18; Tan 2020:84). By documenting all archaeological material and features of a site and creating a map through GIS, archaeologists have added a new methodology to the archaeological toolbelt, thus developing new theoretical approaches to studying human history.

Archaeologists increasingly utilize digital platforms like websites, blogs, and social media outlets to engage and disseminate their findings with a broader audience outside museums and publications (Alemy et al. 2017:289). Recently, archaeologists have also adopted Story Maps to communicate archaeological findings in a digestible and easily accessible platform (Wheatley and Gillings 2002:9). Not only do Story Maps provide an engaging and interactive

space for disseminating research, but they also grant an opportunity to educate the public, in plain language, on various archaeological methodologies and processes while crafting a narrative that combines history and archaeology. Additionally, the visual characteristics and spatial attributes of the ArcGIS Online mapping system and the Story Maps platform have created a way for archaeologists to record and analyze information while inadvertently creating a host of different archeological questions and reasoning. ArcGIS Story Maps has proven to be a powerful tool for conveying historical and geospatial data to a global audience (Roth et al. 2017).

For example, in her thesis "Manila Galleons in the Commonwealth of the Northern Mariana Islands: An Analysis of the Cultural Impacts on *Santa Margarita* and *Nuestra Señora de la Concepción*, Aleck Tan created a Story Map (https://www.arcgis.com/apps/MapSeries/index.html?appid=ea91f5a1a27c43659c43f42ca1644871) to share information about Manila galleons and the Marianas' Spanish colonial heritage to help highlight the Indigenous and scientific knowledge about the Manila-Acapulco galleon trade network during the Spanish colonial period (2020:87). Since ESRI's Story Maps application provides free universal access to information for a broad audience, users can interact and engage with the material, thus pivoting the responsibility for learning onto the audience (Steinberg and Steinberg 2015:347; Tan 2020:86). Additionally, since information is published on an online platform, Story Maps "act as a digital knowledge bank to safeguard this knowledge for current and future generations" and "encourage a dialogue between generations about the protection and management of their tangible and intangible heritage" (Larrain and McCall 2019:663-665; Tan 2020:87). Because ArcGIS Story Maps provides users with a multitude of options for creating, displaying, and organizing data, there are endless possibilities for archaeologists to broadcast their research and tell the stories of the past.

Overall, the ESRI's ArcGIS Story Maps produced from this research can serve as an updated, interactive, and engaging presentation for re-telling the history and salvage of the 1622, 1715, and 1733 Spanish Plate Fleets. Additionally, this Story Map can be implemented to educate Florida communities on their local heritage while also encouraging the protection and preservation of the submerged archaeological sites in the region. Furthermore, since not everyone can access the submerged sites, the Story Map can facilitate a digital experience of the sites and their history.

Conclusion

The literature research conducted for this thesis presented valuable information regarding the Plate Fleet shipwreck sites and the historical and modern salvage. The visits to the BAR, DHR, the Florida State Archives, and Collections provided numerous primary and secondary sources that shed light on the above topics. Information on the current ownership and laws that govern commercial salvage of the 1622s and 1715s was obtained through personal communications and reports provided by BAR, DHR and the FKNMS. Material culture analysis of the artifacts associated with the 1733s and the 1715 cranniken or crank detailed possible equipment that may have been used in the Spanish salvaging efforts. Lastly, the Story Map created for this thesis can be used as a public outreach tool to promote preservation and protection of the individual histories associated with the fleets as well as demonstrate the MCL of the Spanish salvage industry. It is hoped that through accessible education, communities that are knowledgeable of the histories of the shipwreck sites will be less likely to collect artifacts and instead be more inclined to protect and conserve them for future generations.

Chapter 5. Salvage Themes and the Maritime Cultural Landscape of Salvage

Introduction

While the disasters of 1622, 1715, and 1733 exemplify the momentous efforts undertaken by the Spanish government to recover the cargo of the fleets, they also reveal reoccurring salvage themes seen within the archival record and significant MCLs. This chapter discusses the overarching salvaging themes from the salvagers themselves to the vessels and methods employed in salvage operations. Additionally, the conditions and circumstances in which the salvagers lived and performed their duties are also discussed. Lastly, an ESRI Story Map is incorporated as a visual research component to demonstrate the MCL of the Spanish salvage industry.

Main Salvaging Themes

The first theme is Spanish utilization and importation of enslaved Africans to recover wrecked cargo. Salvage operations commenced seasonally following the hurricanes, and Spanish authorities extensively documented the process. Although one-sided, these records provide insight into the second theme; the conditions the survivors and later salvagers endured and the modes of labor and relationships between the enslaved divers and their Spanish employers. Additionally, these records allude to the paranoia of Spanish authorities eager to protect and defend salvage operations from pirates and Native Americans. Lastly, the third salvage theme is the use of specially equipped vessels, *balandras* (sloops), and *fragatas* (frigates) used throughout the rescue and salvaging process. Although a detailed description of the design and construction of *balandras* remains unknown, it is inferred from references in the archival record that that this vessel type was lean, swift, and single-masted.

Enslaved Divers: Modes of Labor and Power Dynamics

In his book, *Undercurrents of Power: Aquatic Culture in the African Diaspora*, Kevin Dawson (2018:57) explains that long before the establishment of New World slavery, West Africans residing along coastal and riverine waterways were some of the greatest swimming, diving, canoeing, and surfing experts in the world. As Europeans sought to conquer African communities, some Africans possessed ecological advantages such as controlling territorial waters that forced "Europeans to treat them as equals and superiors as they largely controlled the terms of commerce into the late 18th century" (Dawson 2018:57). Dawson (2018:57) argues that in Africa and the Americas, "aquatics undercut European attempts to project power across waterscapes." Much like how MCL and seascapes incorporate cultural perceptions and relationships with bodies of water, waterscapes can refer to any body of water within a landscape from oceans, rivers, and streams to lakes, springs, and wetlands; however, it also refers to the ways "people attach values to different watery contexts and to the various characteristics water can have [which]… are often beyond the practical uses of the water" (Rogers 2012:329). Thus, waterscapes can also extend to a maritime culture's geopolitical spaces, sea power, and economy. Dawson (2018:57) explains that as Africans incorporated aquatics into regular work routines, they became a central contact facet with Europeans.

The arrival of Europeans created new work opportunities for Africans. From scraping barnacles from ship hulls to salvaging shipwrecks, Europeans were transfixed by their ability to 'swim like a fish' (Dawson 2018:61). Eventually, slavers exploited Africans' capacity to swim and dive underwater and began "targeting members of ethnic groups known to be strong swimmers" (61). Slavers preferred the Africans inhabiting what is now Liberia and the western

Ivory Coast as *Kru* (also Kroo, Kroomen, and Krumen) because they were renowned swimmers, canoeists, and divers (Dawson 2018:58).

As the Spanish established themselves as a dominant power throughout the Caribbean during the 16th century, the need for experienced aquanauts became a vital component to several industries. Notably, most Europeans, including sailors, could not swim (Dawson 2006:1327). Therefore, the Spanish utilized Indigenous and later African divers for pearl harvesting, routine maintenance of ships below the waterline, and salvaging wrecked cargos (Ratcliffe 2011:36). Specifically, within the pearl harvesting industry, or *rancherías de perlas*, the Spanish initially used Guaquerí peoples indigenous to Margarita Island off the coast of Venezuela to mine the oyster colonies. The Guaquerí population soon plummeted, however, due to violence and exposure to European diseases. The Spanish then turned to the Lucayan residents from the Bahamas to fish for oyster pearls (Warsh 2010:347). Again, the native population began to decline, forcing the Spanish to "extend their slave raids into Carib and Arawak settlements in the Lesser Antilles and along the Caribbean coast up to the Yucatan" (Warsh 2010:347). In fact, the drastic decline in Indigenous life forced Spain to pass a series of decrees from 1585 to 1601 under the *Recopilación de leyes de los Reinos de las Indias* (The Compilation of Laws of the Kingdoms of the Indies) which regulated the implementation of Indigenous people in the fishing of pearls and instead promoted the use of enslaved Africans as a labor source (Francisco Domínguez Compañy 1971:67).

Because the *rancherías de perlas* produced an astonishing amount of wealth, Spain increased the steady importation of enslaved Africans to account for the decreasing native populations. By the 17th and 18th centuries, enslaved Indigenous and African divers worked side by side in pearl harvesting, no doubt sharing techniques (Warsh 2010:347; Dawson 2018:64).

The coerced Africans were put to work in various swimming, diving, and lifeguarding operations (Dawson 2006:1327; Dawson 2018:62). Because there is no known evidence suggesting Westerners ever mastered freediving, the Spanish "unwittingly ceded increasing leverage to Africans" (Dawson 2018:64). African aquanauts were highly skilled bondspeople who possessed a lucrative and dangerous skill set that cornered the market for pearling and salvaging—especially in deeper waters. They "cloistered this wisdom so few knew the secrets…[creating] semi-fraternal orders that prevented slaveholders from appropriating and propagating their wisdom" (Dawson 2018:64). Enslaved divers, in effect, procured wealth and exercised their knowledge and control over the diving industry to gain opportunities (Dawson 2018:65).

Although many West African women were also skilled divers, Western concepts of gendered labor confined enslaved women "to the monotony and drudgery of the field more regularly than their male counterparts" (Morgan 2004:146-147). European perceptions of maritime labor being a male occupation "precluded the exploitation of the women, at least in the water" (Dawson 2018:61-62). Conversely, some research reveals that the Spanish preferred female divers over their male counterparts because they believed they were better divers overall (Ratcliffe 2011:36; Marx 1990:18). The salvage records for the Plate Fleets do not specify the utilization of female divers. In the context of employing divers, however, "sources suggest that slaveholders preferred to import skilled African divers rather than train novices" (Dawson 2018:65; Mosk 1927:131).

Many of the enslaved divers lived in maritime communities adjacent to major ports and were hired by salvagers via their owners. Since the divers operated apart from their owners, and depending on the employer and circumstance, they obtained a kind of autonomy where they could arrange their own work time and receive wages. In return, "they enjoyed considerable

mobility, weaving far-reaching networks of friendship and family as they traveled across the Caribbean" (Dawson 2019:86).

In some instances, enslaved divers even cooperated and conspired with slaveholders and white employers in smuggling recovered goods into homeports, "permitting them to exchange their expertise for semi-independent lives of privileged exploitation" (Dawson 2019:43). During the 1733 wrecking, however, General de Torres, the commander of the fleet and by default appointed to oversee the emergency salvage operations, was so concerned that the hired salvage divers might pilfer some of the recovered silver, he placed armed guards aboard the *balandras* and on shore to prevent any possibility of thievery. Worried still that the enslaved divers working together over "extended periods of time might concoct a scheme to secrete some silver and recover it at a later date," de Torres also ordered that the divers be routinely rotated between teams and ships (Viele 2001:12). Some reports indicate that divers would stow materials in caches both underwater and on shore to return to at a later date (Viele 2001:12). De Torres's actions illude to the paranoia Spanish authorities established after several previous mass wrecking of the coast of Florida.

Well aware of their reliance on divers, coupled with the intense pressure of the Spanish Crown to recover commodities and the inevitable unauthorized attempts of salvaging by pirates, freebooters, and local Native American groups, Spanish authorities had to carefully navigate the treatment of their enslaved laborers to effectively recover goods quickly. Depending on weather and ocean conditions, divers generally worked in shifts from morning to noon, making one dive every five to ten minutes during salvage procedures (Dawson 2019:46). At the end of each day, divers generally spent a collective 40 to 60 minutes underwater. Because it took time to send for more divers, and they possessed abilities few held, there was a reluctance for enslavers to

implement physical violence on divers for indiscretions or misconduct (Dawson 2018:86). Instead, white employers manipulated divers with benefits and rewards, instilling a "pride in workmanship, concepts of honor and masculinity" to drive divers to excel (Dawson 2018:88). Promises of freedom also enticed divers to continue to work under harsh conditions. Such was the case of the search of *Margarita* in 1626, when the enslaved diver, Juan de Casta Bañon, located the wreckage was promised and later granted his freedom (Ratcliffe 2011:40).

In essence, white salvagers used incentives rather than coercion to extract incomes from divers' capable minds and bodies (Dawson 2018:88). Thus, while aware of the inherent dangers of diving,

> …white salvagers cultivated reciprocal relationships with divers, promoting arduousness by avoiding coercive discipline while nurturing a sense of mutual obligation arising from collective responsibilities and material rewards. Enslaved salvagers were, in several important ways, treated like free, wage-earning men. They were well fed, receiving daily allowances of fresh meat. Most resided in seaports, were hired out, and received equal shares of recovered goods, allowing many to purchase their freedom and that of family members (Dawson 2019:43-44).

Therefore, because diving was a highly sought after and dangerous skill, it influenced the relationships between enslaved divers and Europeans. As stated above, these relationships could lead to rewards and limited privileges (Dawson 2006:1329).

In return, enslaved divers often took advantage of their position and "enjoyed privileges exceeding those reserved for the most expert craftsmen" (Dawson 2018:85). Their skill set

elevated them into a position of skilled occupations, thus enabling them to "evade the drudgery of fieldwork, find dignity in their labor, enhance their self-esteem, become highly regarded by fellow slaves, and sometimes obtain cash payments" (Dawson 2018:86). While many enslaved persons that attained skilled occupations such as craftsmen could be rotated into different positions in agricultural fields or be stripped of their privileges due to misconduct or the whims of their owners, enslaved divers contained a skill set that could not be easily replaced. As a result, enslaved divers formed a discrete occupational group that actively participated in the social, cultural, and political networks across the Caribbean (Dawson 2018:86). They were active agents, negotiating dynamic situations to improve their circumstances.

Physiological Effects of Diving and Work Conditions

As Spanish influence spread throughout the Caribbean, the use of enslaved freedivers and occasional Indigenous divers in salvaging shipwreck sites became a vital industry to recover submerged cargos. While it was custom for larger Spanish ships to have at least one diver onboard to perform repairs and maintenance on a vessel while at sail, comprehensive salvage expeditions needed teams of divers to adequately salvage materials (Pérez-Mallaína 1998:72). Enslaved salvage divers possessed such a niche skill set that produced "spectacular amount of wealth for their mother countries, owners, and colonial governments," some reports indicate that they were treated better than plantation slaves (Dawson 2019:43). It should be noted, however, that the Spanish wreckers did not record detailed descriptions of the wrecking divers, so their exact treatment is unknown (Dawson 1996:1350).

Freedivers spent years honing their minds and bodies to the physical effects of repeated prolonged emersion at depth. All aquatic and terrestrial mammals undergo the diving reflex, also

known as the mammalian diving reflex, which protects the heart, brain, and lungs, when submerged in water below 70 degrees Fahrenheit. When the face is submerged in cold water, breathing slows the pulse and pumps blood from the extremities to vital organs for warmth (*The Washington Post* 1990:B7; Panneton 2013:284). Because mammals require oxygen to survive and they cannot breathe underwater, the diving reflex acts to conserve vital oxygen stores to survive the anoxic environment (Panneton and Gan 2020). Medical research suggests that due to the frequent and prolonged effects of freediving, freedivers developed leaner physiques, decreased metabolism rates to consume oxygen more efficiently, and even altered vision which enabled divers to see twice the normal range underwater while also decreasing eye irritation in saltwater (Lindholm and Lundgren 2009; Foster and Sheel 2005; Gislén et al. 2003:833). To expand lung capacity and oxygenate their blood, freedivers also took several long, deep breaths before submerging (Dawson 2019:45).

Apart from the physiological challenges of diving at depth for extended periods, freedivers encountered several perilous hazards while working. Pressure-related injuries or barotrauma caused by inadequate equalization of air-filled spaces led to ruptured eardrums and sinuses. To a harsher degree, lung overexpansion injuries were also a risk. Interestingly, in Sir Francis Drake's manuscript, *Histoire Naturelle des Indes* (The Natural History of the Indies) (1586), which depicts the various plant, animal, and human life they encountered on their voyage, there is an illustration of a conche and the organism living inside it was used to alleviate earaches from frequent dives (FIGURE 5.1).

Additionally, several Spanish accounts indicate that divers were "frequently attacked and wounded or killed by sharks, manta rays, or other creatures" (Warsh 2010:349). Much of the narrative concerning underwater animals is inflated by Westerners' fear of the underwater realm.

For instance, although manta rays are relatively harmless to humans, Drake's manuscript depicts a harrowing event of an enslaved diver being eaten as he searches for pearls (FIGURE 5.2). Divers learned, however, to "recognize the presence of unseen sharks by the actions or absences of smaller fish and probably distinguished more aggressive bull and tiger sharks from less dangerous species" (Dawson 2018:72). Furthermore, freedivers learned to work with ocean tides and currents to avoid overexertion.

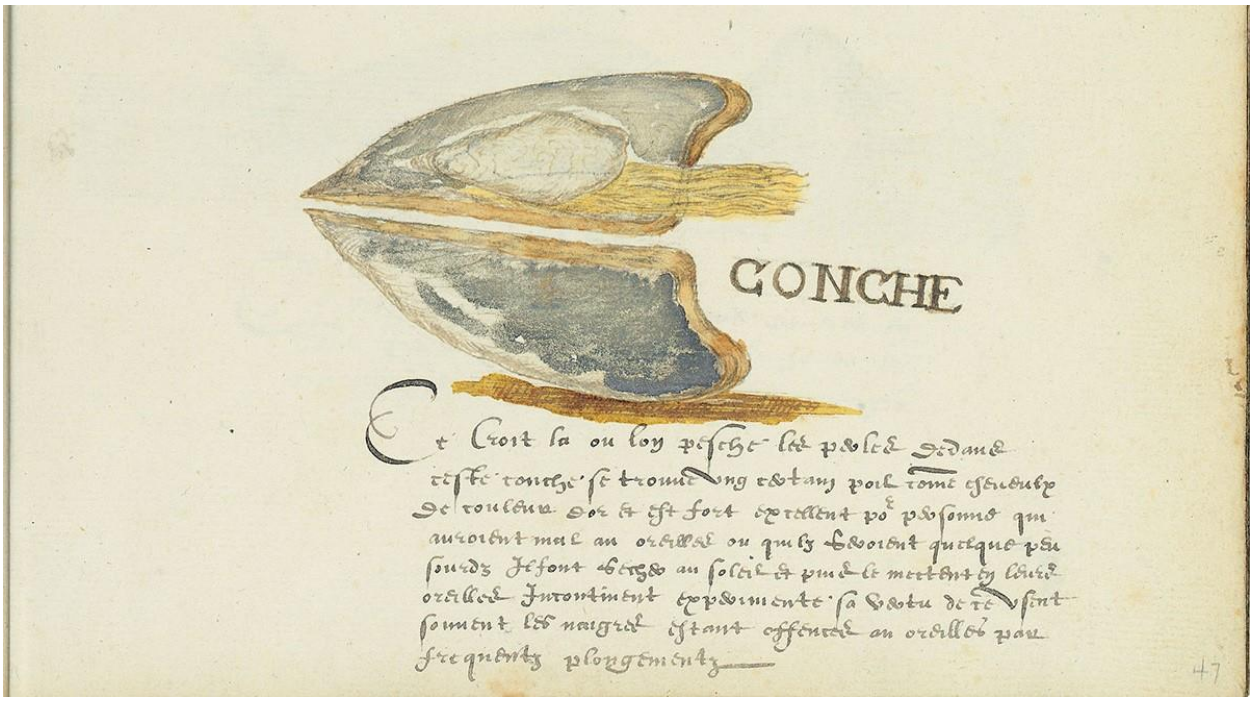

FIGURE 5.1. Depiction of a conche from *Histoire Naturelle des Indes* (1586). The inscription reads "It grows where one fishes for pearls. In this conch is found a certain hair like human hair the color of gold and it is very excellent for people who have an earache or who are somewhat deaf. They dry it in the sun and then put it in their ears and immediately fell its benefit. The negros often use it, their ears being hurt by frequent dives" (The Morgan Library and Museum, folio 47v).

According to some accounts, "the pearl divers of Margarita Island could remain submerged for 15 minutes or more" (Ratcliffe 2011:36). As shallow oyster reserves depleted, however, pearling operations moved deeper to depths ranging from 40 to 120 feet. Divers usually dove naked and sped their descent by placing rock weights tied together with a cord over their

shoulders (Vázquez de Espinosa 1942:51; Ratcliffe 2011:36; Marx 1990:8-19). Ledesma's manuscript also depicts divers holding onto weights as they descend.

