

Shackleford Banks:

Applying Archaeological and Geospatial Approaches to Maritime Settlement and Abandonment

By

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### **ABSTRACT**

Shackleford Banks, North Carolina is a 14.5-kilometer barrier island that has not been permanently inhabited by humans in over a century. Before it was abandoned in the beginning of the 20<sup>th</sup> century, this island had been occupied since at least the mid-eighteenth century by European colonists. These “Ca’e Bankers” lived, not necessarily in isolation, but in self-reliant communities that used their environment to their advantage. They were able to survive by using what the landscape supplied them through oystering, clamming, whaling, porpoise hunting, crabbing, farming, and salvage activities. This project uses archaeological evidence collected from East Carolina University’s 2021 summer field school as well as census records, oral histories, and shoreline data to explore the settlement and abandonment of Shackleford Banks communities. Examining this evidence, this thesis looks to find the degree to which economic and environmental change led to the establishment of non-Indigenous settlement on Shackleford Banks, how these communities developed, and what led to their decline and ultimate exodus from the area.



Shackleford Banks:  
Applying Archaeological and Geospatial Approaches to Maritime Settlement and Abandonment

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By Kendra Ellis  
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## Chapter 1: Introduction

Settlement abandonment, a phenomenon commonly observed throughout history, occurs when communities leave their homes to seek new areas to stay (Cameron and Tomka 1993:1). This behavior is widespread across time and space in this world. The traditional narrative that has been widely accepted is that the communities on North Carolina's Shackleford Banks (Figure 1.1) abandoned the area primarily due to environmental causes (Senter 2003:339; Jateff 2006:4; Lewis 2011; Barnes 2013:36-41). However, ethnographic studies of other abandoned sites, as detailed in Cameron and Tomka's edited volume *Abandonment of Settlements and Regions* (1993), reveal that environmental factors are not always the sole determining factor behind settlement abandonment. Research indicates that human response to cultural and environmental changes often results in similar historical and archaeological patterns, regardless of the time or location. Are the factors traditionally mentioned in the historical narrative the actual causes, or are there additional elements that led to the abandonment of Shackleford Banks?

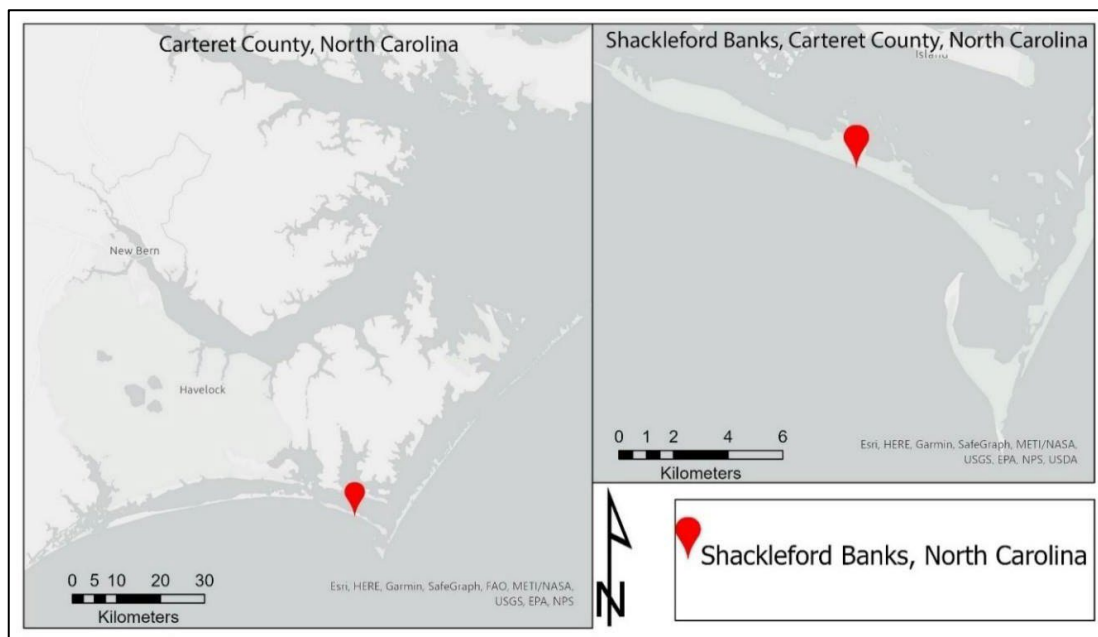


FIGURE 1.1: Basic map showing where Shackleford Banks is located in Carteret County (Made by the author).