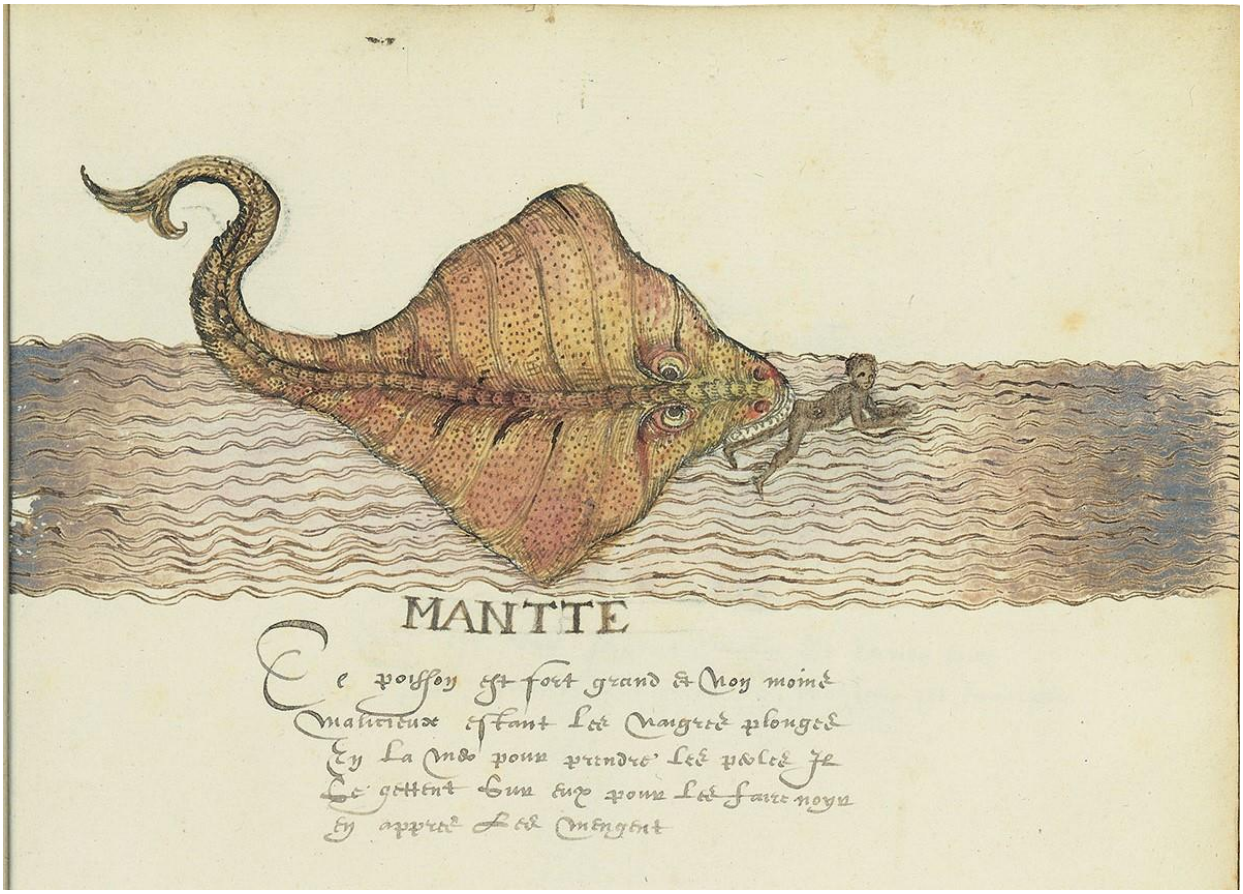

FIGURE 5.2. Depiction of a manta ray catching an enslaved pearl diver from *Histoire Naturelle des Indes* (1586). The inscription reads "This fish is very large and no less vicious. When the negros dive in the sea for pearls it jumps on them to make them drown and afterwards eats them" (The Morgan Library and Museum, folio 46v).

During the beginning of the *rancherías de perlas* in the 1500s, enslaved pearl divers experienced oppressive conditions and, in effect, suffered physical abuse and high mortality rates. Antonio Vázquez de Espinosa (1942), an explorer and naturalist during the late 16th century, documented his observations of the African pearl divers:

> Those who have disappointed their master in their catch of pearls, or who are contrary, they keep in these dormitories or prisons, grills, and cells, and they punish them by

> beating and flogging them in a cruel and savage manner, a procedure quite alien to the profession of Christianity, except that in what concerns this traffic [slavery], every possible means is required, for without it they would not do a thing (Vázquez de Espinosa 1942:52).

Vázquez de Espinosa (1942:52) also states that the divers were locked in their dormitories to prevent sexual intercourse, not so much the notion of escape. The harsh treatment of divers and high mortality rates forced Spain to institute additional decrees to regulate the treatment and work conditions of the pearl divers (Francisco Domínguez Compañy 1971:67). For instance, in a 1529 decree within the *Historia general de los hechos de los castellanos en las islas y tierre firme del mar océano* (A General History of the Acts of the Castilians in the Islands and Mainland of the Ocean and Sea), Antonio de Herrera y Tordesillas cites that Charles I ordained that pearl harvesters work for about 4 hours in depths of no more than 5 fathoms (30 feet), or up to 3 hours at 8 fathoms (50 feet) (Herrera y Tordesillas 1529; Warsh 2010:349). Additionally, the decrees instituted that divers be given good provisions such as wine "because it gives them great sustenance," as well as clothing "so that they could change when they returned from the sea, and hammocks, or beds, where they could sleep" (*Historia general de los hechos de los castellanos en las islas y tierre firme del mar océano* 1529).

By 1542, an ordinance cited in Juan de Solorzano Pereira's *Politica Indiana* reveals attempts of the Spanish government to switch to more humane treatment of enslaved divers:

> Because it has been related to us that from the fishery of pearls, due to the fact that it has not been carried out in the good order as it should have been, there have resulted the

> deaths of many Indians and Negroes, we command that no free Indian shall be taken to the afore-mentioned fishery against his will, under pain of death. And let the Bishop and Judge who shall be in Venezuela ordain what seems good to them, so that the slaves who are occupied in the afore-mentioned fishery, both Indians and Negroes, may be preserved and the deaths cease. And if it seems to them that the danger of death to the afore-mentioned Indians and Negroes cannot be eliminated, let the fishery cease, because, as is right, we esteem much more highly the preservation of their lives than any advantage which might come to us from the pearls (Solorzano Pereira 1648).

Despite the violent conditions some African divers endured, Vázquez de Espinosa (1942:52) indicates that many pearl divers used their skills to gain privileges and rewards for their hard work. For instance, although slaveholders could suffer heavy penalties, they often granted divers with a portion of the harvested pearls which they could sell or awarded "suits of clothes or other valuable articles of clothing" (Vázquez de Espinosa 1942:52-53). In the case of both enslaved pearl harvesters and salvagers, a "divers' value…was not measured by the duration of their labor but by the quantity of goods raise" (Dawson 2018:76).

In the case of the Plate Fleet *reals* sites, not much is known about the living conditions and relationships between the divers and the Spanish salvagers in the *reals*. The little evidence known comes from the archaeological excavations by Armstrong during his investigations at the 1715 Winter Beach Salvage Camp site. The Winter Beach Camp contained a number of material culture for recreational activities such as dice, gaming boards, pipes (Armstrong 2001:26). Food waste, broken glass, and other debris were discarded throughout the site on the ground's surface and not deliberately buried. Armstrong noted that the amount of garbage in the form of oyster

shells, animal bones, and other waste throughout the living areas of the camp, indicate that the occupants practiced an apparent lack of hygiene that invites an environment conducive to disease and infection (Armstrong 2001:7). Armstrong speculates that the "resident salvage divers must have been at special risk due to the nature of slow healing that occurs during long periods of underwater activity" (Armstrong 2001:7). Armstrong does not allude to any specific instance of diver health recorded by the Spanish, however.

Armstrong's excavations identified at least one fire pit and evidence of crude shelters in each slash-and-burn clearing. These clearings were made during each salvage season. While the divers and salvagers could have been eating and sleeping at separate fire pits, the evidence of garbage strewn about the site suggests that the enslaved divers and the Spanish salvagers were living in the same untidy conditions. The debris glass bottles, and garbage strewn about the camp "paint a virile picture of camp life, in which after a day of dangerous work…the soldiers and divers drank and gambled by the campfire" (Dobcovsky 2018:5). Smith's investigations into the Higgs Site determined that nearly all the materials excavated were found in approximately equal numbers throughout the occupational stratum, suggesting there was no formal organization of living conditions (Smith 1949:21). Therefore, both *real* sites suggest that temporary frontier life for the salvagers was rudimentary and lacked any hygiene regulations. Yet, based on the evidence collected by Smith and Armstrong, there does not seem to be any difference in the standards of living between the Spanish salvagers and the enslaved divers. This supports the narrative offered by Dawson's work as divers and the white salvagers often received the same food, clothing, and shelter while working (2018:87).

Salvaging Vessels

While there is abundant scholarship among the Florida wreckers in both salvaging vessel ship construction and the techniques and equipment employed during the 19th and 20th century, there is a definitive gap in the literature on salvage for anything prior (Schene 1978:262). Additionally, there is also a lack of archaeological data pertaining to the specific Spanish sloops (*balandras*) of the 17th and 18th century in general. Therefore, the data collected for this thesis centers on the archival accounts of the Spanish salvor documents and secondary references that allude to salvaging operations of the 1622 and 1733 fleets. Furthermore, a comparative analysis of the Jamaican and Bermudian sloop, is utilized in an attempt to understand what most likely resembled a *balandra* in both form and construction.

Due to limitations in archival documentation and archaeological material about Spanish ship-construction, the use of "iconographic sources such as contemporary paintings or crude depictions on maps and charts" and ship replicas are traditionally used to describe the characteristics of ships (Smith 1993:vii). While these methods provide a general idea of how ships looked, they lack the technical information needed for understanding "internal hull construction, details of standing and running rigging, equipment, hardware," and the types and outfits of artillery onboard (Smith 1993:vii). Despite this, the archaeological record has revealed portions of Iberian-constructed hulls, mostly galleons, *naos*, and *caravela* (caravels). Unfortunately, there is a gap within the archaeological record. Identifying specific ship types—particularly Spanish vernacular watercraft, is challenging to research. Despite the everyday use and popularity of smaller vessels, there is generally little to no design or construction blueprints and sometimes not even specific definitions that survive (Evans 2007:83).

Another complication in the study of ship types is the fact that there can be multiple names, across different nationalities and languages used to describe the same type of vessel.

Naturally, this can cause an array of difficulties in interpreting historical accounts (Vanhorn 2004:23). Additionally, ship types such as 'sloops' do not have a definitive meaning, particularly in the 17th century. For instance, in *A Naval Expositor*, a nautical dictionary published in 1732, vessels with one, two, or even three masts with square or round sterns could be defined as 'sloops' (Evans 2007:84).

When addressing vessels used in salvage operations, details into specific types of ships and how they were outfitted with salvage equipment, are difficult to find in the archival and historical record. John Viele's (2001) third volume in *The Florida Keys: The Wreckers*, provides an excellent chapter on Spanish salvage of the 1622 and 1733 fleets. When discussing salvaging outfits, however, Viele states "each team consisted of fully equipped salvage vessels and trained salvage divers" (2001:5). Unfortunately, the text does not provide any information regarding what type of vessels were employed in salvaging efforts. Regrettably, this appears to be the case with a number of scholarly research into salvaging of the Plate Fleets (Dawson 2019; de Bry 2018; Link 1996; McKinnon 2006: Ratcliffe 2011; Smith and Dunbar 1977; Smith 1988; Weller 1987). Despite this limitation, the 1622 and 1733 Spanish correspondences that document the rescue and salvage of each Plate Fleet refer to a *balandra* or 'small sloop' as the primary vessel deployed to recover submerged cargos (*Contratación 5147-1733 Flota;* BAR, DHR 2004).

For instance, the following passages are taken from the *Contratación 5102, 5147-1733 Flota*: *1733 Archival Translations-Spanish to English* by Jack Haskins (BAR, DHR, 2004). These passages between several Spanish officials mention the various employments of *balandras* either conducting salvage operations or involved in salvaging process: (TABLE 5.1).

TABLE 5.1. 1733 accounts of *balandra* deployments.

1733 *Balandra* Dispatches from the *Archivo General de Indias* and *Contractación*				
Reference	**Date**	**From**	**To**	**Content**
Contratación 5147	12 July 1733	Alonso de Herrera Barragan	Senor Don Francisco de Varas y Valdes (President of the Consulado of Cadiz)	The Governor of that *Plaza* dispatched a *balandra* (one masted sloop) to scout out the area at the mouth of the Canal of Bahama to satisfy his doubt as to our fate. Upon learning our fate, he afforded aid with ships and supplies, as was executed by him and the Royal Officials of the city... He sent us up to 9 ships with distinct provisions which we passed out in moderate ration, supplemented by the supplies we were able to salvage from the expressed ships of Murguia and Don Antonio de Chaves.
Contratación 5147	19 Aug 1733	Alonso de Herrera Barragan	Senor Don Francisco de Varas y Valdes	A *Balandra* from the *Real* of the *Capitana* at Matacumbe arrived at Havana with 10 cannons; one of 18 pounds shot, and nine of 12 along with other hardware and equipment from the *Almiranta*.
Contratación 5147	19 Aug 1733	Juan Tomas de la Herrera & Diego Angulo	Our Senor the President & Official Judges of the *Casa de Contratacion*	On the 13th of July the *Flota* of Don Rodrigo de Torres sailed from this port to the one of Cadiz and after two days into this voyage a strong storm overcame him. We feared he may have come upon some difficulty in the Canal of Bahama and with this notice we prepared some ships with different people of trust who with all speed and effort were to repair to these places. Before they could sail, a *Balandra* entered this port (Havana) that was going to Porto Belo, it's Captain Don Nicolas de Arechavaleta with the notice of having seen 12 large ships grounded at the Head of the Martires, which cayos are close to us, that according to what he could perceive was the last departed *Flota*. Immediately we outfitted all the ships that were in this port, together with the aforementioned *Balandra*, which all told were nine in number. These ships were equipped with sufficient people and all were filled with plenty of provisions.
Contratación 5147	18 Aug 1733	Marques de Cavecas (Governor of Havana)	Journal Entry: Events which happened to the *Flota* under the command of Chief of Squadron Don Rodrigo de Torres	On the 15th it went around to the south and to other directions of the compass according to the trial of these coasts, which occasioned me to pray fervently for those in the hands of the bad effect of this in the mouth of the Canal of the Bahamas (where I now consider the squadron to be). This sorrow obliged me on the 19th to dispatch a *balandra* toward the motive of bringing me notice of the state of it. I awaited this with great impatience until the 21st, when fears were confirmed by Don Matheo Arechavaletta who arrived to this port with the motive of passing on to Cartagena. He said he saw 12 large ships grounded in the Cayos of the mouth of the Canal. Without waiting for a reply from the *balandra* which I had dispatched on the 19th, on the 22nd I promptly prepared 9 *balandras* with provisions, munitions, divers, gunners, a company of Grenadiers with all its officials, and the shipbuilder Don Juan de Acosta with the intelligence of his experience and long active service in these matters (like the one which had happened.... gave them the instructions and orders which I deemed necessary to rise up to the prompt help of those shipwrecked to remedy their needs. I also discouraged the robberies which are practiced in similar occurrences with the proper people of war. I gave instructions on the securing of the treasure which is to be remitted to this *Plaza* and principally from the English city of the Providence which when learning of this will approach with some wreckers. We shall take major care and vigilance in the transportation of the treasure.

References	Date	From	To	Content
Contratación 5147	18 Aug 1733	Marques de Cavecas (Governor of Havana)	Journal Entry: Events which happened to the *Flota* under the command of Chief of Squadron Don Rodrigo de Torres	I duplicated a *balandra* to Vera Cruz on the 26th, explaining what had happened to the Viceroy of New Spain, asking him for supplies to make up for those the ships lack, respective of their being able to take advantage of very little in the loss… From the cited 22nd 1 have not stopped providing supplies, divers, and armed ships of war, without reserving any of what was found in this port. The provision of water has been of the most need, all of the *Flota* being short of this. It was therefore necessary to fill all the ship's casks & barrels, and to employ barrel makers and squid catchers, besides buying bottles to ease this very great necessity.
Indiferente General 1957	25 May 1733	Commander De Torres Diary		... I sent the boat to the ship of *Therry* and to the Advise ship to pick up 12 sailors which I had given them. Since my ship was too windward of the others, I crossed over in front of them to pick up my boat which I reached a little after 11: 00 AM. I then stowed it within and by now I saw the 19 ships of my *Flota*, including one *balandra* and one *fragata* which were destined for Florida (San Agustin).
Indiferente General 1957	18 July 1733	Diary of the *Infante*		Another raft was made and filled with people and as before the launch towed it ashore. We received notice from the ship *Murguia* that it had grounded without taking on water, minus its main mast and some top masts, and that nearby was a *Balandra* which left in convoy with us from Havana bound for San Agustin loaded with flour. This *balandra* was afloat but without a mast. Also, it supposes from the said notice that the *El Gran Poder de Dios* managed to save itself on an anchor but was also dismasted.
	26 July 1733	Diary of the *Infante*		The *Balandras* returned from Havana with supplies and ere then loaded with people and salvaged silver for the return voyage.
	31 July 1733	Diary of the *Infante*		We learned from the *Balandra* that was dispatched for water to Cayo Bizcayno how an Aviso is anchored which sailed with us from Vera Cruz, it is dismasted of the main mast and spars and top masts and without a rudder. They didn't find anyone on board but they found a jury mast made. Likewise a piece of the Main mast had been fashioned into the rudder, as though someone had fixed it to try and sail out of there. Some of the ship's supplies were still on board and from aloft they spotted another ship grounded.
	2 Aug 1733	Diary of the *Infante*		The Captain's small boat arrived to this *Real*, which had been sent out as an Advise Boat, and in it were supplies. The *Balandra* also returned with one launch and one boat, these… [illegible]

Reference	Date	From	To	Content
Contratación 5102		Commander Don Rodrigo de Torres		One *Balandra* sailed in convoy with the said *Flota*. It was dismasted and badly worn, finding shelter between two keys. All of its people were saved along with 256 barrels of flour which aided in keeping the shipwreck survivors alive.
	14 July 1733	Commander Don Rodrigo de Torres		On the 14th of July Don Nicolas Arechavaleta sailed from Havana and the Port of Porto Belo in his *Balandra* and having been caught in the storm managed to make it back to Matanzas where he stayed until the 18th when the weather cleared. Continuing his voyage, by divine providence, he saw and recognized off the beaches of the Keys up to 12 large ships grounded. Being a merciful man, he returned to Havana to give this notice to the Governor, without being able to get close to any of the grounded ships.
		Commander Don Rodrigo de Torres		...They also loaded what treasure had been salvaged up to that time. For the security of the *Real* of the *Capitana* the Commander (Torres) ordered the Naval Captain Don Nicolas Alvares de Losada to construct two forts of four cannon each. [The well depressions are on Island Christian school land.] This was done in accordance with good military art and from the front of these they were able to command any route the enemy might choose. Afterward, the Knight Commander (Torres) ordered the Florida *Balandra* repaired and a new mast steeped. In it he sent Don Joseph de San Vicente with orders to the Havana. He repeated this act with the launch of the *Navio* of Don Reimundo de Soto in which was also embarked an Official of Orders. They encountered a *Balandra* off Cayo Hueso which had been dispatched from the Havana to scout the coasts arid they related inforration to them. Then the said launch returned to the *Real* transporting the men freed from the ship of Urquijo (San Ignacio)...
		Commander Don Rodrigo de Torres		To thwart the attempts of would be pirates on the grounded *navios*, the *Balandra* of Arechavaleta is armed and placed under the command of Lieutenant of *Fragata* Don Martin de Funes, which is to be maintained in sight of the *Capitana* and *Patache* all during the expedition.

In essence, these records while not exhaustive, indicate the various employments of a *balandra* during several salvage operations overtime of the 1733 fleet. Despite the lack of definition and construction of *balandras,* it served a number of purposes throughout the salvage process. The *balandra* was small and shallow drafted, which enabled the salvagers to maneuver through the shallow, rocky shoals and easily reach many of the wreck sites. Not only were they dispatched to quicky send supplies to survivors, but they were also equipped with salvage gear and used to ferry recovered cargo back to Havana. The speed of the *balandra* was used to send correspondences throughout the salvaging process. Armed, they were also used to patrol and defend *reals* from perusing pirates.

As to the construction and details of the *balandra* because there is limited archival evidence pertaining to its form and construction, a comparative analysis is necessary for understanding the vessel. During the 17th and 18th centuries, the pressure on Iberian shipwrights to build smaller, swifter vessels created a class of distinctly Atlantic types of ships that could voyage across the Atlantic while also navigate the shallow inlets in the Caribbean (Smith 1993:29). In his thesis "Standardization of Spanish Shipbuilding: Ordenanzas Para La Fábrica de Navíos de Guerra y Mercante –1607, 1613, 1618," Rodríguez Mendoza (2008) analyzes Spanish shipbuilding practices based off the ordinances issued during the early 17th century. While his thesis is an excellent summation of Spanish ship construction, Rodríguez Mendoza also provides a brief definition of a *balandra* taken from the *Norte de la Contratación de las Indias Occidentales,* written in 1688 by José de Veitia Linage. In this account, *balandras* are defined as "vessels used by the English, of the tonnage of a *Gavarra,* but swifter, which have a mainmast, and a bowsprit, but no foremast, and are very sturdy" (Rodríguez Mendoza 2008:54). The term *gavarra* was used to describe a large *barco* (boat), or "row-sail freighter, transport, or fisherman

with a low freeboard" (Wilkinson 2021). In other words, a *barco gavarra* was a catch-all term used to describe any large vernacular vessel. A smaller *barco* was referred to as a *barco longo* (Wilkinson 2021).

Although Rodríguez Mendoza (2008) does not provide illustrations of *balandras,* it is suggested that this vessel type was not originally of Iberian construction and was instead adopted by the Spanish. Interestingly, in a footnote, Rodríguez Mendoza (2008) reveals that in the translation of the *Norte de la Contratación de las Indias Occidentales* by English Captain John Stevens in 1702, Stevens "refers to the *balandra* as of Dutch construction, not of English construction, as mentioned by Veitia" (100). The sloop itself "came to the colonies as an evolution of Dutch-built coasting vessels" that eventually "displaced most other small coastal craft" (Southerly 2003:55). This suggests that although the Spanish mimicked the sloop form after English construction, it was most likely the Dutch that originally crafted the ship-type. Regardless, the Spanish *balandra* and the sloop form became a popular and useful vessel that was widely used in the colonial Americas during the 17th and 18th century. Unfortunately, there is little information about *balandras* other than the above definitions. By analyzing the characteristics of the Bermuda sloop and the Jamaican sloop, however, *balandras* may be similar in form and construction.