Shackleford Banks was inhabited in the nineteenth century by communities that lived off the land. They used everything the island would give them: fish, oysters, clams, crabs, and everything that washed ashore including shipwreck cargo and ship parts as well as beached whales and dolphins. Those communities' way of life was all about whaling, fishing, boatbuilding, and seafaring. The whaling industry in the United States was in a state of decline after the conclusion of the American Civil War (1861-1865), ending by the beginning of the 20th century (Hill 1971:21). This was also around the time that petroleum and kerosene were introduced, and whale oil became too expensive. Whales were not the only marine life these people hunted. Porpoise hunting was also a popular activity in the off-season for whaling (Stick 1958:186; Huss 2019:1, 20). Could the decline of these industries have led to an economic decline which forced the abandonment of Shackleford Banks?

The traditional view is that environmental factors led to the abandonment of Shackleford Banks and the migration of people to Harker's Island, Morehead City, Straits, Davis, Sea Level, Smyrna, and Marshallberg (Phillips 1980; Lewis 2011; Jones 2012:5). This barrier island is subject to a great deal of wave action from all sides, the most prominent being the side facing the Atlantic Ocean. Presently, Shackleford Banks is made up of sand and includes "dunes, maritime forest shallow soils, grass flat sands, and back berm wash over [sic] sand and shells" (Susman 1975:13). Prominent signs of human habitation have become scattered and difficult to find unless searching for them.

The purpose of this study is to interrogate the relationship between settlement abandonment and coastal environmental processes. Life was described as difficult on the Banks, so why would humans choose to permanently inhabit a harsh barrier island environment? This thesis will use primary and secondary historical works to understand the context of the communities that lived on



Shackleford Banks and the descendants who still tell their ancestors' stories. In the summer of 2021, participants in East Carolina University's Program in Maritime Studies field school started data collection to answer these questions. Historic maps were georectified for comparison to current maps and used in conjunction with oral histories to aid in the planning of archaeological investigations on the island to seek clues regarding the patterns of settlement. National Park Service reports were reviewed to show what actions federal government agencies took in 1986 and to consider how their decisions culminated in an altered landscape, and potentially impacted what artifacts may be found in situ (NPS 2014). Following a surface survey of the island, a database of extant structural remains and artifacts was collated. These collections will form the core dataset for examining the settlement, development, and ultimate abandonment of Shackleford Banks.

### Research Questions

The primary purpose of this thesis is to understand the patterns of community establishment, development, and eventual abandonment of Shackleford Banks in Carteret County, North Carolina. This will be done by employing historical, archaeological, and geospatial approaches, sourced from documents, maps, and oral histories and augmented by terrestrial field surveys. To understand these patterns a series of questions will be asked to determine the relationship between coastal climatic processes and events and site abandonment due to potential economic decline.

1. What caused the establishment, development, and decline of the Shackleford Banks communities and industries?
  - a. Where did people live, and what were their living conditions?
  - b. Where did people work, what were their industries of employment, and what were their working conditions?
  - c. What was the geospatial relationship between living and working conditions and how

did they overlap?

- d. Was the abandonment of living and working spaces due to environmental, economic factors, or both?
2. What archaeological evidence exists to show the existence of communities that lived on Shackleford Banks?
    - a. Is there any evidence to suggest economic or environmental reasoning for abandonment?

#### Site Context and Previous Archaeological Work

Before European inhabitation of Shackleford Banks, the area was occupied by populations believed to be related to Coree Native Americans (Jateff 2007:57; Sauls and Mason 2012:1; Lewis 2016). Records show that John Shackelford and his brother-in-law Enoch Ward (alternative accounts say Shackelford's son-in-law), split a 7,000-acre area of land they bought from John Porter in 1713 (Stick 1958:311; Jateff 2007:1-2; Little 2012:21; Stanford III 2014:27-28). This land would later be named Shackleford Banks even though John took one half and Enoch the other. There is a lack of evidence to suggest Shackelford or Ward ever set foot on this land.