From 1710 to 1711, The Royal Navy standardized a class of English sloops that could service the English Channel. They were built to be fast cruisers and carry relatively heavy armament (Chapelle 1967:51). The dimensions and construction details from these naval English sloops are similar to that of the Bermuda sloop suggesting that it may have been a precursor to the vessel's design. According to 18th century mariners, the Bermuda sloop was "the best sailing vessel of its time" (Southerly 2003:3). While the history of the Bermuda sloop is somewhat

vague, vessels of this rig were initially built in Jamaica in the early 17th century and were renowned for speed, weatherliness, and good construction. As the century progressed, Bermuda became a shipbuilding center specializing in sloops and small two-masted boats along with a few brigantines (Chapelle 1967:65). An example of the Bermuda sloop in engraved plans was recorded by Fredrik Henrik ap Chapman's *Architectura Navalis Mercatoris* in 1768 (Evans 2007:89; Chapelle 1967:65) (FIGURE 5.3).

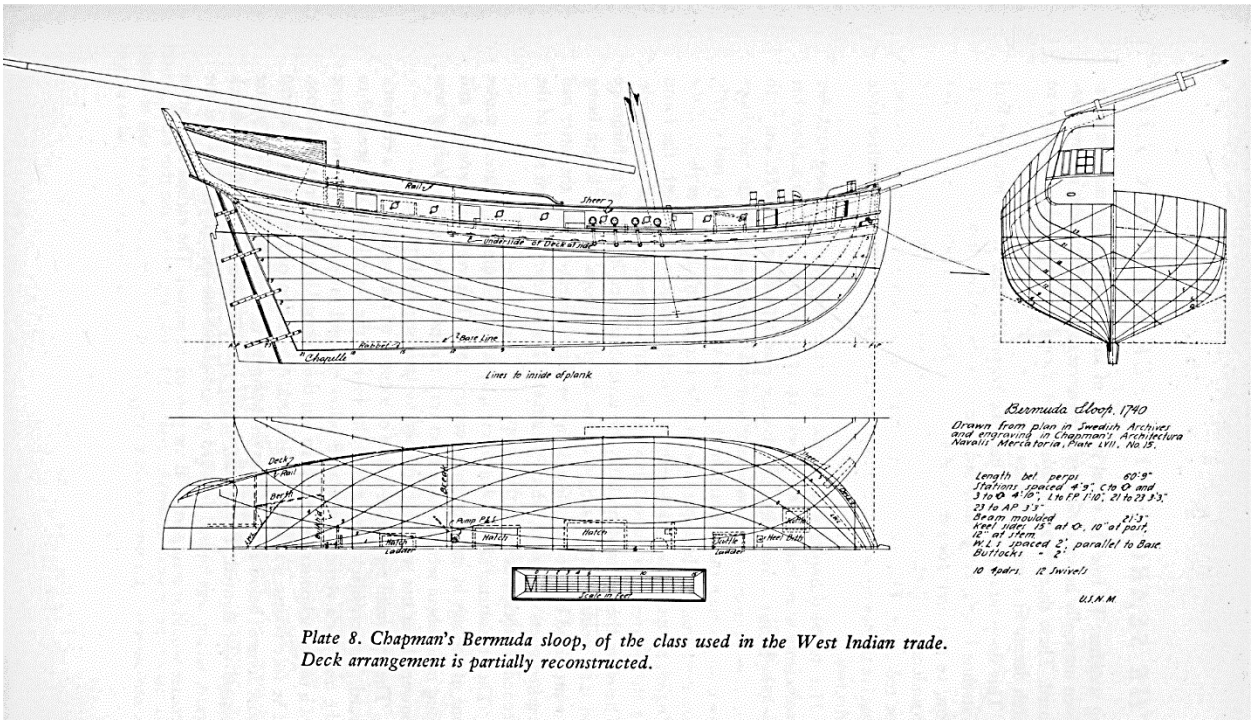

FIGURE 5.3. Chapman's plans of the Bermuda sloop (Chapelle 1967:67).

Within the commercial and economic climate of the Caribbean, Bermuda sloops became the ideal merchant and pirate vessel due to its size and durability, extent of cargo space, and speed (Southerly 2003:35-36). These vessels were constructed out of local cedar (*Juniperus bermudiana*) which contained a lower shrinkage rate as it cured which meant that it required "no seasoning and [could] be used green" (Southerly 2003:57). Not only was green wood easier to work, using green wood "eliminated much of the overhead and monetary investment for

shipbuilders" because they did not need to wait for the wood to mature (Southerly 2003:57). Bermuda cedar grew quickly and was considerably lighter and more durable than the other oak vessels built in the Americas, enabling the Bermuda sloop to sail better in slight winds while maintaining a strong exterior (Southerly 2003:58-59).

While there has yet to be a definitive Bermuda sloop existing in the archaeological record, there are a few plans referring to the vessel type's description, construction, and dimensions. For instance, in *The Search for Speed Under Sail*, Howard Chapelle (1967:65-66) explains that the existing plans consisting of the trademark characteristics of the Bermuda sloop of 1740 to 1750 can be seen well into the 19th century in the later fast-sailing American schooners—all of which exhibited the swift sailing abilities of the Bermuda sloop. Chapelle (1967:65) characterized the Bermuda sloop as:

> …wide and deep; the entrance short, convex, and full; the run long and fine. She [sic] had a moderate drag to the keel, much rake to the sternpost, and a well-rounded stem rabbet... The mid-section—an important element in the model—was formed with a straight sharply-rising floor, high well-rounded bilge, and upright or slightly flaring topside…This sloop hull had good flow lines for her [sic] proportions, being without sudden change in form or excessive fullness anywhere under water. She [sic] would sail well on the wind, as far as the cut and material of her [sic] sails would permit. However, the potential maximum speed, for her [sic] length, had been sacrificed in some degree to obtain an effective displacement in order to take on armament, cargo, and the necessary ballast to carry sail in a fresh breeze.

As for how the Bermuda sloop may have been rigged, a reconstruction of a sail plan was drafted by M.A, Edson, Jr. which shows a long bowsprit and long main boom with a squaresail rig, similar to contemporary cutters at the time (FIGURE 5.4). There was also a crossjack yard that "spread the foot of the topsail and was secured to the mast by a vertical horse" (Chapelle 1967:68). According to Chapelle (1967:68), the earliest illustration he could find of this type of rigging dated to 1727 and that these rigs were implemented on both sloops and cutters alike in the early to mid-18th century.

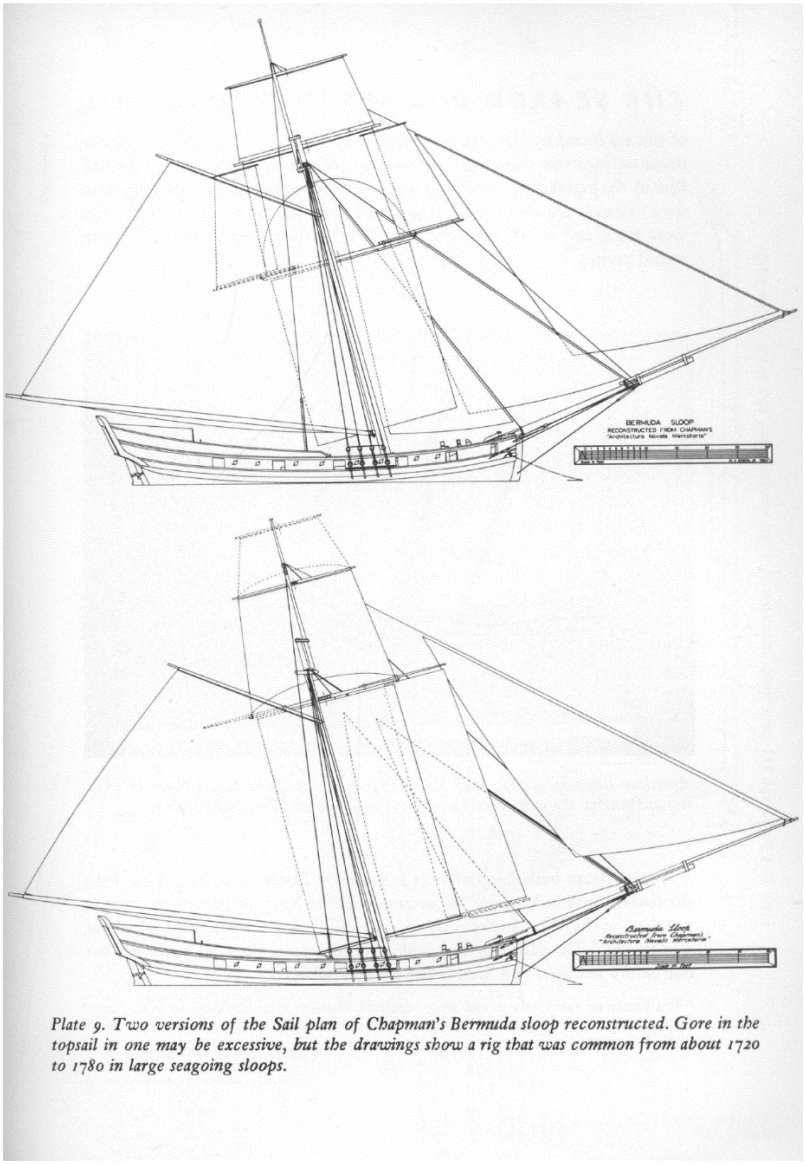

Plate 9. Two versions of the Sail plan of Chapman's Bermuda sloop reconstructed. Gore in the topsail in one may be excessive, but the drawings show a rig that was common from about 1720 to 1780 in large seagoing sloops.

FIGURE 5.4. Two versions of potential sail rigging of the Bermuda sloop (Chapelle 1967:69).

Jamaican sloops, on the other hand, were developed in response to the increase of piracy in the Caribbean during the age of colonization (Evans 2007:83; Southerly 2003:56). In her article "Defining Jamaica Sloops: A Preliminary Model for Identifying an Abstract Concept," Evans (2008:88) explains that although a specific definition and form of the ship type is lacking, it is known that the design and construction of the vessel is derived from the Bermuda sloop and in turn the 1710-1711 naval sloop class (Evans 2007:84; Chapelle 1967:65). For the next thirty years, several different classes of vessel types were established, among them was the 1743 Jamaica class (Evans 2007:84). Interestingly, however, in *The History of Piracy*, Philip Gosse (1932:170) refers to an instance where the pirate Michel Landresson "played havoc among the Jamaican sloops." This reference referred to a ship type used in the Caribbean prior to the 1743 Jamaica class implying a universal understanding of the characteristics of the ship type. Furthermore, this suggests that the Jamaican sloop was "a vernacular term for a range of vessels adhering to a specific set of criteria" (Evans 2007:88).

Primarily, the Jamaican sloop is an English phenomenon, built and adapted by English colonists in the Caribbean. Much like the Bermuda sloop, the Jamaica sloop was wide and long, with a raked sternpost and a well-rounded stem rabbet (Evans 2007:90; Chapelle 1967:67). The hull design was "intended to maximize speed yet retain sufficient cargo capacity" (Evans 2007:90). Evans (2007) combed through early English sloops from 1654 to 1721 and created a probable list of characteristics that could be identified in vernacular Jamaica sloops (FIGURE 5.5). Evan's (2007:90) also compared her findings to the Bermuda sloop's Chapman recorded in the 1740s to reveal that Jamaica sloops were smaller and lighter than their counterpart. Ultimately, Evans argues that the Jamaican sloop was built in response to the rise of piratical activity, thus representing a "social catalyst for a material adaptation" (2007:91).

Table 1 Expected characteristics of Jamaica sloops

1.	Hull built of Caribbean cedar
2.	Vessel dating to period 1658–1735
3.	Length on keel 40–50
4.	Beam 13 –20t
5.	Draft 5–9 ft
6.	Vessel has a raked mast, slightly forward of the midships line, with minimal reinforcement. Vessel may have a second mast, but not more than two
7.	Bowsprit present
8.	Raked sternpost
9.	Rounded bilge
10.	Moderate drag to the keel.
11.	Sharply rising floor
12.	Straight to flared topsides

FIGURE 5.5. A list on potential characteristics of Jamaica sloops (Evans 2007:91).

While most of the primary accounts of *balandras* come from the official documentation of the 1733 fleet, there is undoubtedly more that belong to the 1622 and 1715 fleets as well. Due to the limits of the author's translation abilities and familiarity with reading 17th century handwriting, the research into *balandras* generally centered on the 1733 translated accounts. Despite the limitations in the amount of data in both the archaeological and archival record, the accounts of Spanish authorities involved in the recovery process clearly designate that *balandras* served a number of roles during the salvaging process. Additionally, the shallow draft, like other Caribbean sloops, provided better maneuverability through shallow, rocky shoals. Not only were they dispatched to quickly send supplies to survivors, but they were also equipped the necessary salvaging gear needed for the job. The speed of the *balandra* was paramount sending correspondences and transporting salvaged cargo back to Havana. Although not directly a part of the salvage operation itself, the *balandra* was the choice vessel for much of the salvaging process including defending *reals* from perusing pirates.

Perhaps the most foundational evidence for depicting Spanish salvaging vessels, however, is Ledesma's *Description of Seven Salvage Techniques* (1623). The first section of the manuscript focuses on fishing and oyster hunting depicts a *caravela*, or a three-masted *galeota,* a larger *bergantin* (brigantine) with sweeps or oars (FIGURE 5.6) While the second half of the manuscript is dedicated to the various methods of salvaging shipwreck sites, Ledesma (1623) does not depict any of Veitia Linage's textbook definition of a *balandra*, that is a vessel with a mainmast and a bowsprit. Instead, Ledesma depicts and refers to these vessels as *fragatas* (frigates) (FIGURE 5.7). As stated above, Spanish correspondences specifically refer to *balandras* conducting various duties throughout the salvage process (*Contratacion 5147-1733 Flota*). The disconnect between these two references of definition and illustration, plays into the ambiguity of the diverse characteristics of sloops operating in the Caribbean and requires further research beyond the scope of this thesis.

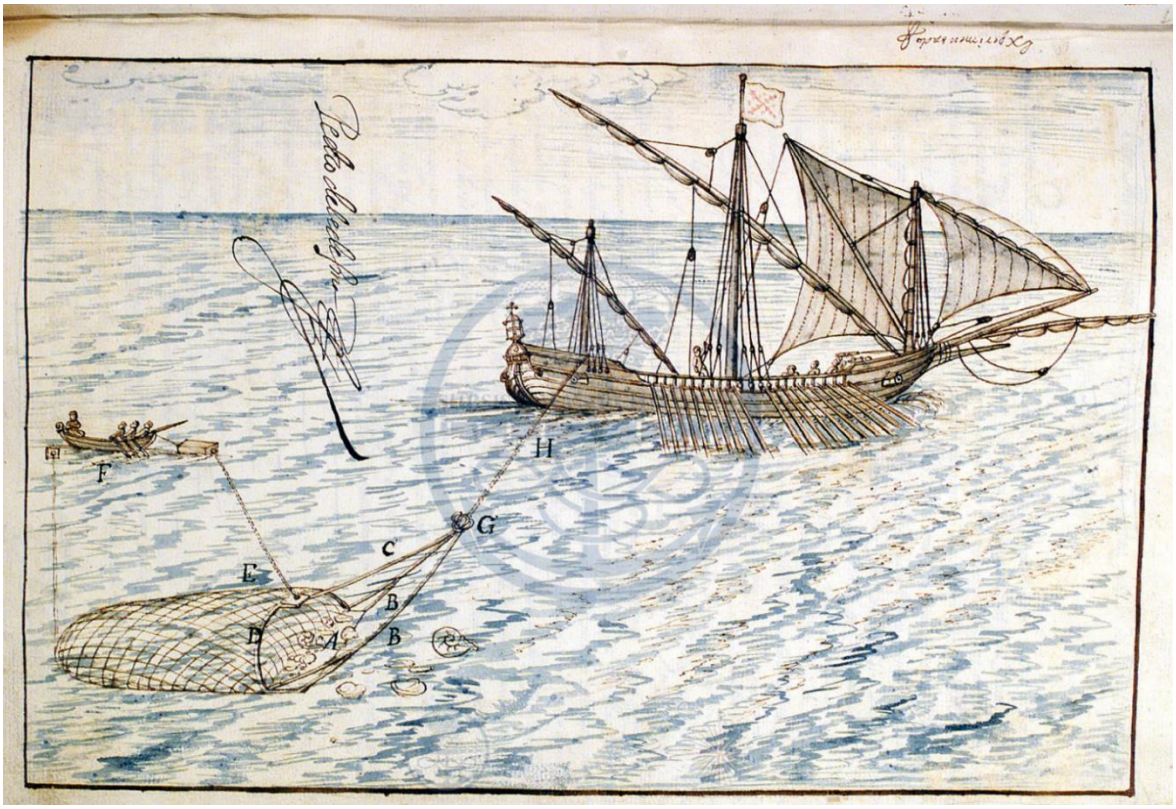

FIGURE 5.6. Depiction of a three-masted fishing vessel (Ledesma 1623).

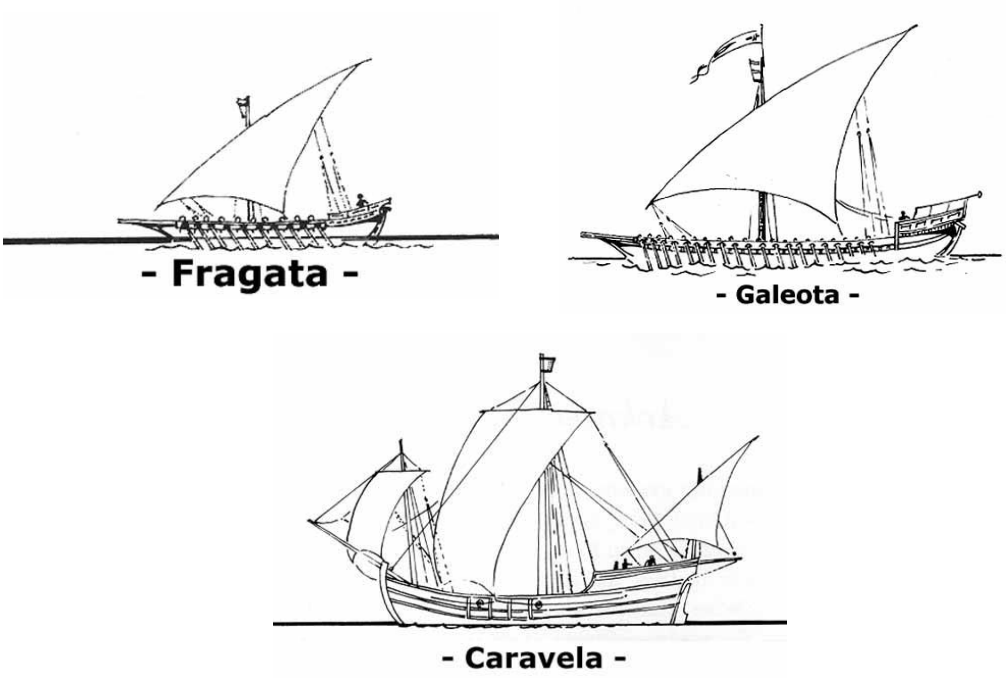

FIGURE 5.7. Examples of a *fragata*, *galeota*, and *caravela* (Wilkinson 2021).

Ledesma (1623) also illustrates four different types of vessels that were used to locate shipwreck sites and recover cargo. The first illustration is of a rowboat or *conoa* (which was a generic term for these small dinghy-like vessels) with three oarers and a pilot operating a tiller in the rear of the boat (FIGURE 5.8). A submerged diver is breathing via an iron and leather surface supply unit aided by topside individual. In addition to the leather tube, the diver has a thin cord to signal for the air tube to be lengthened or pulled up depending on depth. The diver is also equipped with a sack or a basket to house recovered materials, and chisels or mallets to break through debris or crates as needed (McDonald and Arnold 1979:316). At the bow of the boat is an individual using a probing rod or lance to ground-truth shipwreck sites and orientate divers as they ascend and descend in the water column.