The United States Census records document that at least 310 people lived on Harkers Island and Shackleford Banks in 1850 (Simpson and Taylor 1972:206-214), most of whom were mariners and fisherfolk mostly comprised of men who were old enough to work. Those people formed communities that dotted the island including Lookout Woods/Diamond City, Bell's Island, Sam Windsor's Lump, Whale Creek, Wade's Shore, The Cape, and Mullet Pond (Figure 1.2). These communities were described as comprised mostly of "white families," a few "mulatto" (mixed race) families, and one prominent African American family that Sam Windsor's Lump was named after (Cecelski 2001:205). A lack of information on African American families living on Shackleford

Banks, makes it difficult to interpret race relationships in the industries on the island.

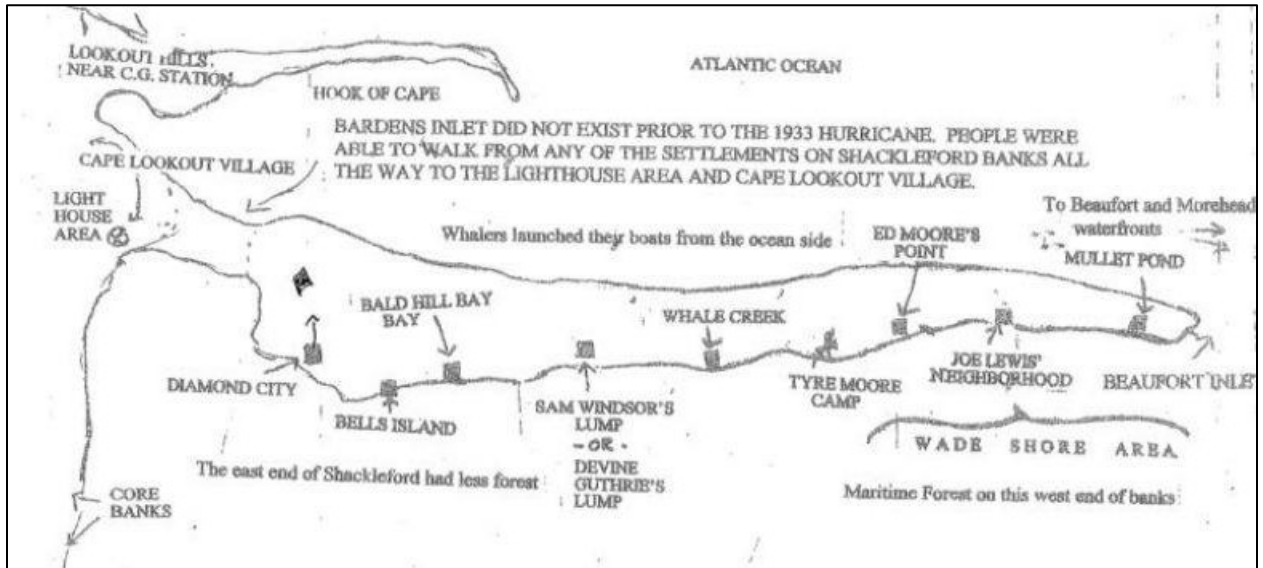


FIGURE 1.2: Map drawn by Ira Lewis of his idea of the approximate locations of settlements on Shackleford Banks in the mid- 1880s (Tursi 2014a).

Lookout Woods, later renamed Diamond City, was the largest camp on Shackleford Banks in the 1880s reaching a capacity of close to five hundred people (Hancock 1988:6-8; Garrity-Blake and Amspacher 2017:231). Mullet Pond, located on the western end of Shackleford Banks, was named after the pond where they would catch mullet fish (*Mugil* sp.). Mullet fishing was the perfect counterpart to whaling (Jateff 2007:84). This was due to mullet fishing season taking place in late summer and ending around November, while whaling was limited to February, March, and April (Hancock 1988:7; Cecelski 2001:78).

While reliant on various fisheries, the members of these communities lived off the land by catching their own fish, growing vegetables in gardens, raising small livestock, oystering, clamming, and scavenging for what they could (Hancock 1988:7; Barfield 1995:15; Garrity- Blake and Amspacher 2017:36). However, they were not completely isolated as the federal government became invested in safety concerns brought to them by merchants who navigated the dangerous Cape Lookout shoals.

In 1804, Congress authorized the construction of a lighthouse in the area which was completed in 1812 with a height of approximately 95 ft (28.9 m) above sea level. This proved to be ineffective for sea captains due to its dimness. After 50 years, the lighthouse required extensive repairs due to wind and sand damage, prompting efforts to improve it. Technological advances led to the installation of a Fresnel lens to address the lighting issue, with kerosene replacing whale oil as fuel. In 1859, a new 163 ft (49.7m) tall tower was built, featuring a black and white diamond pattern, influencing the renaming of Lookout Woods to Diamond City by Joe Ethridge (Hill 1971:79; Barfield 1995:54; Garrity-Blake and Amspacher 2017:231). Traditional narratives suggest that residents would not remain until the end of the century.

Various tropical storms and hurricanes hitting the coasts of North Carolina beginning in the 1890s, made residents along these coasts consider moving away (Stick 1958:192; Hancock 1988:12-16; Barnes 2013:36-41). Typically, the inhabitants were used to these types of tropical storms and hurricanes; however, the nutrient rich soil was eroding, killing the trees and crops that grew on the island. Shackleford Banks' Diamond City was promptly abandoned with the other communities following closely behind (Barnes 2013:42). Previous researchers suggested that the last of the residents of Diamond City left in 1902 (Jateff 2007:4); however, evidence shows that people were still fishing on Shackleford Banks for many years afterwards (Guthrie 2010). Perhaps, the traditional narrative does not tell us the complete story.

Descendants returned to Shackleford Banks to build vacation homes between the Great Depression and World War II (Guthrie 2010; Rose 2010; Whisnant and Whisnant 2015:193). In 1966, Cape Lookout became a National Seashore, eventually adding Shackleford Banks in 1986. The locals were not appreciative of this and in retaliation burned down their homes because the National Park Service was going to dispose of them (Jateff 2007:77; Morris 2009:137-141; Guthrie 2010, 2016;

Stanford III 2014:100). Today, the nearby community of Harkers Island is losing the descendants to the modernism of beach houses (Amspacher 2019) and the original houses brought over to Morehead City's Promise Land have been remodeled or demolished with only three remaining (Connie Mason 2021, elec. comm.). "Ca'e Bankers" had also moved to Davis, Smyrna, Straits, Harker's Island, Marshallberg, and Beaufort (Jateff 2006:4; Little 2012:69-73; Standford III 2014:71-72).

The National Park Service published architectural reports for Cape Lookout National Seashore (CALO); however, they do not record detail of Shackleford Banks archaeological sites (NPS 2004a, 2004b, 2004c, 2004d, 2004e, 2004f, 2004g, 2004h, 2004i, 2014). Otherwise, limited archaeological research has been conducted in the area. A Historic Resource Study was undertaken for the National Park Service in 2015 which included previous archaeological research. However, most of the reports focus on the Core Banks portion of the National Seashore, and rarely mention Shackleford Banks history.

Emily Jateff (2007) looked for evidence of shore whaling in her MA thesis "Hain't Bin Found Yet: The Search for Archaeological Evidence of Shore Whaling at Diamond City Shackleford Banks, North Carolina". Jateff organized a visual inspection survey in April 2006 prior to her archaeological fieldwork in October of the same year which incorporated non-invasive underwater and terrestrial surveys. To collect data, GPS units and total stations were used to collect survey data points, which augmented traditional scaled mapping activities at a small selection of sites. Due to weather and time constraints, there was not a significant amount of data collected, and Jateff concluded that the archaeological evidence could not provide any further relevant information about shore whaling; however, it could provide insight into previous occupation of the island (Jateff 2007:63). Most of the artifacts recorded during those surveys consist of different colored glassware, whiteware, redware, and brick scatters that have been dated to around the correct period for the settlement on Shackleford

Banks (Jateff 2007:64-74).

Other academic researchers investigated the geology and geography of Shackleford Banks. These include Constance Brauer (1974) who collected data for her master's thesis entitled "Genetic Mapping and Erosional History of the Surface Sediments of Shackleford banks, North Carolina" at Duke University and Kenneth Susman (1975) who collected data for his master's thesis entitled "Post-Miocene Subsurface Stratigraphy of Shackleford Banks, North Carolina" through Duke's Marine Laboratory.