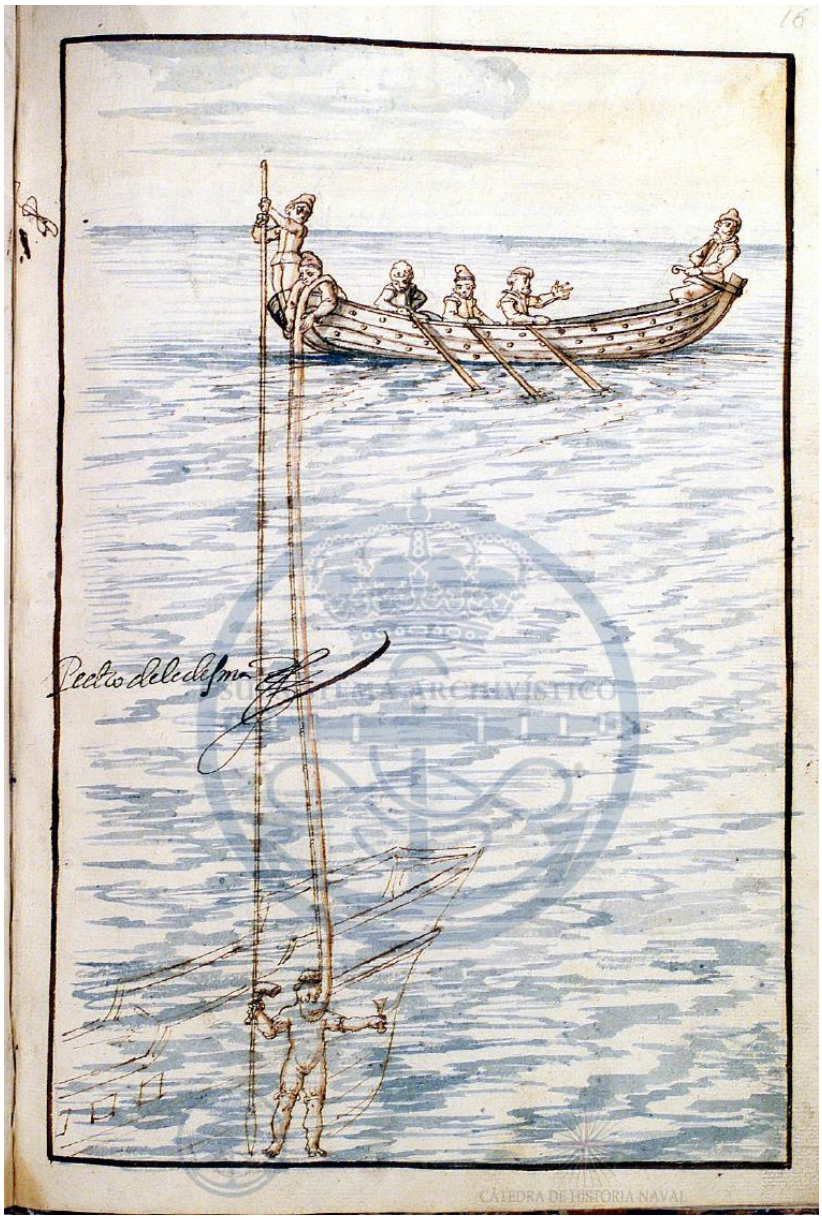

FIGURE 5.8. Depiction of salvage *canoa* with diver (Ledesma 1623).

The second vessel type illustrated has a mainmast, foremast, a bowsprit and oarers. Ledesma (1623) shows these vessels performing large-scale salvaging techniques such as dragging the ocean bottom to locate submerged shipwreck sites (refer to FIGURE 2.9). Referred to as frigates, at full sail, these two masted vessels can "grasp anything in the depths in a half-moon approach" (McDonald and Arnold 1979:319). Ledesma also details several ways in which

submerged wrecks can be refloated with chains, hooks, and buoys (FIGURE 5.9). Each of these operations were overseen by *canoas* which could swiftly assist in the recovery process.

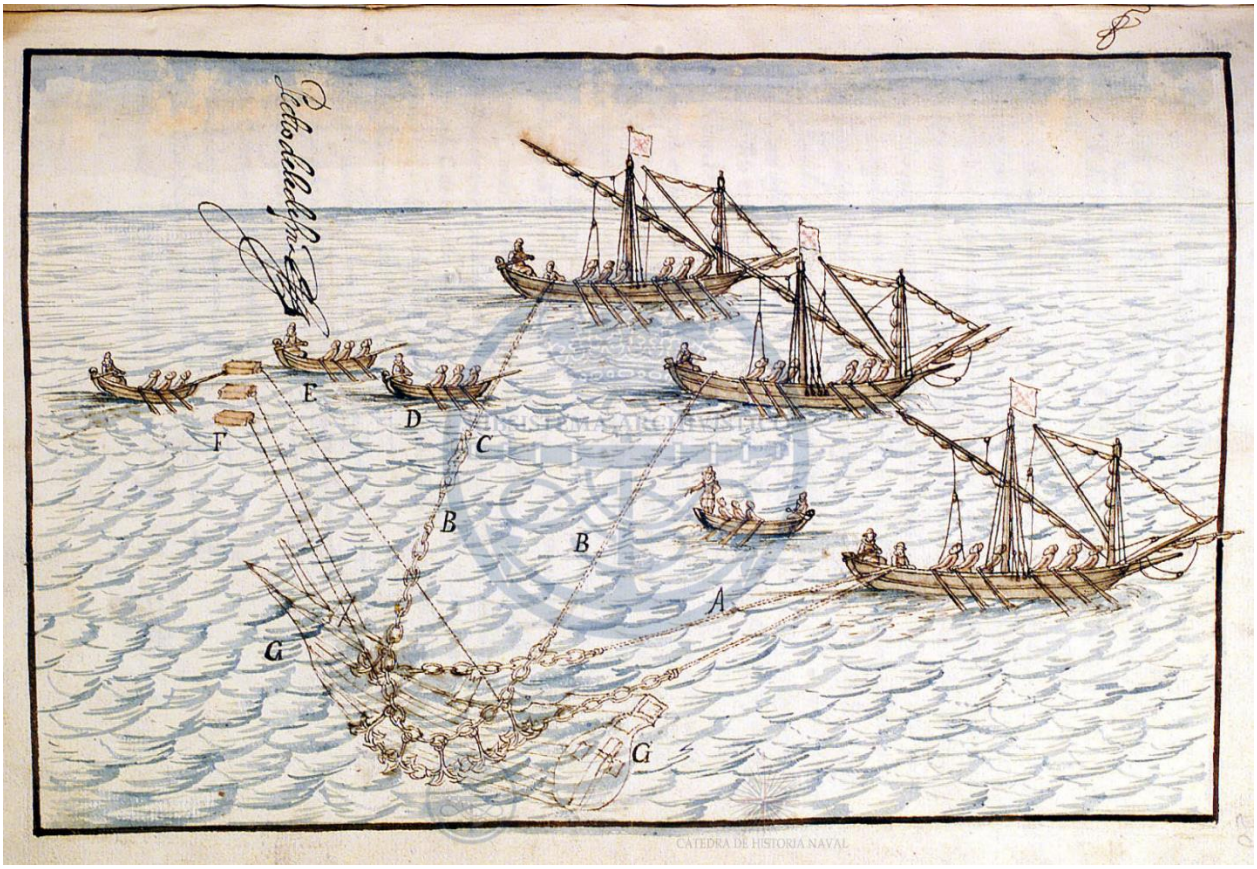

FIGURE 5.9. Depiction of two-masted vessels surfacing a submerged wreck (Ledesma 1623).

The next two vessels depicted are much larger with three masts and a bowsprit, most similar to *carvelas*. These vessels are shown with large jacks or cranks "brass wheel with teeth" and machinery intended to lift cargo and/or a wreck from the ocean bottom (Ledesma 1623; McDonald and Arnold 1979:325). Divers are also shown using the lines connected to the cranks to surface and descend to the wreck—securing cables and observing the process (FIGURE 5.10). Again, smaller *canoas* oversee the operation and assist when necessary.

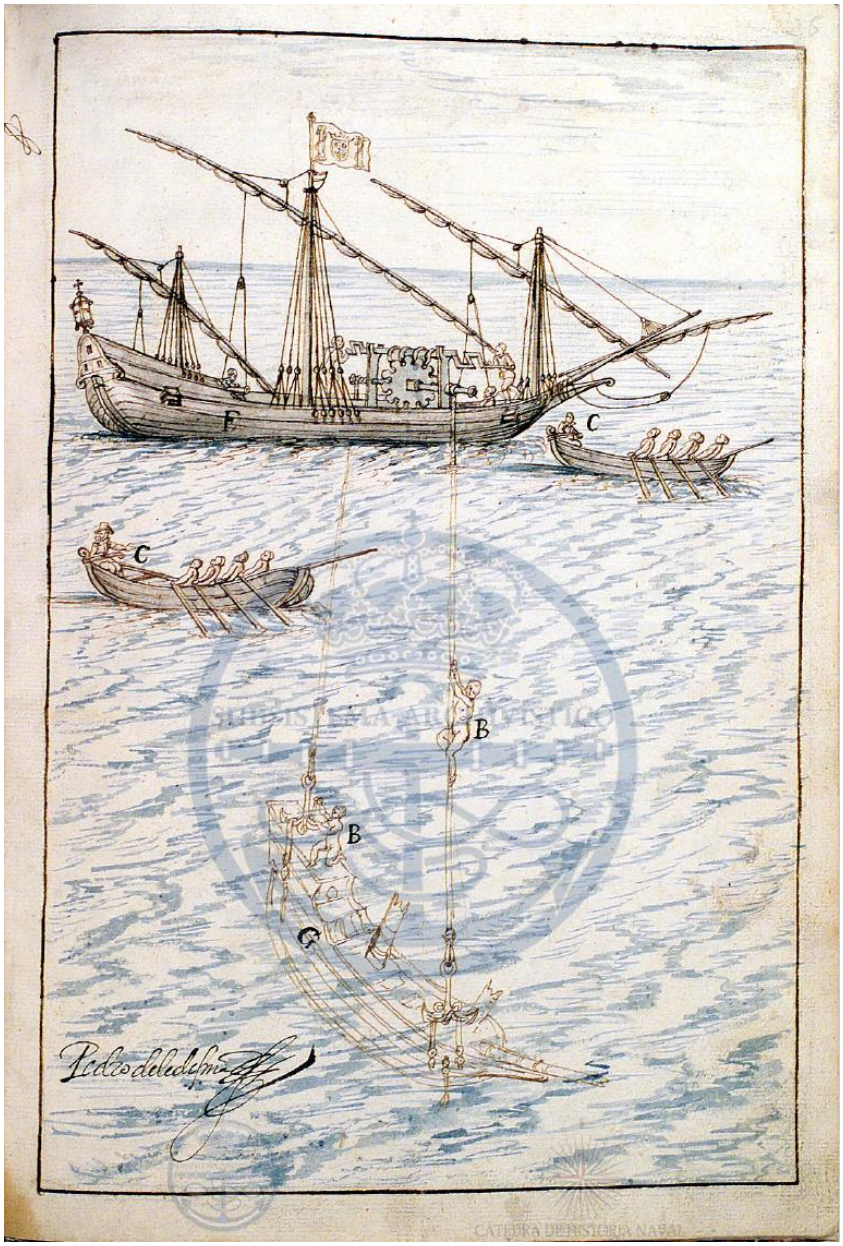

FIGURE 5.10. Depiction of salvage vessel with divers and a crank mechanism (Ledesma 1623).

Lastly, Ledesma (1623) illustrates a barge with a massive jack and crank system connected to a submersible bucket intended to scoop materials off the ocean floor (FIGURE 5.11). Ledesma states that this contraption could be implemented to remove any mud or silt that may interfere or can lift a vessel that has sunken into the mud in eight to ten fathoms or 14 to 18 meters (McDonald and Arnold 1979:325). Although Ledesma created these various salvaging techniques, only a handful of them have any documentation of their use. Some of Ledesma's

illustrations are arguably more on the fanciful side such as the leather diving suit (McDonald and Arnold 1979:316). The barge with a crank for instance, has no reference of ever actually being implemented in the salvaging of the Plate Fleet shipwreck sites.

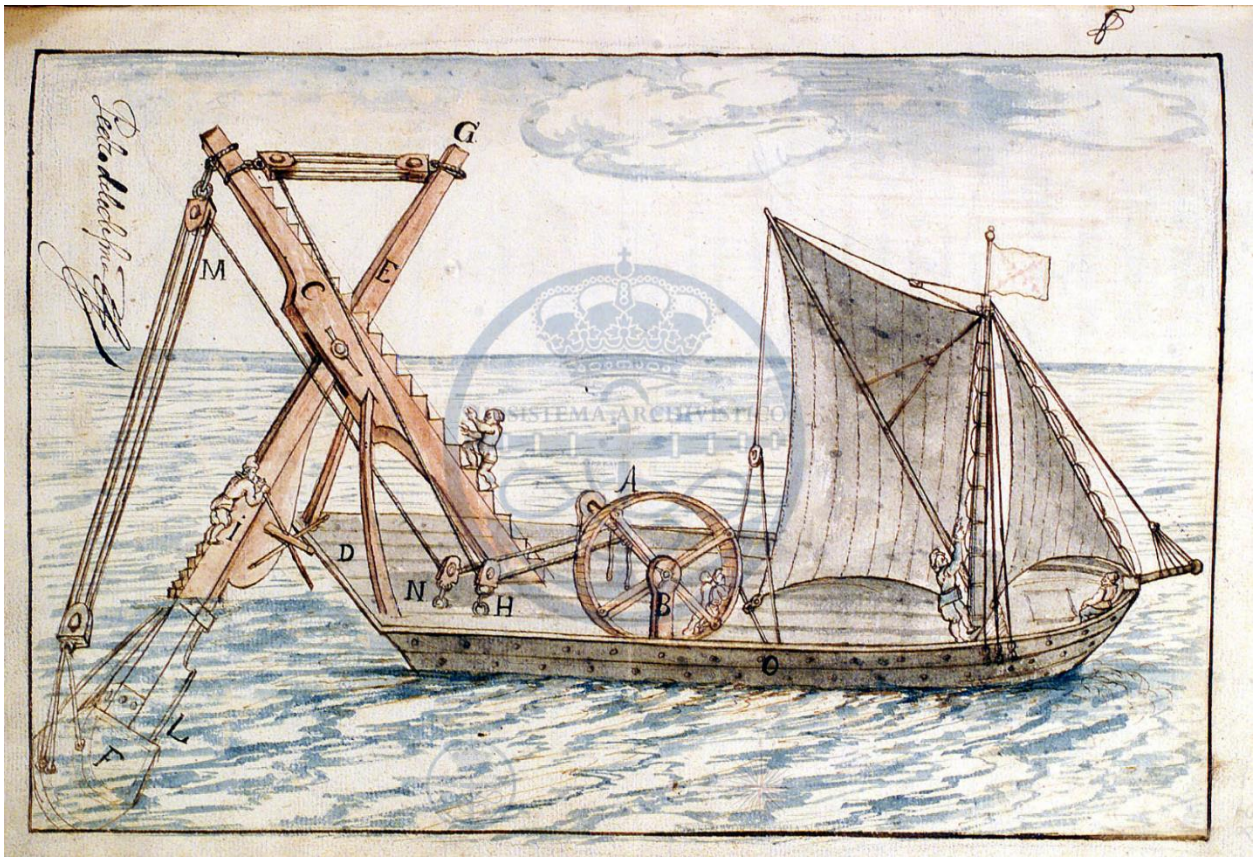

FIGURE 5.11. Depiction of salvage barge with lever and crank mechanism (Ledesma 1623).

Overall, the Bermuda and the Jamaica sloop vessels were built for speed and maneuverability. It is reasonable that these vessels were a favored means of transport, trade, and piracy in the Caribbean. Although descriptions of the *balandra* are limited, the Bermuda and Jamaican sloops might be the closest in form and representation to the vessel. These sloops were all of European construction that were constructed and outfitted by European colonists in the New World, making these vessels a Caribbean phenomenon. The international economy and commerce of the 17th and 18th century created a class of small sloops that were incredibly versatile in the region. With their shallow drafts, lightweight and speedy hulls, vessels like the

Bermuda and Jamaican sloops and the *balandra* became the preferred mode of transportation, serving a number of roles in the maritime landscape of the region from salvaging, piracy, communication, and trade.

The Maritime Cultural Landscape of Spanish Salvage

In "The Maritime Archaeology and Maritime Landscape of Queenscliffe: A Nineteenth Century Australian Coastal Community," Brad Duncan discusses the concept of shipping disasters as events and places in maritime communities. Stemming from Martin Gibbs's (2006) disaster response behaviors that take place after a shipwreck incident, Duncan (2006:216) asserts that while "wrecks may initially be perceived as the scenes of disastrous calamities, and as such are the setting of frantic activity to save life and cargo," they also represent new places in the landscape. Viewing shipwrecks as cultural landscapes enables shipwreck sites to be perceived as an event and a place (Duncan 2006:216). In the case of the Plate Fleet shipwreck sites, while they were indeed initially scenes of disastrous calamity and surviving, Spanish authorities quickly established camps and began the often-frenzied non-systematic salvage of their wrecked fleets before systematic salvage and relief arrived from Havana.

Duncan (2006:222) also introduces the idea of wreck management landscapes which outline the phases of cultural processes impacting a vessel after its wrecking. Essentially, wreck management landscapes involve the institutional management of providing aid and resources to wrecked victims, and the proceeding authorized salvage of wrecked materials (Duncan 2006:222). Duncan's wreck management landscapes can also be seen in organized Spanish deployment of rescue and salvage of the Plate Feet shipwrecks. Because the Spanish developed a transatlantic trade network across the Atlantic World, they knew that ships and *flotas* tended to

wreck in predictable locations throughout the Caribbean. The Spanish expected inevitable and frequent wrecking and established a maritime salvaging industry outfitted with professional salvage teams across major ports (Ratcliffe 2011:39). Salvaging became a way to manage and recover Spain's economic losses and adapt to maritime disasters.

The landscape of the Spanish salvage industry extended far beyond the shipwreck sites and *reals*. It incorporated numerous parties that expanded past the borders of the Spanish Main and were connected to the global maritime economy. FIGURE 5.12 shows the vast reach of Spanish salvage and the multiple groups affected and participating (willing and unwilling) within the industry. The administrative facilities and enslaved maritime communities are marked by a black stamp at some of the major Spanish ports throughout the Caribbean.

FIGURE 5.12. Expanse of the Spanish salvage industry. Map created by author using ArcGIS.

The divers, both Indigenous and enslaved Africans, were conscripted from maritime communities across major ports in the Caribbean. The green points mark some of the enslaved maritime communities where some enslaved divers lived in relative solidarity near major ports.

The green dotted lines on the map show the vast distances they journeyed under the conscription of Spanish salvagers to recover the wrecked cargos of the *flotas*. These divers were the decedents of over a century's worth of slave raids into the West African border, the Lesser Antilles region, and the Caribbean coast (Warsh 2010:347).

When each f*lota* wrecked along the Florida coastline, dispatches were sent as soon as possible to give word to Havana on the status of the fleets. Havana authorities often had prepared *balandras* equipped with rescue and salvage divers to relieve the stranded survivors (FIGURE 5.13). The dotted lines in FIGURE 5.13 departing from Havana show the routes the professional salvage teams took to reach the wrecked *flotas*. The Native American and Indigenous lands are highlighted to showcase the various communities impacted by Spanish salvaging. The *flotas* had wrecked along the Keys Native Americans and Ais territories, and depending on the *flota*, Spanish officials opted to maintain reciprocal relationships with the Native Americans as they returned seasonally to salvage the shipwreck cargos.

Furthermore, the wreck sites were continually utilized long after the wrecking events, acting as an ongoing economic resource for opportunistic and unauthorized salvage. Once word spread of mass wrecking, Dutch, English, and other European parties also sought to salvage the wealth of the submerged cargo. After wrecking, these shipwreck sites and *reals* became new places within a landscape that was once a highly navigated and known shipping lane and shifted to a landscape riddled with opportunity to pirate goods.

As Duncan explains, for shipwrecking mishaps at Port Phillip Heads, the shipwreck sites of the Plate Fleets residing along the eastern coastline of Florida became a place in the environment where the act of salvaging is embedded within the landscape. Beginning with the Spanish, other contemporary pirates and opportunistic salvagers continually attempted to recover

lost materials from the wreck sites for several years following the wrecking events. Where once the coastline was perceived as a tragic event, within a few weeks, the wrecks were then seen as economically valuable objects in need of immediate recovery and protection of goods. Historic salvage attempts were eventually abandoned, and knowledge of the Plate Fleet wrecking events eventually subsided. Apart from beachgoers finding washed-up Spanish coins and items from the lost wrecks just off the coast, the 1622s, 1715s, and 1733s were 're-discovered' by modern treasure hunters who engaged in modern salvage along the Treasure Coast. Even in the modern-day, the maritime landscape is seen as economically valuable.

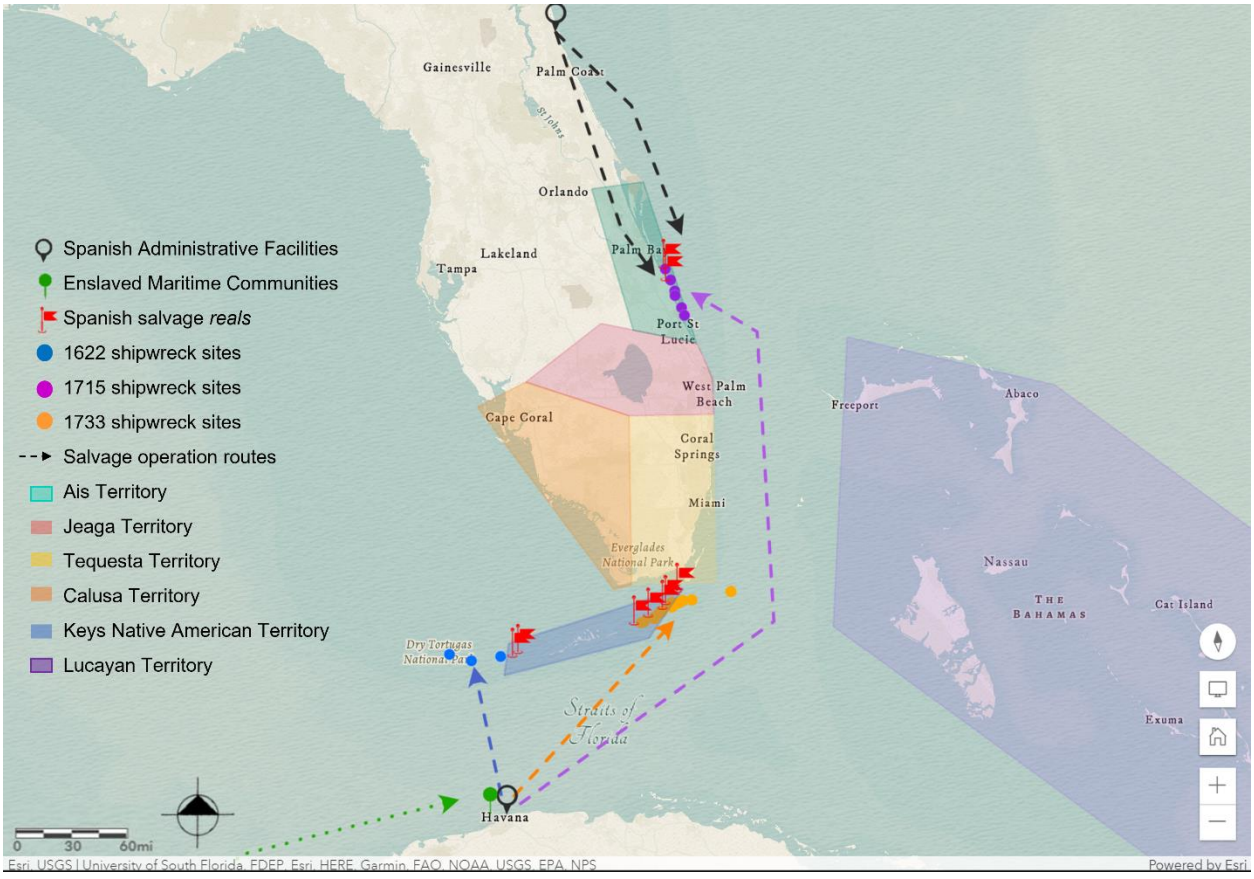

FIGURE 5.13. Detailed map of Spanish salvage participants and routes. Map created by author using ArcGIS.