#### Thesis Structure

This thesis begins with the goals, research questions, and brief context behind the work on Shackleford Banks in this first chapter. Chapter 2 focuses on the historical narrative surrounding the establishment, development, abandonment, and temporary re-establishment before the takeover of the National Park service that happened on Shackleford Banks. Chapter 2 also focuses on earlier archaeological work done by private parties and the National Park Service. Chapter 3 centers on the theoretical framework of this thesis by exploring the notions of behavioral archaeological contributions brought forth by Michael B. Schiffer to find the reasonings behind the abandonment of Shackleford Banks. Chapter 4 discusses the methodologies applied to this thesis including historical and archaeological work by applying geospatial techniques utilizing Geographic Information Systems in *ArcPro*. Chapter 5 shows the results of the 2021 summer fieldwork by East Carolina University (ECU) students and breakdown the artifact findings into specific categorical functions to determine the possible locations of where people lived and worked. Chapter 6 analyzes these results and shows the functions of these objects as they existed through time on the island while comparing historic structures to determine if those structures were where people lived or worked. Finally, Chapter 7 reviews this thesis, discusses the limitations found during the project, and discusses further areas of research and archaeological work

to be conducted.

## **Chapter 2: From Scattered Winds to Tide Kissed Shore, the History of Shackleford Banks**

### Introduction

The area of study for this investigation encompasses the island of Shackleford Banks, North Carolina and it traces the history of human habitation from the Native American and early settlers' era to the establishment of Cape Lookout National Seashore. Taking a chronological approach, this chapter delves into the settlement and usage of the island over this period. Most of the focus is placed in the mid-19<sup>th</sup> century, a period marked by the thriving coastal industries in the area that eventually declined due to societal changes and environmental challenges, prompting the migration of these communities to surrounding areas. The final part of this chapter focuses on the return of descendants from these original communities until subsequent acquisition of the island by the National Park Service, leading to its incorporation into the National Seashore.

To understand the importance of Shackleford Banks, the history behind its usage will be communicated. The cultural, economic, and environmental factors that affected these communities will be analyzed to decide what dynamics lead to changes in the usage of the island. By adopting a chronological approach and supplying comprehensive details about each period of occupation, subsequent chapters will have the necessary foundation to analyze these occupations in greater depth.

### Early Occupation of Shackleford Banks (pre-contact to 1849)

Shackleford Banks, was first occupied by a native population believed to be related to the Coree Indians (Stick 1958:26; Jateff 2007:57; Lewis 2016). This is where the Core Banks and the Core Sound acquired their name (Stick 1958:308; Luster 1994:2; Riggs and Ames 2006:4; Stanford III 2014:19; Garrity-Blake and Amspacher 2017:207). Scholars are unsure which language they spoke, whether Iroquoian or Algonquin, as they were on the edge of lands controlled by neighboring



tribes (Garrity-Blake and Amspacher 2017:208). Their neighbors were the Algonquin speaking Machapunga, which they were at war with, and the Iroquoian speaking Tuscarora, who they eventually joined in the Tuscarora War against European settlers (Stick 1958:26-27; Angley 1982:2; Luster 1994:3-4; Garrity-Blake and Amspacher 2017:209).

Around the year 1700, when explorer and surveyor John Lawson was conducting surveys in North Carolina, the Coree Indian population had significantly declined due to devastating diseases brought by European colonists, such as smallpox, as well as conflicts with the Machapunga (Stanford III 2014:19; Garrity-Blake and Amspacher 2017:209). Lawson's encounters had him describe them as "bloody and barbarous" while witnessing interactions between the Coree and the Machapunga (Stick 1958:26-27; Luster 1994:3). Just before the Tuscarora War, in September of 1711, Lawson was traveling on the Neuse River when the Tuscarora captured him. Although initially set to be released, the Coree insisted on executing Lawson due to past grievances against him (Luster 1994:5; Fischer 2002:83; Stanford III 2014:19-21). Lawson was executed, and he was advertised as one of the first casualties of the Tuscarora War (Fischer 2002:83). The results of the conflict decimated the Coree, forcing them to assimilate with other Native peoples farther inland or inter-marry European colonists on Harkers Island (Little 2012:17; Stanford III 2014:22-23).

In 1713, during the war, John Porter sold the land (around 7,000 acres) he had received from the Lord Proprietor, Henry Somerset, to John Shackelford and his brother-in-law Enoch Ward (alternative accounts say Shackelford's son-in-law) which they later divided in 1723 (Stick 1958:311; Angley 1982:3; Jateff 2007:1-2; Little 2012:21; Stanford III 2014:27-28). Ward owned the eastern portion that stretched from Drum Inlet to Cape Lookout Bay while Shackelford obtained the western portion from Cape Lookout Bay to Old Topsail Inlet, now known as Beaufort Inlet. The segment that Ward owned would become known as the Core Banks while the segment Shackelford

owned would later be named after him (Stick 1958:32; Angley 1982:1-3; Little 2012:21; Stanford III 2014:28). While the traditional narrative shows that neither Ward nor Shackelford lived in these areas, there are documented accounts that show people began to settle after John Shackelford died in 1734 and his heirs began to sell the willed land (Stick 1958:32-33; Angley 1982:3-4).

The first substantial piece of evidence to show residences on Shackelford Banks is from Captain Jacob Lobbs, of the HMS *Viper*, who surveyed Cape Lookout harbor in 1764 (Figure 2.1). His map displays a house, labeled as Davis House and Beacon, which belonged to Caleb Davis who used his home as an ordinary (Stick 1958:185; Paul 1965:39; Angley 1982:4). West of this house, there is another marker labeled as “Whaler’s Hutts [sic].” This evidence is further corroborated by an unknown French traveler who anchored in Cape Lookout Bay on the 13th of March 1765. Two days later, he and his servant walked seven miles to “whale fisher’s tents” where they took passage with them to nearby Beaufort (An Unknown Traveler 1921:733).

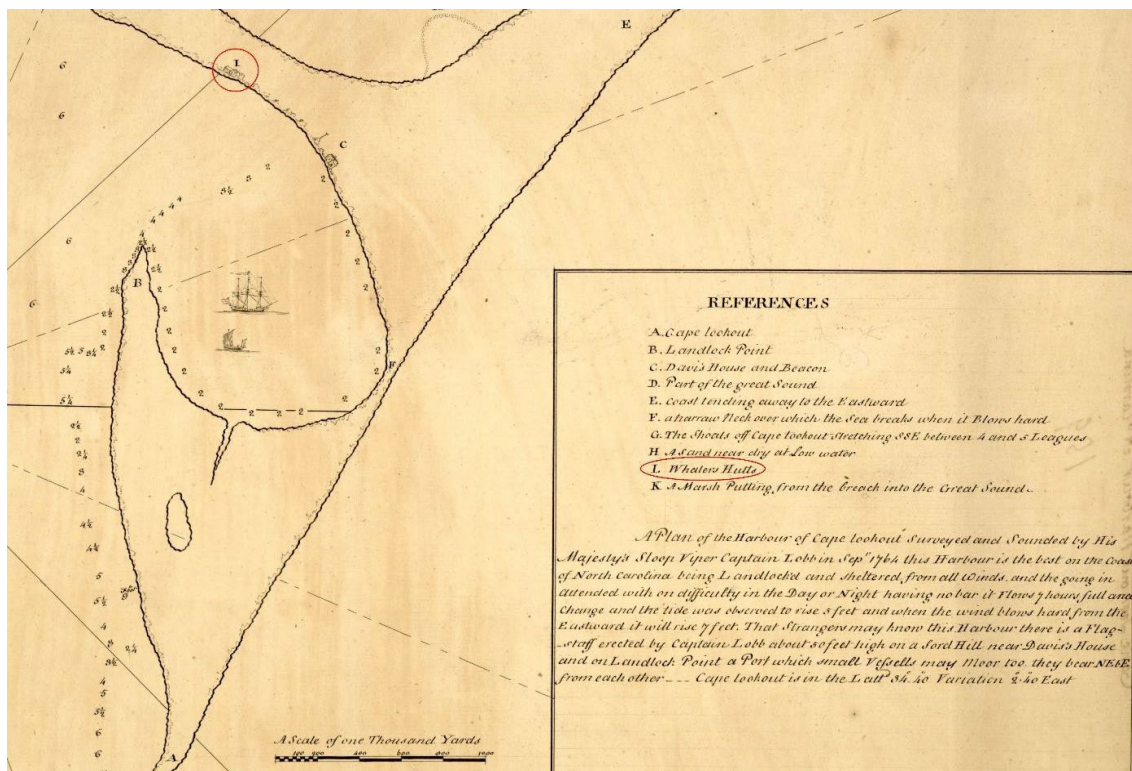


FIGURE 2.1: A zoomed in version of the map drawn by a survey team from the HMS *Viper* in 1764 with red circles indicating the Whaler’s Hutt location (1764).