The maritime disaster generated by the Plate Fleet shipwreck sites produced cultural practices of shipwreck salvage across the landscape. The Plate Fleet wreckings were not events

impacting the cultural landscape in isolation. The Indigenous territories, administrative centers, enslaved maritime communities, and conscripted salvage service, hint at a larger network of industries operating outside the shipwreck sites and *reals*. The marine salvage operations not only operated on a micro-scale (the salvaging of the shipwreck sites themselves and working out of the *reals*), but also on a macro scale touching administrative bodies of government (St. Augustine officials sending emergency salvage supplies, Havana authorities deploying salvage teams and rescue supplies, and the House of Trade managing the convoy network from Seville). Spanish salvage was a maritime business that also facilitated piracy, unsanctioned recovery of materials, and further exploitation of enslaved persons. The Plate Fleet wreckings transformed from an event to a place embedded within the landscape, providing opportunities for further cultural processes in the form of shipwreck salvage and all the interconnected networks, people, and commerce that accompany the industry. Overall, the MCL of Spanish shipwreck salvage was a global industry that stretched across the Atlantic World and across time.

ESRI Story Map Application as a MCL research component

A Story Map entitled "The Maritime Cultural Landscape and Methods of Spanish Salvage" (https://storymaps.arcgis.com/stories/db09376268664d6190c79a1d9522daee) was created to visually display the global reach and complexity of the Spanish salvage industry within the maritime cultural landscape. A secondary goal of the Story Map is to preserve information about Spanish salvage methods and highlight the stories of the enslaved divers. It also functions as a tangible public outreach tool for addressing the cultural heritage of the shipwreck and *real* sites while also promoting the protection and preservation of the archaeological remains.

The introductory slide of the Story Map summarizes the history and development of the Spanish transatlantic trade and is accompanied by an interactive map of the convoy route. Each leg of the route is color-coded, and viewers can click along each segment for detailed information regarding the fleet's destination and cargo (FIGURE 5.14). Major ports are also labeled and easily identifiable. The supplementary side panel details the history and development of the convoy system, complete with a 1722 Spanish map depicting the trade route. An illustration of what kinds of vessels and how they were situated within the convoy is also provided.

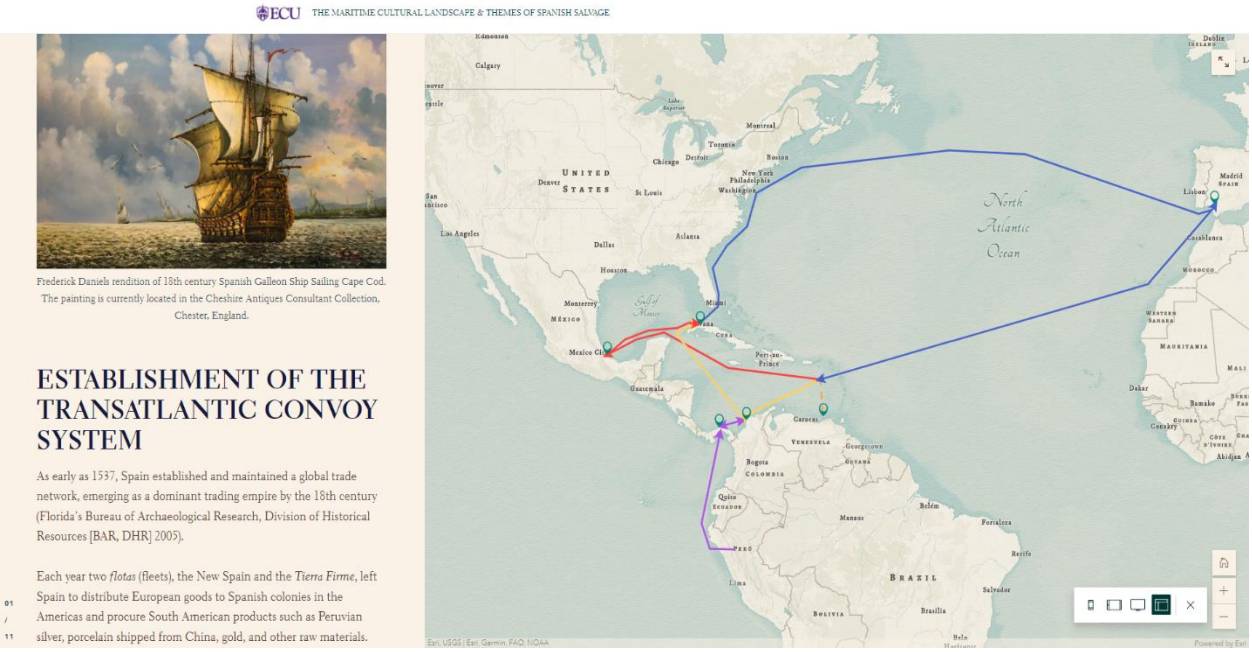

FIGURE 5.14. Slide displaying the transatlantic convoy system (Image by author, 2022).

The second slide provides a brief history of each Plate Fleet wrecking event and introduces the immediate salvage measures conducted by the remaining survivors. The accompanying map details the coordinates (known and estimated) and ship/site names of all the shipwreck sites of the 1622, 1715, and 1733 *flotas*. The *reals* associated with each fleet are marked with a flag pin and include details of each site's archeological and historical relevance.

Each *flota* is color-coded and labeled for the viewer. The 1622s are blue, the 1715s are purple, and the 1733s are orange.

The following few slides are dedicated to the MCLs of Spanish shipwreck salvage. A detailed map contains all the prominent actors participating and affected by the shipwreck salvage industry (FIGURE 5.15). The map visually displays the overarching networks impacted by Spanish salvage. The first MCL slide introduces the concept of wreck management landscapes and exemplifies them as the four major Spanish ports where salvage teams resided. Each port is marked via a black pin that viewers can click on for further information.

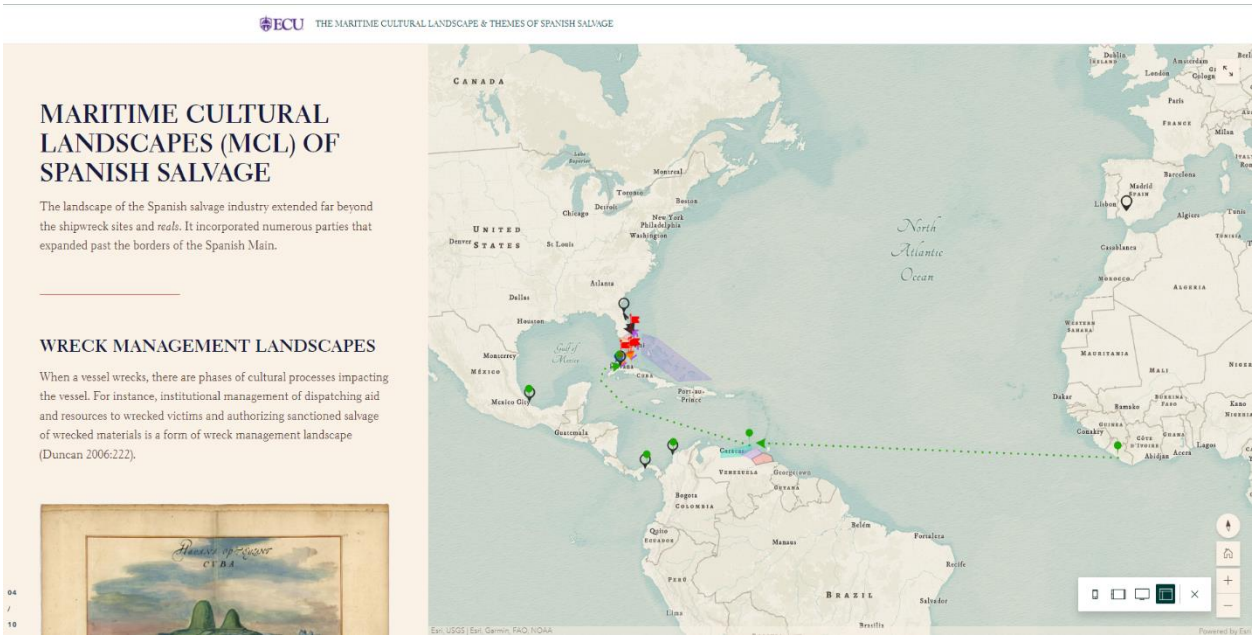

FIGURE 5.15. Slide displaying the reach of MCL of Spanish salvage (Image by author, 2022).

As viewers scroll through the sidecar panels, the map zooms to the content discussed in the panel. For instance, the next slide, which discusses the participants in Spanish salvage, zooms to the networks operating out of the Caribbean (FIGURE 5.16). The content discussed on the panel details the enslaved maritime communities and shows the distances they traveled to meet the demand for divers during Spanish salvage. The map also contains information stretching back to the 15th and 16th century slave raids in Africa and South America to show the extent and

repercussions in the cultural and social landscape as the Spanish relocated thousands of people to facilitate several marine industries like pearl harvesting and salvage. These regions are also highlighted with text boxes that detail the raiding history of the *rancherías de perlas*. In conjunction with this slide, the next panel informs viewers of the modes of labor for enslaved salvage divers (FIGURE 5.17).

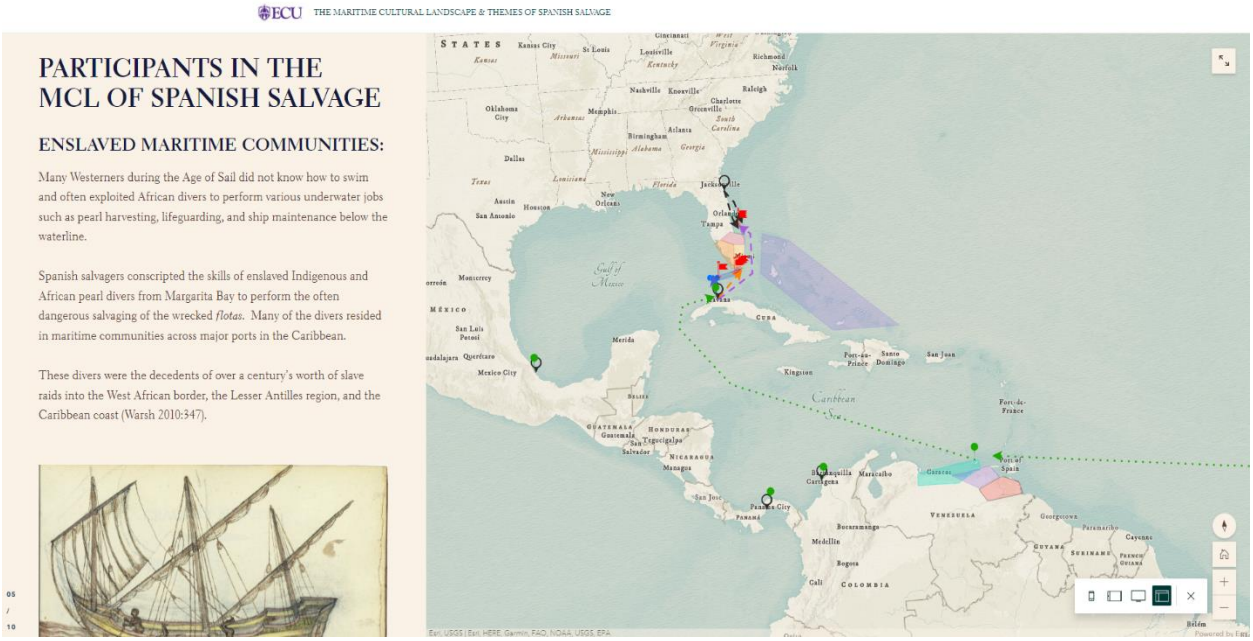

FIGURE 5.16. Slide displaying the participants in the MCL of Spanish salvage (Image created by author, 2022).

Continuing with the participants in Spanish salvage, the next slide introduces the impacts of Spanish marine salvage on Native American communities. The different Native American territories are highlighted, and viewers can click on each polygon to gather more information on how the salvagers interacted with the Keys Native Americans during the 1622 salvaging seasons and the Ais during the 1715 salvage operations. The following slide discusses the fact that the shipwreck sites were continually utilized after their initial wrecking and acted as ongoing economic resources for unauthorized salvage and piracy. A map focusing on the 1715 *reals* and

shipwrecks sites shows the distance between the two camps, allowing views to see how Captain Henry Jennings navigated to shore using the campfire lights.

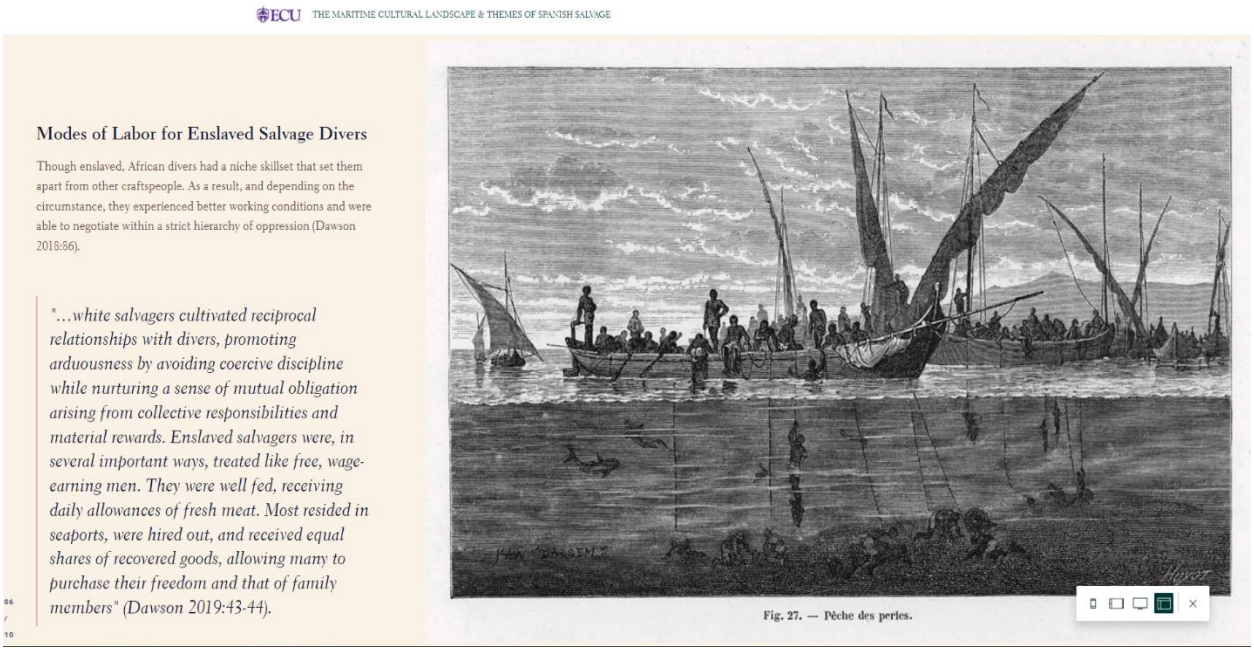

FIGURE 5.17. Slide displaying the modes of labor for enslaved salvage divers (Image created by author, 2022).

The last slide pertaining to the MCL of Spanish salvage addresses the scope of the salvage industry. The slide summarizes the micro and macro networks operating around the Spanish marine salvage of the Plate Fleets. The accompanying overarching map sits adjacent to the side panel to emphasize the breadth and complexity of the Spanish salvage industry within the maritime landscape.

The concluding section of the Story Map details the methods, vessels, and equipment employed during the salvage operations (FIGURE 5.18). Images of Ledesma's manuscript, along with descriptions of specific salvaging practices, paint each slide panel. Informative block quotes are also selected to provide further information. The final slide provides a list of references and a summary on preserving history for future generations.

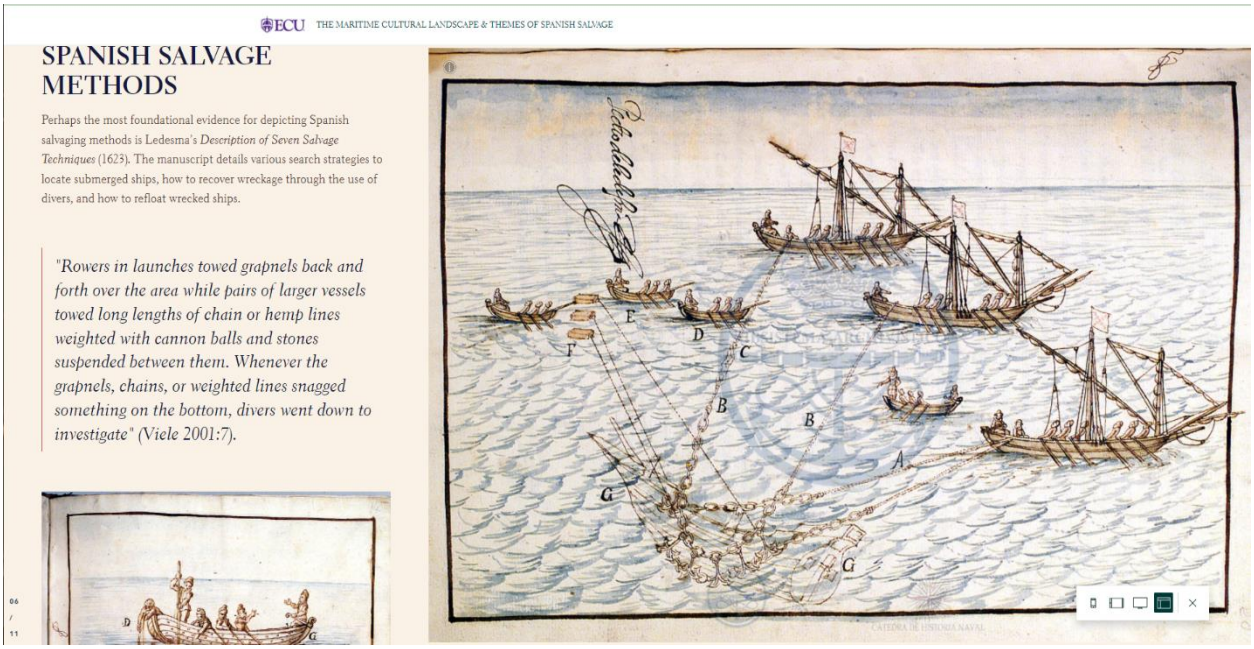

FIGURE 5.18. Slide covering Spanish salvage methods (Image created by author, 2022).

Overall, the Story Map is an interactive historical voyage that spatially displays the historical data from this thesis in an accessible and free online platform. Viewers can see the MCL of historical Spanish salvage and learn about the techniques employed by the Spanish to recover their lost Plate Fleets. Learning about this industry allows viewers a glimpse into the broader cultural landscape of the Spanish Main.

Conclusion

In summary, three themes are witnessed throughout the archive of historical Spanish salvage; the utilization and importation of enslaved Africans to recover wrecked cargo, the paranoia of Spanish authorities, and Spanish officials used *balandras* and *fragatas* to deploy correspondences, transport divers, survivors, salvage equipment, recover cargo, and scout and defend the salvage operations from freebooters and pirates. The MCL of the Spanish shipwreck salvage industry is demonstrated using ESRI's Story Map application.

Chapter 6. Material Culture of Salvage

Introduction

This chapter analyzes the equipment and tools implemented during the salvage operations. It discusses the history and use of the diving bell in marine salvage. The diving bell is categorized as salvage-specific equipment used by Spanish salvagers during the salvage efforts. A discussion on multipurpose tools is provided to demonstrate the broad spectrum of tools and equipment salvagers reused to aid in salvage that extend beyond a tool's use aboard a ship. These tools are then compared to the artifact databases for the 1715 and 1733 shipwreck sites and the 1715 *reals.* Lastly, a material culture analysis of the artifact assemblages of the 1715 *reals* is presented to determine the presence of Native Americans and enslaved divers at *real* sites.

Salvage Specific Equipment Utilized by Spanish Salvagers

Diving Bell

Salvage-specific equipment such as the diving bell was also crafted and used to locate shipwreck sites. The deployment of the diving bell proved to be "extremely successful, but only under certain conditions" (Ratcliffe 2011:36). Restraints such as technology or active surf zones near shorelines made it difficult for divers to manage the diving bell. The diving bell was generally deployed when a wreck was in a known, shallow, and protected location (Ratcliffe 2011:36). For England in particular, between 1691 and 1693, out of the 60 patents for new inventions, twenty percent were for diving machines (Earle 2007:108-109; Ratcliffe 2011:42).