A decade later, the Revolutionary War commenced, marking a period when the British Navy exerted a considerable influence on American fisheries. They imposed blockades and engaged in the destruction of merchant ships that sought to navigate the coastal waters while carrying their valuable cargo. These actions severely disrupted maritime trade and had adverse consequences on the American fisheries (Anglely 1982:14; Simpson and Simpson 1988:20-21; Jateff 2007:32-33). Governor Arthur Dobbs had advocated for a fort to be built on the Cape years earlier after the conclusion of the French and Indian War. However, despite his efforts, the plans did not come to fruition (Stick 1958:40-43). A French man, Captain de Cottineau de Kerloguen, was sailing North along the American coast when he was pursued by several British Naval ships (Hart 1984:6). He was forced to seek refuge in Cape Lookout Bay as stated in a letter to George Washington, whom he was trying to reach (Lengel 2003:672-674). He was disappointed to discover a lack of fortifications in the area and quickly sought to remedy the situation without the help from the North Carolina General Assembly, to whom Arthur Dobbs had previously proposed the notion (Stick 1958:56-57). While Cottineau and the crew of the frigate *Ferdinand* were waiting on repairs, he began to build a fort using personal funds and resources from the environment, such as the maritime forest that would eventually become a part of Lookout Woods (North Carolina General Assembly 1778:15; Stanford III 2014:31; Whisnant and Whisnant 2015:161). Fort Hancock, named for Enoch Hancock who owned the land upon which it was built, was completed in 1778. The fort was only active for two years and is doubted to have ever seen action (Stick 1958:59-62; Anglely 1982:14; Stanford III 2014:31; Whisnant and Whisnant 2015:161).

Fort Hancock was last mentioned in 1782 when whalers were noted to be near its ruins (Simpson and Simpson 1988:21; Jateff 2007:32; Bradley 2015:22). No evidence has been found to date that shows where Fort Hancock stood for the two years that it was active (Stick 1958:71; Anglely 1982:14-15; Little 2012:22; Whisnant and Whisnant 2015:161). Stories from residents who

used to live on Shackleford Banks place the location of the fort northwest of the 1859 lighthouse (Stick 1958:71; Riggs and Ames 2007:7; Stanford III 2014:31). A historical marker is located on the nearby Harkers Island on Shell Point and indicates that the fort was located four miles southwest of the marker (NC Historical Markers 1977). If any remains of the fort exist, it would be located where the Barden Inlet is now, along with possible remains of a community.

Congress authorized a lighthouse be built in the area in 1804, however; construction was not started until about 1810 when Joseph Fulford and Elijah Pigott chose the site where it would be located (Anglely 1982:18-19; Little 2012:30; Shelton-Roberts and Roberts 2019:18-19). When it was completed in 1812 (Figure 2.2), the lighthouse light stood around 95 ft (28.9 m) above sea level, and its exterior was painted with alternating red and white stripes (Oppermann 2008:22- 30).

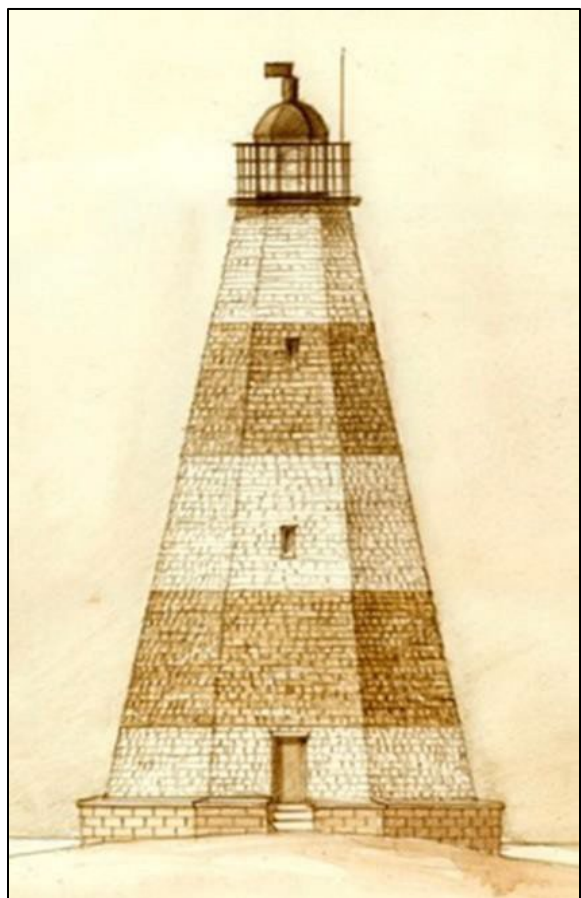


FIGURE 2.2: Artist rendition of 1812 Cape Lookout Lighthouse (National Park Service 2017).