The diving bell itself was initially created to push the limits of human physiology. It is essentially "a large, inverted cone which trapped a pocket of air as it was lowered into the water column" (Ratcliffe 2011:43). The trapped air provided a dry space for the bell occupant, but as

the bell descended, the air inside the bell compressed by half every 33 feet or every atmosphere (ATA) (Ratcliffe 2011:44). While the first dive bells were crafted in the 16th century for ocean exploration, their use in salvage operations did not occur till the sinking of King Gustavus Adolphus of Sweden's warship, *Vasa,* in 1628. Resting at 100 feet below the frigid waters of the Baltic, the salvage work for *Vasa* resulted in numerous legal battles, overspending, and negligible returns on investments making the deployment of the lead, five-foot bell proved cumbersome and expensive to use (Ratcliffe 2011:44). Dive bells were also manufactured and used to salvage shipwreck sites throughout the 17th century, becoming more elaborate with the inclusion of surface-supplied air pumps that forced air into the bell (Davis 1995:607).

In the case of the Spanish dive bell, the bronze bell Melián cast in Havana to aid in the search and recovery efforts of *Margarita*, had a window port, weighed 680 pounds, and cost 5,000 *reales* to manufacture (Viele 2001:8; Ratcliffe 2011:40) (FIGURE 6.1). While the bell was used to successfully locate the wreckage in 1624, there is no mention of using a diving bell in the search and recovery efforts for the 1715 and 1733 salvage attempts. Dive bells were expensive to manufacture, cumbersome to deploy, and required a large support team (Ratcliffe 2011:47). Additionally, dive bells were "difficult to negotiate around wrecks, too big to enter holds…[and] masts, yardarms, and rigging of recent wrecks [could] capsize bells and snare their lines and hoses" (Dawson 2019:67-69). Because of this and the fact that the Spanish had access to "a large pool of trained divers to draw upon, the Spanish mainly relied on breath-hold divers rather than diving bells to carry out salvage work" (Ratcliffe 2011:38).

There are several other salvage-specific tools such as an array of grapplers, hooks, and heavy-duty salvage tongs in various shapes, as well as long hand-held tongs that the dive bell operator would use to grasp parts of the wreck or cargo (Ratcliffe 2011:44-46). While these

items are generally discussed in regards to English salvagers, there is a lack of historical scholarship discussing the salvage-specific tools of Spanish manufacture (Earle 2007; Davis 1996; Triewald 1734; Lynch 1990). More research is needed in the archival record to determine if the Spanish adopted English salvage tools or developed their own. Because there is a lack of these specific grapplers, hooks, and tongs in the archaeological record, it is difficult to determine if these specific tools were used in the salvage of the Plate Fleets.

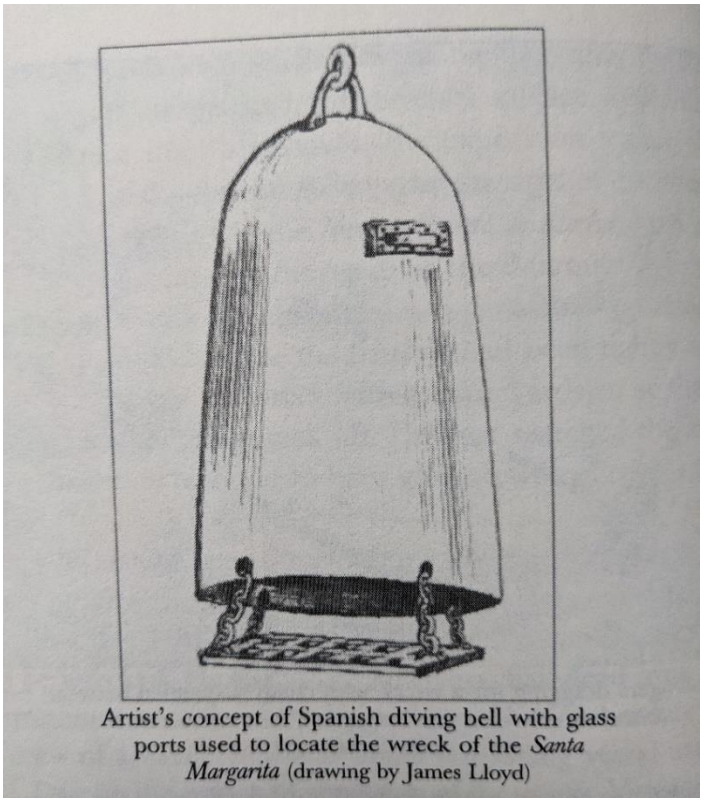

FIGURE 6.1. Representation of a Spanish diving bell (Viele, 2001:8).

Multipurpose Equipment and Tools

This analysis describes the tools and equipment that historical and archival documents indicate were used during the salvaging process and compares them to the artifacts residing in BAR Collections. Though limited, the tools recovered from the 1715s and 1733s and the two 1715 salvage campsites, Higgs Site and The Winter Beach Site, represent a wide range of

activities performed both onboard and on land. While many tools were manufactured for specific tasks, they were frequently repurposed to solve other problems, including salvage (Lawrence 2020:42). A list of tools was compiled based on Spanish reports and secondary historical studies that allude to the various tools used during the salvage process. While originally made to serve specific purposes, these tools were reused to aid salvagers and divers. This section selects the standard tools seen throughout the archival and historical record and describes their multipurpose and multifunctional uses post-wrecking. The items selected are ballast stones, baskets, buoys or floats, cargo hooks, hooks with eyebolts, chains, hammers, pickaxes or hatchets, pile poles, sounding leads or weights and sinkers, bars, crowbars, and crannikens or jacks.

Ballast Stones

Ballast refers to "heavy material placed low in ships used to maintain proper stability, trim, or draft" (de Kerchove 1961:36). Ballast can be permanent in the form of "sand, concrete, scrap, or pig iron, usually carried to enhance stability or trim" (de Kerchove 1961:578). It can also be shifting or portable ballast, which refers to its ability to be moved about a vessel to adjust for trim. Shifting ballast can be in the form of pigs of iron or bags of sand (de Kerchove 1961:721). Ballast could also be cannon, heavy guns, stones, and metal ingots (Smith 1996:90,92).

Divers throughout history have used a variety of instruments to aid in faster descents without the expense of wasting energy, breath, and time swimming downward (Dawson 2006:1346). In some instances, the pearl harvesters from Margarita Bay would straddle rock weights or tie two stones together using a cord. The cord was placed around their shoulders, allowing their hands to be free to collect the oysters (Vázquez de Espinosa 1942:50-51; Dawson

2018:67). The Alma divers of Japan would occasionally wear a belt with lumps of lead either around their neck or waist to act as personal ballast to quicken the amount of time it took to reach the ocean floor (Kita 1965:49). The pearl divers of the Farasan Islands in Saudi Arabia used a weight called a *thaqqāla* or *jalila, julayla*, or *jawla*, which was attached to a rope that the diver gripped with his right foot to quicken descent. The Farasan divers would also occasionally use old Turkish cannonballs as weights as well (Agius et al. 2016:155).

Containers for Collecting Underwater Materials: Baskets, Bags, and Nets

In order to store collected materials while underwater, the pearl divers of Margarita used net bags or "a hoop-net" and baskets (The Natural History of the Indies 1586) (FIGURE 6.2). The bag was either hung around the neck and shoulders or the waist. Sometimes depending on the weight or abundance of materials, the basket/bag/net was tied to a buoy line to increase the mobility of submerged divers (Kita 1965:49). Farasan divers collected oysters in a rope basket that hung around the divers' neck and was attached to a second rope tethered to a float or to a hauler who sat topside. When the divers were ready to ascend, they would tug on the second rope, notifying the hauler that the net was ready to come up (Agius et al. 2016:155).

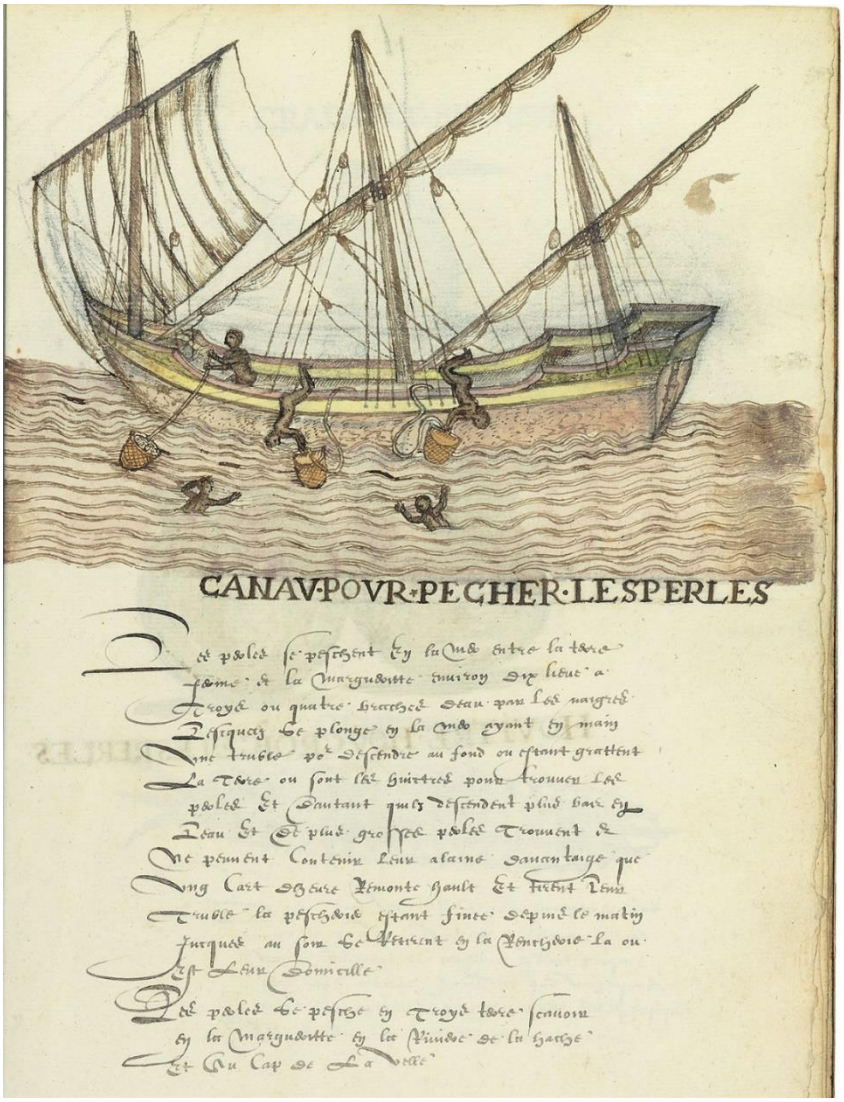

FIGURE 6.2. *Canav Pour Pecher Les Perles* (Canoe for Pearl-Fishing). The inscription reads "Pearls are being fished in the ocean between the main-land and Isla de Margarita, approximately ten leagues, in three or four fathoms of water by the negroes who dive into the sea, holding a 'hoop-net' to descend to the bottom where they scrape the soil where the oysters are, in order to find the pearls. And the deeper they descend in the water, the larger are the pearls they find. Not being able to hold their breath longer than a quarter of an hour, they come up again and pull their 'hoop-net'. The fishing from morning to evening having been completed, they return to La Rancheria where they live. Pearls are being fished in three places, namely, on Isla de Margarita, in Riohacha, and at the Cabo de la Vela" (The Morgan Library and Museum, folio 57v).

Buoys/Floats

Buoys and floats were also utilized by divers to aid in harvesting pearls and salvage.

Buoys are anchored floating objects generally used as navigational markers that indicate the

navigable limits of channels and fairways. They are also used to define submerged hazards and obstacles such as shipwrecks, rocks, and reefs (de Kerchove 1961:107). Lastly, buoys are used as informational marks instructing boaters safe areas to anchor, swim areas, locations of boat ramps, and the like (U.S. Coast Guard 2022:5-16). Traditional buoys from the 13th century throughout the 18th century were generally hollow wooden barrels or casks. As governments formalized navigational rules and regulations, more permanent navigational aids such as iron cast buoys, beacons, and fog signals were crafted (Marshall 1998:8). Ledesma (1624) and other Spanish documents do not specify the make or material of the buoys used in the Plate Fleet salvaging. Ledesma, however, does distinguish a buoy from a "piece of wood" at the surface to mark a site (McDonald and Arnold 1979:316-319).

Historic salvagers used buoy lines tied to chains that dragged between two small vessels while searching for submerged shipwreck sites. These buoys helped control the buoyancy of the heavy chain and grappling hooks as they snagged sections of wreckage (Ledesma 1623; McDonald and Arnold 1979:319). Buoys lines were deployed to mark any obstruction snagged by the line, and divers were sent down to investigate (Ratcliffe 2011:39). In Ledesma's (1624) manuscript, he states that three buoys are attached to the wreck via the divers once a wreck was located. These buoys marked the extent of the wreckage, and divers would descend and ascend using the line, and in doing so, the line helped orientate divers on a shipwreck site. In some instances, divers held on to buoys to rest or were tethered to them from being swept away in a current (Kita 1965:49).

Sounding Leads/Weights/Sinkers

Sounding leads and weights were used to determine water depth (Swanick 2005:89) (FIGURE 6.3). It is one of the most ancient and simplest tools of a navigator's took kit (Swanick 2005:89). Often made of lead, there are two kinds of sounding leads: shallow water lead and deepwater lead. Attached to the lead is a line of several feet long. A sounding, or depth measurement, "could be taken from the deck of a moving of stopped ship" (Swanick 2005:99). The weight was dropped overboard into the water, allowing to rest on the ocean bottom. Some lines were knotted every couple of feet to keep track of fathoms. Once the weight was brought to the surface, a "sample of the seabed would be analyzed for contour, color, smell, taste, and texture in order to determine the location of the ship" (Swanick 2005:99).

FIGURE 6.3. Artifact No. 93.641.92. Sounding lead from IR019.

Salvagers used sounding leads and poles, which were thin poles that also ascertained water depth (refer to FIGURE 5.8). Weller (1987:22) refers to an account during the salvage of the 1715s where 'pile poles' were used in determining the extent of wreckage. These items were primarily used to not only identify the depth of water but to determine the various depths of a recent wreck. Ledesma's (1623) manuscript states that once a ship was located, grappling hooks and sounding leads were lowered over the wreck site, taking samples of the bottom (McDonald and Arnold 1979:319). Salvagers were mindful of upright masts, and rigging that could impede the topside vessels, and using the sounding lead over the site helped map the upright obstructions.

Cargo Hooks/Grappling Hooks/Chains

Cargo hooks are hooks fastened at the end of a cargo whip (rope or chain) for loading and landing cargo. One end has a hook of varying size and shape, while the other end may be equipped with an eyebolt to fasten rope or chain (de Kerchove 1961:126) (FIGURE 6.4). Other hooks had a notch and bar to tie leads of rope to (FIGURE 6.5). Grappling hooks, or grapnel were implements with four prongs or hooks that radiate from a shank which had a ring at the other end (de Kerchove 1961:335) (FIGURE 6.6). While chains and hooks served an array of duties on a ship, salvagers attached several of them along a long chain to drag the ocean in search of submerged sites (Ledesma 1624; McDonald and Arnold 1979:319, 322). Ledesma's (1624) manuscript, details:

> Should it be a lost ship, and this proved by the said grappling hooks and lead, a smaller chain of about 35 or 40 fathoms will be used, which should have six iron hooks separated

at equal distances and securely fastened to the said chain. The chain will be cast according to the spot where the lost galleon is located, doing this in such a manner that the said hooks will get caught in the rigging, side, fore castle prow, or stern of the galleon (McDonald and Arnold 1979:319).

Chains are "made up of a series of metal links formed into oval shapes and connected through each other" (Pike 2022). They were commonly used aboard a ship in cargo-handling operations, suspending and moving loads of goods and materials, securing cargo, and they made up parts of a ship's rigging. The diameter of metal chain links is made in various sizes to withstand different loads. Each link is designed to stretch and bend when overloaded. Chains are also more resistant to abrasion and the corrosive effects of seawater (Pike 2022).

FIGURE 6.4. Artifact No. 93.605.673. Cargo hook with eyebolt and chain from 8MO101.

FIGURE 6.5. Artifact No. 93.605.670. Cargo hook from 8MO101.

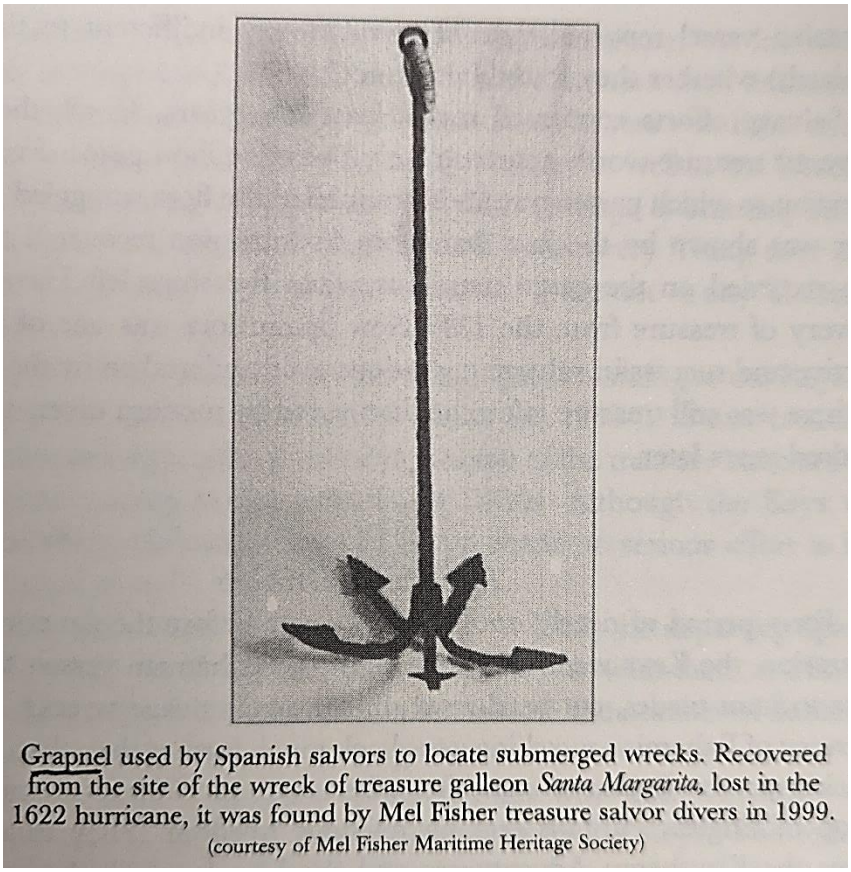

FIGURE 6.6. Example of a Spanish grappling hook from *Santa Margarita* (Viele 2001:13).

Hammers/Pickaxes/Hatchets

Hammers can "be applied to a wide range of striking tools" Lawrence 2020:42). They can be used in various situations that require blunt force such as "sticking two or more pieces of material together, unsticking a material from a tight space, demolition projects, pulverizing material into smaller pieces, or any activity in which percussive maintenance might yield a desired result" (Lawrence 2020:42). The general features of a hammer include a metal head with at least one striking face and a wooden handle (Lawrence 2020:42). Sledgehammers are hammers with a double face, meaning both sides of the hammer are the same shape and size (Blackburn 1974:61).

A pickaxe is a tool used for prying, breaking, chiseling, and in agriculture, plowing, hoeing, and digging. The T-shaped head is made of metal and tappers to a point at one end, while the other head is broad and flat like an axe. The head also curves slightly for balance and is fixed to a wooden handle (Wonkee Donkee Tools 2021).

Hatchet derives from the French word for axe, *hache*, and it simply refers to a short-handled axe. The hatchet has another distinctive characteristic in that it also has a hammer on its other face (Blackburn 1974:65). Hatchets are versatile tools that can be used for splitting and cutting materials via its axe face, and driving, beating, and breaking materials with its hammer face (Blackburn 1974:4,59).

Wrecking Bars/Crowbars

Wrecking bars, or ripping bars, are "long, goose-necked steel bars, usually hexagonal in section, and toughened to withstand breaking" (Blackburn 1974:114). It is generally used in tasks that require prying and levering (Blackburn 1974:114).

Crowbars or pry bars are a length of metal "with a flat blade at each end, one end being offset" (Blackburn 1974:109). They are used for removing nails, separating pieces of wood, and general dismantling (Blackburn 1974:109).

The previous two sections define the various handheld tools salvage divers used throughout the salvaging process. These tools are similar in that they were utilized to break open crates, boxes, or hatches or "chisel away coral-entombed wreckage" (Dawson 2018:76). In fact, when the *flota* of 1715 wrecked, Salmón, the highest surviving ranking officer, dispatched a letter to the governor of St. Augustine demanding immediate need of axes and other salvage equipment along with shovels and rakes to bury the dead (Salmón 1715).

Crannikin (Jacks)

While visiting the BAR Conservation Lab, the researcher became aware of a cranniken, or a mechanical crank/lever, also known as a cargo jack belonging to the 1715 shipwreck site known as *Cabin Wreck* (8IR23). In the late 1960s and early 1970s, a salvage company donated several items to the University of Florida, which were later transferred to BAR. Of these artifacts were several pieces of a mechanical jack from the *Cabin Wreck* (Artifact No. 93.637.147) (FIGURE 6.7—FIGURE 6.10). Another complete jack associated with the *Cabin Wreck* was part of the 1329 treasure salvor contract from 1974 and in remarkable condition (Labtag No. 11895). While the pieces belonging to the dismembered jack reside in the State's Collection, the fully assembled jack was never transferred to State ownership (Jeremy Vause 2021 pers. comm.). A detailed drawing by previous Head Conservator of BAR, Jamie Levy, was submitted to BAR for their records, however (*Queen Anne's Revenge* Conservation Laboratory Report 2004) (FIGURE 6.11). It is unknown where this jack is now. Similarly, one other jack which was recovered from

Indian River County in an area rampant with 1715 material containing the shipwreck sites of *Corrigan's Wreck*, *Cabin Wreck*, *Rio Mar*, and *Green Cabin* wreck (DiMucci 2018:9). This jack was a part of the S20 treasure salvor contract in 1979 and was also never transferred to State ownership and consequently not curated at the Conservation Lab (Labtag No. 12-023-1979) (Jeremy Vause 2021 pers. comm.).

FIGURE 6.7. Artifact No. 93.637.147. Teeth of *Cabin Wreck* jack. Image courtesy of the BAR Conservation Lab.

FIGURE 6.8. Artifact No. 93.637.147.1. Gear box of *Cabin Wreck* jack. Image courtesy of the BAR Conservation Lab.

FIGURE 6.9. Artifact No. 93.637.147.2. Handle of *Cabin Wreck* jack. Image courtesy of the BAR Conservation Lab.

FIGURE 6.10. Artifact No. 93.637.147.3. Gear pieces of *Cabin Wreck* jack. Image courtesy of the BAR Conservation Lab.

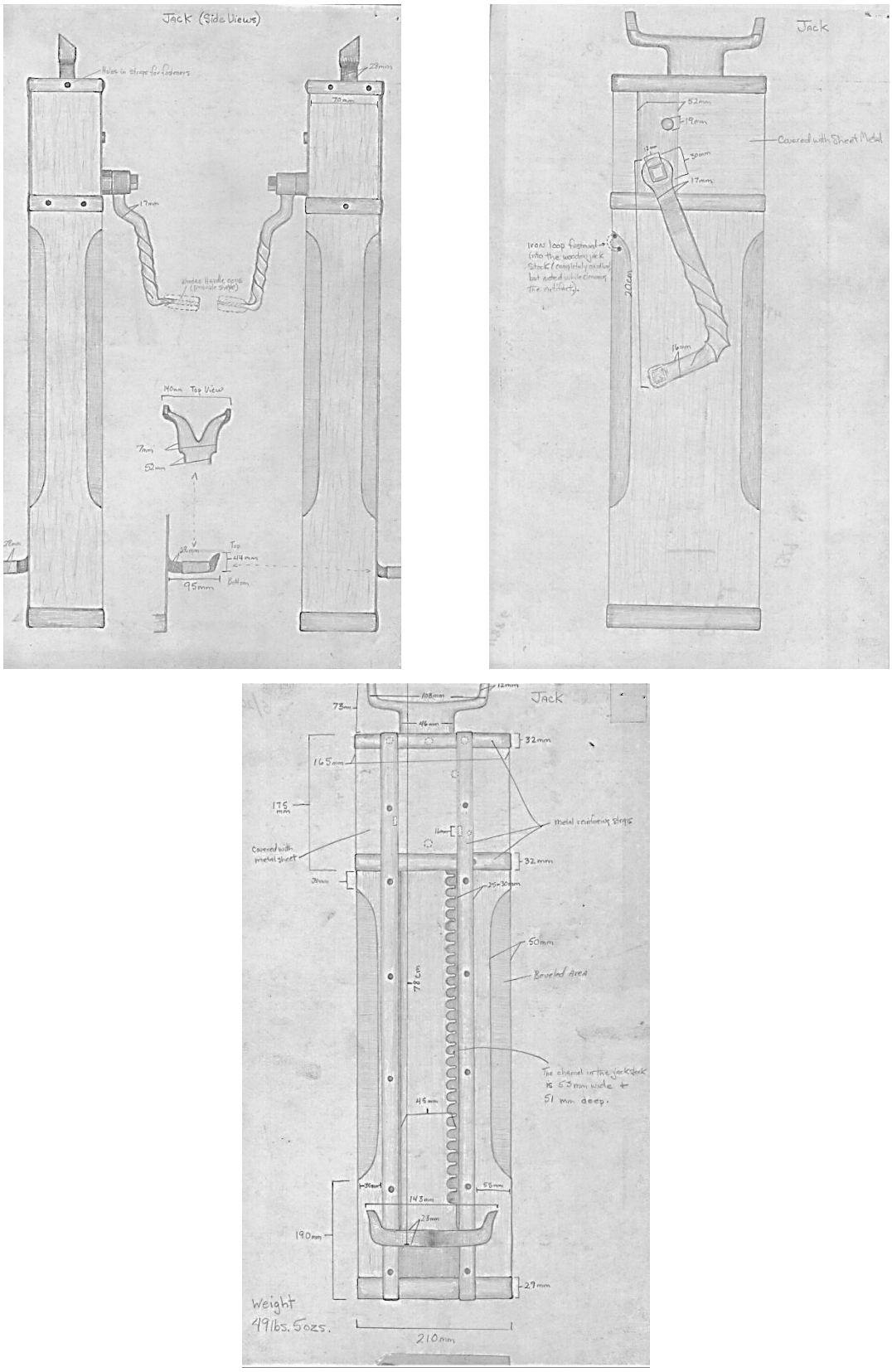

FIGURE 6.11. Labtag No. 11895. One of the Mechanical Jacks from *Cabin Wreck.* Image courtesy of the BAR Conservation Lab.

Jacks, in general, are ubiquitous "tools used to lift, leverage, and move all manner of large and heavy objects" (Lawrence 2020:64). They have slotted racks, curved cranks, and internal gearing mechanisms that are concealed between thin iron plates. Additionally, a toothed iron bar, or rack, transects a metal gearbox (Lawrence 2020:64; DiMucci 2018:8). Apart from the *Cabin Wreck* jacks, other jacks associated with underwater sites were found on *Henrietta Marie* (1697-1700) and *Queen Anne's Revenge* (QAR), formally *La Concorde de Nantes* (*Concorde*). In "Tools of the Trade: A Material Culture Study of Had Tools from *Queen Anne's Revenge*," Kendra Lawrence provides a summary of how jacks were used while aboard a vessel:

> A user would apply rotational force to the handle of a jack. Internal gearing multiplied the rotational force and transferred it to the rack. As the user turned the handle a small pawl would fall into place along the ratchet gear to support the load and prevent it from crashing back down when the user took their hands off the crank. This rack and pinion leverage transformed rotational force to linear motion of the rack (Wilde-Ramsing and Carnes-McNaughton 2018:94). This directional force was then applied to a load, a deck beam or large timber which needed to be maneuvered or supported to effect repairs on the ship (Lawrence 2020:64).

While jacks are essentially generic lifting devices that served many utilitarian purposes across numerous trades, including smiths, carpenters, and ironmongers, aboard ships, they were used in various instances from ship construction and "moving cargo to lifting the wheels of gun carriages" (DiMucci 2018:7). Arianna DiMucci (2018) provides a concise historiography of the

utilization of jacks aboard ships in "Conserving and interpreting a Mechanical Jack from Blackbeard's Flagship, *Queen Anne's Revenge*." DiMucci (2018:7) states that historical references of jacks can be found in a handful of mechanical and shipwreck treatises. Stretching as far back as 1702, DiMucci (2018) establishes a list of encyclopedias and dictionaries that define and describe the utilizations of the jack. For instance, *Diderot's Encyclopedia* (1978) depicts a tool with internal gearing mechanisms and an intersecting rack used to maneuver blocks of marble for sculptors while several additions of a French dictionary of naval architecture, *Dictionaire de Marine Contenant Les Termes De La Navigation et de L'architecture Navale* (1702-1736), describe the jack's use in lifting gun carriages and to service artillery (DiMucci 2018:7-8; Lawrence 2020:65). In fact, according to the Dutch East India Company's (VOC) equipment records, jacks became standard issue on all VOC vessels (Gawronski et al. 1992:127; DiMucci 2018:7-8).

The cranniken or jack may have been used during the salvaging process to aid in lifting and moving heavy cargo. Although the jacks residing in the BAR Conservation Lab most likely did not participate in the salvaging of its associated *Cabin Wreck*, since modern treasure salvors supposedly recovered them from the wreck site and/or debris field, other cranniken devices or even modified jacks may have been implemented in historic salvaging attempts. Ledesma's (1623) manuscript depicts vessels outfitted with cranks and levers lifting submerged wreckage (see FIGURE 5.9). While the jack system depicted is far larger, taking up the entire deck, than the more 'hand-held' ones belonging to the *Henrietta Marie*, *QAR*, and the 1715s, Ledesma may have drawn the jacks larger for clarity—particularly since these illustrations are not to scale. The jacks of the *QAR*, for instance, are between 36 to 30.5 inches (Lawrence 2020:66-68). The 1715 jacks also range in the 30- to 40-inch range. Additionally, Ledesma's

jack and crank mechanism is not the same general shape as the ones in the archaeological record. Ledesma depicts an open-air gearbox with large round cogs, while the *QAR* and 1715 jacks have an enclosed gearbox and are more rectangular in overall shape. Regardless, the purpose of these mechanical jacks is the same—to harness mechanical power to lift, move, and manipulate large, cumbersome, and heavy objects (Lawrence 2020:65). Overall, as Lawrence (2020:66) states, "an intrusive, engineering-based analysis… [of jacks] could reveal more about the working loads it was designed to withstand, and therefore would provide a fuller understanding of the types of work this tool enabled sailors to perform."

Evidence of Salvage Equipment on Plate Fleet Shipwreck Sites and Reals

The equipment and tools discussed in the previous section are compared to the artifacts residing in FBAR Collections for the 1715 and 1733 shipwreck sites and the 1715 *reals*. The presence of these items are tallied in tables. The items that are paired together were grouped based on the similar duties they performed while salvaging. Unidentified or unspecified fragments of metal or wood objects were excluded from this analysis due to the uncertainty of the identity of the object. Because FBAR does not curate artifacts from the 1622s, no material culture analysis could be conducted. Furthermore, the Plate Fleet collections were recovered by treasure hunter companies, and a small percentage of the artifacts were acquisitioned by the State of Florida. As such, this analysis is based off the equipment and tools conserved at the BAR Conservation Lab.

In the case of the 1715 shipwreck sites, TABLE 6.1 details the number of multipurpose tools aboard the known 1715 shipwreck sites. The site number 8IR000 is used to refer to general Plate Fleet recovery but cannot be identified to a specific wreck (Sam Wilford 2022 pers. com.).

TABLE 6.1. Salvage equipment found on 1715 shipwreck sites.

Equipment	**General Plate Fleet material (8IR000)***	***Corrigan's Wreck* (8IR019)**	***Sandy Point Wreck* (8IR020)**	***Green Cabin Wreck* (8IR022)**	***The Cabin Wreck* (8IR023)**	***Rio Mar Wreck* (8IR027)**	***Anchor Wreck* (8IR046)**	***Cannon Pile Wreck* (8IR0438)**	***Douglass Beach Wreck* (8SL017(A))**
Ballast stones	4			6					2
Baskets									
Buoy/float									
Cargo hooks/ grappling hooks/eyebolts	15	10		1	15	11	2	4	16
Chains		2			2				3
Hammers	3	1			4				
Nets/rope		2			4	2		1	3
Pickaxes/hatchets	4	5		2	6				1
Pile poles									
Sounding leads/ weights/sinkers	25	7			19	2		4	15
Wrecking bars/ crow bars	12	1		5	3				3
Cranniken parts	8				2				1
TOTAL number of artifacts in assemblage	1324	791	92	495	1696	462	28	112	2583

*General Plate Fleet material includes general 1715 Plate Fleet recovery and probable 1715 shipwreck sites: 8IR047, 8SL022, and 8SL024.

TABLE 6.2. Salvage equipment found on 1733 shipwreck sites.

Salvage Equipment on 1733 Wreck Sites											
Equipment	***Herrera* (8MO90)**	***San Francisco* (8MO91)**	***Infante* (8MO92)**	***San José* (8MO101)**	***Chaves* (8MO102)**	***San Pedro* (8MO104)**	***Angustias* (8MO131)**	***Sueco de Arizón* (8MO132)**	***El Lerri* (8MO133)**	***Capitana* (8MO146)**	***Tres Puentes* (8MO177)**
Ballast stones	1	1	1	12	1	3	2		2		1
Baskets											
Buoy/float				1							
Cargo hooks/ grappling hooks/eyebolts				66			2		11	4	
Chains				3			1				
Hammers				4		1					
Nets/rope				2		1			1		
Pickaxes/hatchets				3		1			3	1	
Pile poles											
Sounding leads/ weights/sinkers		1		15		2	6		1		
Wrecking bars/ crow bars				5					5		
Cranniken parts											
TOTAL number of artifacts in assemblage	32	25	24	3030	13	339	970	19	557	577	13

In the case of the 1733 shipwreck sites, TABLE 6.2 details the number of multipurpose tools aboard the known 1733 shipwreck sites. The sites with little or no tallies have fewer overall artifacts in their curated assemblage. For instance, *Herrera* has only 32 artifacts, *San Francisco* has 25 artifacts, *Infante* has 24 curated artifacts, *Sueco de Arizón* has 19 artifacts, and *Tres Puentes* has 13 artifacts in its assemblage.

Because these sites (both 1715s and 1733s) are all Spanish shipwreck sites, they were all outfitted with stone ballast. In fact, what generally remains of the wreck sites themselves are mounds of river-rock ballast, timber, and cannon in some cases (McKinnon 2006:86-87; Smith 1996:88). It is not unusual that the artifact assembles for both fleets would contain samples of ballast. The following paragraphs adhere to TABLE 6.1 and TABLE 6.2 to discuss the findings and significance for each equipment type.

None of the sites contained evidence of baskets or nets. The materials used to make baskets are organic and degrade over time in exposure to water. It is not unusual for organic artifacts to be missing in the archeological record of shipwreck sites; however, this does not mean that these objects were not present at the time of wrecking. When organic materials are recovered from underwater sites, they are preserved in an anaerobic environment.

The 1733 shipwreck site, *San José*, contained the only object identified as a probable float or buoy marker. The artifact is made of wood. The 1733 Plate Fleet Inventory spreadsheet did not contain any further information describing dimensions, features, or photographs. The float may have been on board the vessel as it wrecks, or it may have been lost on the site during historic salvage efforts. Further analysis of the archival record is needed to determine if the Spanish salvagers noted a loss of a buoy marker or float on the site.

Numerous cargo hooks, grappling hooks, hooks with eyebolts, and chains are present in the artifact collections of these sites. Again, this is not unusual since these objects were present in abundant amounts serving several functions on ships pre-wrecking.

Utilitarian tools such as hammers, pickaxes, axes, and hatchets were also standard in a ship carpenter's tool kit and are therefore commonly present on many shipwreck sites during the Age of Sail. These tools were generally used in the continual upkeep and maintenance of vessels at sail. Similarly, sounding leads, weights, and sinkers were standard tools in every navigator's or pilot's tool kit. They are also ubiquitous items found on shipwreck sites during the Age of Sail.

Much like the other utilitarian hand-held tools discussed, wrecking bars and crowbars were common items used on ships to help open casks and cargo boxes. Their presence is also characteristic on shipwreck sites during this time.

Pile poles were also used as depth gauging devices. While there were numerous artifacts in the 1715 and 1733 collections spreadsheet that were labeled 'pipe' or 'pipe' fragments, it was impossible to determine if these objects were a part of a pile pole or if they were parts of the bilge line or other operational components of the ship that had piping.

Overall, it was not unusual for a working vessel during the 18th century to have these specific tools, along with several others, in abundance. Having multiple numbers of tools onboard reduced the potential of not having a specific tool when lost. Having backup items was necessary when the next port could be several days to months away. While each tool served specific functions on a working vessel, once the ship had wrecked, the utility of these tools reverted to what each tool was broadly designed to do. In some instances, these tools were used in conjunction to make specialized equipment like linking grappling hooks to a length of heavy

chain to drag the ocean floor. In essence, the tools utilized during the salvage phase of a wreck transcended the time of a working ship, serving multiple purposes. Additionally, while these tools are present on the 1715 and 1733 shipwreck sites, the same tools were also brought by the salvagers from Havana. Ultimately, the archaeological and cultural context of these tools moves over time.

In the case of the 1715 real sites, TABLE 6.3 details the number of multipurpose tools used for salvage for the Higgs Site and the Winter Beach Camps. Because BAR does not curate the artifacts from the Winter Beach Camp Site, this analysis uses Armstrong's (2001) archaeological report, which contained an overview of the material culture excavated to draw conclusions for identifying the multipurpose salvage equipment at the site.

TABLE 6.3. Salvage Equipment found on 1715 *real* sites.

Salvage Equipment for 1715 *Reals*			
Equipment	**Higgs Site (8IR24/8IR26)**	**Winter Beach (8IR818)**	**Winter Beach (British Camp)**
Ballast stones	6	1	1
Baskets			
Buoys			
Cargo hooks/grappling hooks/eyebolts			3
Chains			
Hammers			
Nets/rope			
Pickaxes/ hatchets			
Pile poles			
Sounding leads/ weights/sinkers	4	X*	
Wrecking bars/crowbars			
Cranniken parts			
TOTAL number of artifacts	1307	--	--

*Report does not specify exact number of artifacts.

The metal artifacts at the Higgs Site fall under broad categories, mainly fastener fragments, iron fragments, hardware, lead, copper scrap, and an assortment of unsorted metal. As a terrestrial site, there were a total of six ballast stones excavated. Divers may have utilized these stones as weights to quicken their descent, thereby extending the amount of time underwater. While many of the other tools used during the salvage process are absent from the site, there were four small weights. The weights were probably used as fishing weights rather than depth gauges. Unfortunately, while several pieces of earthenware, ceramics, pottery, glass, burned stone, and worked bone artifacts, none of the material culture recovered from the Higgs Site can be definitively tied to the equipment commonly used for historic salvage.

Of the Winter Beach artifacts, there was one ballast stone, three hooks, and X number of weights. The report does not specify the exact number of weights and sinkers but states that many were recovered from all parts of the site (Armstrong 2001:27).

While most of the shipwreck sites in the vicinity of the *real* had struck the reef and broke apart, scattering across the seafloor, Armstrong (2001:15) notes that because these ships were laden with silver, they probably carried little ballast since the weight of the silver may have been sufficient for stability. If the salvagers need rock for a firepit, the “natural beach stone would serve as well as ballast” (Armstrong 2001:15). The site, however, had little rock of any type within its boundaries (Armstrong 2001:15). Although the report does not state the ballast rock had evidence of fire, perhaps the salvagers had access to more ballast than beach stone to build fire pits, and the other stones were removed over time. Alternatively, the stone was used by divers to descend through the water column.

Like the Higgs Site, the weights excavated from Winter Beach were smaller and probably used as fishing or net weights. Armstrong (2001:27) notes that many of the weights were modified musket balls or rolled lead tubing.

The British Camp at Winter beach also had one ballast stone. The Armstrong report states that this ballast stone had no encrustations and did not resemble other ballast found on the 1715 wreck sites. Armstrong (2001:50) proposes that the stone may have originated from the British occupants and not from the 1715 salvage.

This camp also had three cargo hooks—typical of those found on 1715 fleet wreckage (Armstrong 2001:49). Two measured 7.5 and 9.0 centimeters long and were in a good state of preservation. Armstrong (2001:49) notes that it was common for the Spanish to burn ship hardware to protect it against sea salt damage. The Spanish salvagers may have burned the hooks to preserve their integrity while repurposed for other tasks. The third hook had a swivel and measured 13 centimeters long. Again, this item was burned. The cargo hooks were left behind after Spanish salvagers had left. The English soldiers may have found the hooks and reused them to meet their needs.

Both sites were identified as *reals* because of their lack of permanent structures while being predominantly Spanish due to material culture that dates to the 1715 Plate Fleet wrecking. Several probable reasons why these sites lack the material culture associated with salvaging equipment. First, these sites are in very turbulent and unstable aeolian environments that have been continually affected by wave action, erosion, and deposition. These environmental factors can displace and remove material culture from its original provenience. Second, these sites were also heavily impacted by treasure hunters and metal detection enthusiasts. These impacts not only disturbed the sites by intrusive methods of extraction, but they also removed any material

culture that was of interest to the treasure hunter. Lastly, the historic salvagers may have deliberately not have left equipment behind. Spanish salvagers knew that the *reals* were not secure enough to store salvage equipment year-round due to the potential disturbance of Indigenous groups living in the area. This was the case during the seasonal salvaging efforts of the 1622 fleet discussed earlier. The *reals* were also at the mercy of independent wreckers and pirates attempting their luck at recovering Spanish wealth. The salvagers may have taken preventative measures to ensure other unauthorized wreckers were not accidentally aided with supplies. Ultimately, any material culture may be lost at the 1715 *real* sites.

Presence of Native Americans and Enslaved Divers at Real *Sites*

The Higgs Site and the Winter Beach Camp Site had abundant Native American material culture. Unfortunately, the Armstrong report does not detail the types, identification, or include photographs or drawings of any ceramics found during excavation. Armstrong states that the report was "not an analysis of ceramic types…[however] the amount and type of various shards discovered (sic) within the camp are typical of those which are common to the 1715 Plate Fleet wrecks" (2001:28). Each Plate Fleet shipwreck site was laden with ceramics, figurines, and other products made by the Indigenous peoples of the Americas to be shipped to Spain (BAR, DHR 2020). These products were also present at the 1715 *reals*. Due to a lack of information regarding Native American and Indigenous ceramics for the Winter Beach *real*, this analysis focuses on the pottery descriptions and artifact assemblage from the Higgs Site.

Ceramics are defined by several characteristics, including manufacture, temper, texture, color, surface finish, decoration, and form (Smith 1949:10). Ceramics can be plain, meaning

there are no markings or designs across the surface of a sherd. Such pieces with markings or designs etched on the surface are called stamped.

The Native American pottery of the main Higgs Site (Br. 1) is consistent with the 1715 Plate Feet wrecking and occupation and falls into three main ware types: San Marcos, Glades, and St. Johns (Smith 1949:10) (TABLE 6.4). Most of the fragments were San Marcos Plain and Stamped. There were only 21 sherds that were Glades Plain, and 12 sherds were St. Johns Plain.

TABLE 6.4. Sherd count of Native American ceramics on Higgs Site (BR 1).

Native American Pottery on Higgs Site (Br 1)	
Ceramic Type	**Count**
San Marcos Plain	23
San Marcos Stamped	24
Glades Plain	21
St. Johns Plain	12

Geographically, San Marcos Series ceramics are characterized as "a sand and grit-tempered ware, are believed to originally have been manufactured by the Guale peoples located along the southeast coast of Georgia between St. Andrew and St. Catherine's Sounds" (King 1984:79). While there were San Marcos Plain sherds found at the Higgs Site, Smith (1949) did not discuss the characteristics of these items. Instead, he focused on the San Marcos Stamped sherds and detailed their features (FIGURE 6.12).

San Marcos Stamped

Method of manufacture. Coil fractures present.
Temper. Small to abundant amounts of medium to large size quartz sand and-or small to moderate amounts of crushed limestone.
Texture. Coarse to medium, slightly contorted paste.
Color. Surfaces are gray to tan, cores are gray to black.
Surface finish. Exterior surfaces were scraped before application of stamped decoration. Interior surfaces were smoothed, and pitted to a certain extent by leaching of tempering material and escape of gas bubbles during firing.
Decoration. Simple stamped; clay was impressed with longitudinally grooved paddle, with grooves averaging 6 mm. in width. Lands are either larger or smaller than grooves. Crossed simple stamping occurs frequently. Some curvilinear and rectilinear complicated stamping also occurs.
Form. Rim is outcurved and folded. Lip is flat to rounded. Body form includes small to large globular vessels and shallow bowls. The base is rounded. No appendages were found. Thickness ranges from 4 to 8 mm.

FIGURE 6.12. Characteristics of San Marcos Stamped pottery (Smith 1949:10).

Glades Series ceramics are from the region, archaeologically known as The Glades, a region "between the Kissimmee and Indian Rivers and all the peninsula from Lake Okeechobee to the Florida Keys inclusive" (Stirling 1935:335). This region also encompasses the "Everglades, the Gig Cypress Swamp, the Ten Thousand Islands, and strips of pinelands and flatwoods along both the east and west coasts" (Goggin 1940:22). Glades Plain ceramics are manufactured by coiling, heavily tempered with quartz, and depending on firing variation, can be light tan or gray, dark brown or black, or red-orange (McGregor 1974:11) (FIGURE 6.13). In the Higgs Site archaeological report, Smith details the features of the Glades Plain Series at the second site, Br 2 (FIGURE 6.14).

FIGURE 6.13. Example of Glades Plain. Courtesy of The Florida Museum of Natural History Pottery Type collection 2022.

Glades Plain at Br 2

Method of manufacture. Segmental coiling.
Temper. Sand.
Texture. Compact, crumbles when broken.
Hardness. 3.5 to 4.0.
Color. Exteriors are red, buff and gray, with some brown and black. Interiors are often red when exteriors are black or buff. Cores are black with surface color extending inward from 1 to 2 mm.
Surface Finish. Exteriors are roughly scraped to smooth, a few have exterior burnished. Exterior surfaces smudged. Interiors smooth.
Form. Rim. Straight or slightly incurved.
Lip. Flat squared lip occurs, but typical type is slanting flat lip with an interior overhang, the slant being from exterior to interior. One sherd appears to have had a scalloped lip.
Body. Shallow bowl with curved sides.
Base. Rounded.
Appendages. None.
Thickness. 4 to 8 mm.

FIGURE 6.14. Characteristics of Glades Plain pottery (Smith 1949:38)

Geographically, Belle Glades Series originates in Florida's northwest and central region around Lake Okeechobee. It is "tempered with a moderate amount of fine sand, textured fairly even with slightly contorted but compact paste structure" (McGregor 1974:14). The surface finish on Belle Glades pottery also has long streaks from smoothing implements (McGregor 1974:14) (FIGURE 6.15). There is much variation in appearance for Belle Glade ceramics because it closely resembles St. Johns and Glades ceramics (McGregor 1974:14-15). The main difference between Glades, St. Johns, and Belle Glade Series is based on the paste composition, which is a gritty substance, usually crushed limestone or, in rare cases, grog, added to clay to reduce shrinkage or expansion (McGregor 1974:10).

FIGURE 6.15. Example of Belle Glade Plain. Courtesy of The Florida Museum of Natural History Pottery Type collection 2022.

St. Johns Series is from the northeastern region of Florida along the St. Johns River drainage basin. It is also manufactured by coiling and generally "without temper but occasionally with fine fiber, texture smooth, soft and chalky" (McGregor 1974:13). St. Johns Series is light gray, with the core ranging from black to dark gray (FIGURE 6.16). In the Higgs Site archaeological report, Smith details the St. Johns Plain Series features at the second site, Br 2 (FIGURE 6.17). St. Johns Check Stamped are "decorated by stamping with a carved paddle" (McGregor 1974:14) (FIGURE 6.18). The designs consist of "parallel arrangements of longitudinal and transverse lands which describe a series of depressed rectangles" (McGregor 1974:14).

FIGURE 6.16. Example of St. Johns Plain pottery. Courtesy of The Florida Museum of Natural History Pottery Type collection 2022.

St. Johns Plain at Br 2

Method of manufacture. Segmental coiling.
Temper. Untempered to some very fine grit particles, hardly visible to the eye. Occasional inclusion of quartz sand. Some sherds have holes of various sizes throughout core which may be fiber impressions.
Texture. Paste has a laminated appearance.
Hardness. 2.5 to 4.0.
Color. Exteriors are buff, brown and gray. Some cores have gray or black carbon streaks while others are uniformly fired and are the same color throughout.
Surface Finish. Exterior surfaces range from roughly scraped, through finely smoothed to somewhat burnished. Most interiors are very smooth, but a few show deep parallel trough-like scraping lines. In these cases the grooves are 4 mm. wide on the average, with the in-between lands 1 mm. in width.
Form. Rim. Straight or slightly incurved.
Lip: Rounded or flat sometimes beveled downward from exterior.
Body. Shallow bowl forms are indicated.
Base. Rounded.
Appendages. None found.
Thickness. 3.5 to 8 mm. Lip is generally 2-3 mm. thicker than body

FIGURE 6.17. Characteristics of St. Johns pottery (Smith 1949:28).

FIGURE 6.18. Example of St. Johns stamped. Courtesy of The Florida Museum of Natural History Pottery Type collection 2022.

Each of these ceramic types, San Marcos, Glades, Belle Glades, and St. Johns, were widely utilized among Native Americans in Florida. Notably, based on the artifact collections at BAR, these ceramic types were not present in any of the 1715 or 1733 shipwreck site assemblages. This suggests that these ceramics probably did not come from the salvaging activities. Instead, these ceramics may have been present on the *reals* through contact with the local Native American groups, namely Ais. Another possibility for the wares to be at the *reals* is via the supplies from St. Augustine. San Marcos and St. Johns wares were common cooking and storage vessels post-1670 (King 1984:79). Either way, the presence of these ceramics at the Higgs Site confirms some means of interaction between the Ais and Spanish salvagers. It does not determine, however, that the Spanish salvagers utilized (conscripted, coerced, of their own agency) the local Native Americans as salvage divers.

In the case of the 1622 *flota*, which wrecked further south along the Keys, records indicate that Native Americans would often paddle out and watch in their dugout canoes during salvage operations. Concerned that "they might interfere with the operations or destroy the buoys used to mark the wreck sites, the Spanish gave them gifts of food and drink" (Viele 2001:10). Furthermore, the Keys Native Americans were accomplished divers, and in one instance, the Spanish salvagers hoped to gain their cooperation and "taught nine of them how to work as salvage divers and reward them with gifts of *melado* (sugar cane syrup), knives, and hatchets" (Viele 2001:10).

In the case of the 1715 *flota*, records indicate that the relationships between the Spanish salvagers and the Ais community were cordial. The Spanish relied on Native American knowledge and protocol and asked to travel throughout Florida (Dobcovsky 2018:52). When Governor Córcoles y Martínez of St. Augustine needed to send supplies to the stranded

survivors, he asked the Costa people and Ais permission to enter their territory before sending relief and supplies to the survivors (Márquez 1715). It is unknown, however, if the Spanish used the Ais as salvage divers.

Identifying the presence of enslaved African divers at the *reals* is difficult. There are no identifiable artifacts that can definitively be tied to the divers. Arguably, some of the clothing artifacts, such as buttons, buckles, beads, or personal artifacts such as small Tonala figurines, gaming pieces like dice, or even smoking pipes could have belonged or been used by the divers. Ultimately, further research is needed on Spanish salvage sites to better understand and determine ways of identifying enslaved divers within the archeological record.

Conclusion

In conclusion, this chapter provided an analysis of standard salvaging tools used by the Spanish. The tools were compared to the artifact assemblages of the 1715 and 1733 shipwreck sites to show the multipurpose and utilization of these tools post-wrecking. An examination of the ceramics and personal artifacts from the Higgs Site artifact assemblage and Winter Beach Salvage Camp report helped to understand the difficulties of identifying the presence of the enslaved divers on *real* sites.

Chapter 7. Conclusion

Introduction

This thesis had two main goals: to understand the Spanish salvaging industry, including the methods, tools, equipment, and vessels used for recovering submerged materials, as well as identifying the modes of labor and relationships the enslaved salvage divers operated in while living alongside their Spanish employers during salvage. MCL and CRT were applied to thoroughly examine the histories of each of the Plate Fleets' wrecking events, corresponding salvage, and people conducting the salvaging.

MCL helped place all the actors taking part in the salvaging of the Plate Fleets, that is, the marooned Spanish mariners and later salvagers, the Native Americans whose land the Spanish salvagers and enslaved divers were occupying, the administrative bodies managing the salvage efforts, and the piracy and unauthorized salvage expeditions. The need to protect shipwreck cargos prompted Spanish authorities to dispatch relief and salvagers to the wrecked *flotas* and negotiate with the local Native American communities to maintain a communication and supply road from St. Augustine to the salvage camps. Placing the Spanish salvage industry within the context of MCL reveals the complexities and global reach of the Spanish Salvage industry in the broader economic, colonial, and social landscape across the Atlantic World.

Techniques drawn from CRT helped identify the stories of the enslaved African and possibly Native American or Indigenous divers. Although seldom present within the archaeological and archival record, recent scholarship has added to the narrative of enslaved African divers. Utilizing these studies as references for the resistance, autonomy, and agency of enslaved African diver, this thesis attempted to identify the modes of labor, work conditions, and

power dynamics between the divers and the Spanish salvagers. In summary, CRT and a MCL framework have helped extrapolate information about the Spanish salvage industry and answer the research questions.

Answering the Research Questions

What tools, practices, ship types, etc. did the Spanish utilize during shipwreck salvage?

By extrapolating information from the archival and historical documents, a list of tools implemented during the salvage process was made and compared to the 1715 and 1733 shipwreck artifact collections to explore the adaptable uses for these tools before and after wrecking. These items were ballast stones, baskets, buoys or floats, cargo hooks, hooks with eyebolts, chains, hammers, pickaxes or hatchets, pile poles, sounding leads or weights, and sinkers, bars, crowbars, and crannikens or jacks. Because these tools were standard on ships of this era, many of these implements were present in the artifact assemblages for the shipwreck sites.

The list of tools was then compared to the artifacts excavated from the 1715 salvage *reals*, Higgs Site, and Winter Beach Camp Site. Very few of these tools were present at the *real* sites. There are several reasons why these sites may lack the material culture associated with salvaging. For instance, the camps are in turbulent aeolian beach environments with a long history of treasure hunting. Additionally, the historic salvagers may have also deliberately taken preventative measures not to leave behind equipment for others to use in salvage.
Salvage-specific tools such as the diving bell were implemented during a 1622 salvage season to locate the remains of *Santa Margarita*. Diving bells were heavy, difficult to maneuver, and expensive to manufacture. Therefore, apart from the bell used in 1622, the Spanish preferred to utilize the skills of enslaved divers.

The Spanish used a variety of vernacular watercraft such as *balandras*, frigates, and *conoas* during salvage operations. While the definition and construction of *balandras* remain allusive, the ship type served several purposes throughout the salvage process. The *balandra* was small and shallow drafted, which enabled the salvagers to maneuver through the shallow, sandy shoals and easily reach many of the wreck sites. They were outfitted with salvage gear and dispatched to the Florida coast to send supplies to survivors. *Balandras* were also used to ferry recovered cargo back to Havana. The speed of the *balandra* was vital in sending correspondences throughout the salvaging process. Armed, they were also used to patrol and defend *reals* from perusing pirates.

Ultimately the equipment and tools used in Spanish salvage served different functions post-wrecking. This thesis advises that the everyday tools found on shipwreck sites may have served different uses post-wrecking. A tool's presence in the archaeological record could be more complex as tools were reused to meet alternate needs.

What types of Spanish salvage archaeological sites are known and have been investigated?

Few Spanish salvage archaeological sites are known and have been investigated. Namely, there are only two identified and surveyed salvage camps in Florida, the Higgs Site and Winter Beach Salvage Camp. Both are a part of the 1715 salvage operations. While Spanish salvage reports indicate other 1715 *reals* operating in the area, no archaeological investigation has been conducted to locate the sites. The 1733 fleet also had several *reals*, and the Spanish kept detailed records of their general whereabouts. Although none of the possible *real* locations have been archeologically surveyed, the *real* on Tavernier Key has been identified as a depression in the landscape (BAR, DHR 2004). Additionally, while Spanish reports confirm that the 1622 salvage efforts worked out of several *reals*, there have been no archaeological investigations into the area

to locate them. Furthermore, because the *flotas* sailed across the Atlantic World, wrecking throughout the Caribbean, other potential Spanish *real* sites may reside outside Florida. More research is needed to locate and identify such sites.

What is the archaeological characterization of these sites in terms of material culture, form, and organization?

The Higgs Site and the Winter Beach Camp are similar in terms of their material culture, form, and organization. The Higgs Site was the salvaging headquarters, while the Winter Beach camp located farther south was the supporting camp. Today neither of these sites exist due to modern development. It is also important to note that it is unknown how much of both sites had eroded by the time of excavation three centuries later. While the average beachfront has most likely remained similar to what it was in 1715, numerous storms, hurricanes, and modern treasure hunter activity have continually disrupted the sites (Armstrong 2001:8).

That being stated, both sites had evidence of small living areas and multiple fire pits with food waste, broken glass, and other debris discarded throughout the site on the ground's surface and not deliberately buried, suggesting a lack of hygiene regulation about the campsites. Both camps had evidence of temporary structures. The Higgs Site contained construction materials, evidence of tabby floors, and pieces of a portable deck oven taken from one of the nearby shipwreck sites. The Winter Beach Camp had no evidence of permanent structures suggesting that the salvagers constructed temporary structures for shelter during the salvage season.

The material culture at both sites was similar and dated to the 1715 Plate Fleet wrecking. Each site was predominantly Spanish and had evidence that the camps were defended by at least one gun. Several fragments of lead shot, artillery, armor, small arms, cutlass blades, and pistol parts were present at each site. Other artifacts included shipwreck material such as firewood, iron spikes and nails, copper nails and tacks, iron pins, fittings, fasteners, and eyebolts. Clothing

items and personal ornamentation artifacts like buttons, buckles, beads, and jewelry were also present at each site. Other items included personal objects such as coins, toys, luggage and cargo, gaming pieces, utensils, pipes, and fish net weights. Lastly, numerous glass shards and ceramics sherds belonging to Native Americans and Chinese porcelain via the Manila galleon trade were present in both artifact assemblages for the 1715 *reals*.

Who conducted (directed) the salvage operations, how were the salvage parties organized, and what were their motivations?

Initial or emergency salvage was organized by the surviving Spanish authorities of the Plate Fleet shipwreck sites. Within a few days after wrecking, *reals* and lines of communication were established between each camp. Dispatches were sent to Havana to notify the government of the state of the fleet and request aid. Often, authorities in Havana had already prepared rescue relief and salvage teams to check the state of the wrecked fleet. Because the convoy route was well established, Spanish authorities had a good idea of the fleets' location along the route when the hurricanes hit.

The professional salvaging operations replaced the emergency recovery efforts once the survivors were relieved and transported back to Havana. The salvage teams were equipped with the necessary tools, equipment, supplies, and about 20 salvage divers needed for several months of salvaging. Depending on weather and ocean conditions, divers generally worked in shifts from morning to noon, making one dive every five to ten minutes during salvage procedures for a collective 40 to 60 minutes of bottom time a day (Dawson 2019:46). The loss on even one of the heavily laden galleons could impact Spain's economy. As much cargo as possible needed to be recovered and shipped back to Spain. The salvagers were motivated by Spanish officials and operated from the *reals* seasonally for several years after the wrecking event.

What specific mode or modes of labor (wage or forced, debt servitude, apprenticeship, etc.) did these actors employ in the salvage operations, and what were the political and economic circumstances surrounding those modes of labor?

Because many Spanish sailors could not swim, let alone dive to recover precious commodities, Spanish salvagers contracted the skills of professional divers. These divers, though enslaved, had skills that set them apart from other professions. As a result, and depending on the circumstance, they experienced better working conditions and negotiated within an enslaved or forced labor system. Because it took time to send for more divers, the Spanish were reluctant to implement physical violence on divers for indiscretions or misconduct (Dawson 2018:86). Instead, they negotiated benefits and rewards, instilling a "pride in workmanship, concepts of honor and masculinity" to drive divers to excel (Dawson 2018:88). In essence, salvagers generally used incentives rather than coercion to force divers to perform.

The treatment of enslaved divers varied depending on the lead authority. For instance, records indicate that divers were paid via a percentage of recovered goods in some instances. In the case of Juan de Casta Bañon, he was awarded his freedom once he had located the remains of *Santa Margarita*. Contrastingly, in the salvage operations for the 1733 wrecking, Commander de Torres was highly suspicious of the divers and placed guards on the salvaging ships and onshore to prevent divers from pilfering or stowing goods to retrieve later. De Torres often rotated teams of divers to prevent any of them from working with each other for extended periods (Viele 2001:12).

Divers often took advantage of their position as skilled laborers and enjoyed privileges that set them apart from other skilled craftspeople and laborers. As a result, enslaved divers actively participated in the social, cultural, and political networks across the Caribbean. They were active agents, negotiating dynamic situations to improve their circumstances. Ultimately, divers could regain an amount of control over their lives and bodies.

Suggestions for Future Research

There are several areas to improve upon for future studies. First, a more in-depth investigative analysis into the ship construction of *balandras* would add to the knowledge of Spanish vernacular watercraft during the Age of Sail. Moreover, the Spanish salvaging industry was widespread throughout the Caribbean and the Atlantic World. Examining the Spanish salvage facilities stationed at Havana, Cartagena, Panama, and Vera Cruz could also provide additional information regarding the sanctioned salvage enterprise's regulation, organization, operating expenses, and overall function. No doubt, the National Archives in Seville and Cuba can help identify other salvage-specific tools and equipment and additional methods of recovering submerged wreckage. Having more advanced Spanish reading skills and experience reading 17th and 18th century documents would also greatly ease analyzing historical and archival sources.

Further investigation into the enslaved maritime communities of Cuba, where many of the divers lived apart from their enslavers, could yield more information about the autonomy they enjoyed and how the two groups interacted. Such studies would add to the overarching narrative of the African Diaspora.

Lastly, because the Higgs Site and the Winter Beach Camp no longer exist due to modern development, further research and archaeological surveys are needed to gather more information on how enslaved divers and Spanish salvagers lived and interacted within the *reals*. Locating and surveying the *reals* of the 1622 and 1733 *flotas* or even expanding research outside of Florida can provide answers for identifying the enslaved African and Indigenous divers within an archaeological context. These individuals are underrepresented and often silent within the archival record. Their stories may only be revealed through archaeological investigation. Within

the same vein, a more detailed analysis of Native American ceramics and their existence on the *real* sites would also expand the Native American story of the Plate Fleet disasters.

Conclusion

To conclude, this thesis research serves as a starting point for future investigations into 17th and 18th century Spanish salvaging. In order to capture the extensive breadth of the industry, this thesis touched on several topics, including the development of Spain's transatlantic convoy network and establishment of the sanctioned salvage enterprise, a brief ship-construction analysis, a material culture analysis, and an examination of enslaved divers and the various modes of labor between the salvagers and divers. In doing so, this thesis provided a list of common salvage themes that are seen within the archival record across all Plate Fleet shipwreck sites. Ultimately, this research contributes to the study of 17th and 18th century Spanish colonialism and commerce by examining the lives of the salvagers to reveal the networks between these individuals and the global colonial and maritime landscape. The collection of archival, historical, and archaeological data collected during this process is preserved on a free, online ESRI Story Map that emphasizes the MCL of the Spanish marine salvage industry, the various salvaging methods, and the individual stories of the enslaved divers in order to promote the preservation of the Plate Fleet sites.

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