This decoration was a problem for some like Winslow Lewis, a former sea captain, who stated that in the distance the lighthouse looked like it was the flying sails of a war ship (Shelton-Roberts and Roberts 2019:19). Another complaint indicated that the lighthouse was very dim and not beneficial to sea captains traversing the shoals (Anglely 1982:30; Opperman 2008:2-3; Little 2012:30).

Almost fifty years later, the lighthouse was in desperate need of repair due to battering winds and sand scraping away at the wooden exterior, which exposed the brick underneath (Stanford III 2014:42). There were attempts to repair the original 1812 lighthouse along with an addition of a first order Fresnel lens to brighten the dim light (Shelton-Roberts and Roberts 2019:72). However, the 95 ft (28.9m) tower was not tall enough to properly warn sailors of the approaching shoals (Little 2012:30; Stanford III 2014:42). Plans to make the original tower higher were scrapped as the construction would be too costly and the structure would be unstable (Shelton- Roberts and Roberts 2019:72-73). So, an entirely new lighthouse was ordered to be built next to the original which continued to stand until it was knocked down (Stick 1958:309; Oppermann 2008:34-39; Stanford III 2014:42). The original 1812 lighthouse served as a daymark, a navigational aid for sailors, until it disappears from records after 1869 (Oppermann 2008:48; National Park Service [NPS] 2018). Orlandah Phillips was 80 years old when he was interviewed in 1980, and recalled local lore concerning how the lighthouse was knocked down. Contractors had knocked away the bricks that were holding up the foundation of the structure until only a few remained. A contractor offered up to five dollars, about half a month's wages at the time, to whomever would risk their life to knock out the rest of the bricks and be able to run fast enough to escape the falling tower. A man named Bill Hancock was known "locally as the fastest man in the world" and he agreed to do it. People living on Shackleford Banks at the time came to watch him and he managed to escape unharmed (Phillips 1980). Today, some of the bricks from the old foundation are still visible near the current

lighthouse.

After its construction in 1859, the new tower stood at 163 ft (49.7m) tall and red in color although it is uncertain, due to the destruction of records, whether it was red brick, a wash, or paint that gave it the color (Oppermann 2008:39-42; NPS 2018). Only two years later, in 1861, North Carolina seceded from the Union. Just before this, all lighthouses on the coast were ordered to go dark and the Fresnel lens in the new Cape Lookout Lighthouse was removed and taken to Beaufort for storage (Oppermann 2008:43-50; Stanford III 2014:51; NPS 2018). When the Confederate troops surrendered to the Union during the Civil War at Fort Macon, the Union ordered a new Fresnel lens be installed and whale oil was still the primary burning source (Angley 1982:23-24; Jateff 2007:78; Oppermann 2008:44-47; NPS 2018).

In 1873, kerosene was the new source of light for lighthouses along the North Carolina coast (Jateff 2007:18; Oppermann 2008:24). This was also the year that the Lighthouse Board ordered each lighthouse be painted with distinctive markings so that sailors would be able to determine their location and understand the shoals they were navigating (Oppermann 2008:48; Stanford III 2014:64; NPS 2018). The Cape Lookout Lighthouse was painted with a black and white diagonal checkboard pattern (Stick 1958:187-188; Angley 1982:25; Little 2012:32). The Lighthouse Board was specific about what patterns were chosen for each lighthouse, but there is a popular misconception about the design of this lighthouse (Stanford III 2014:64). It is believed that the painter responsible mixed up the patterns for the Cape Lookout lighthouse and the one at Cape Hatteras, however; this is incorrect (Hairr 2004:48; Oppermann 2008:48). This diamond pattern would play a vital role in later Shackleford Banks communities.

The design would influence Joe Ethridge, the superintendent of the nearby life-saving station, to change the name of Lookout Woods to Diamond City because the lighthouse was a

distinctive feature (Hill 1971:79; Barfield 1995:54; Garrity-Blake and Amspacher 2017:231).

Diamond City was the closest Shackleford Banks community to the Cape Lookout lighthouse, but it was by no means the only one.

#### Major Period of Occupation (1850 – 1899)

The first specified recorded evidence of people living on Shackleford Banks is from The United States Census record conducted in 1850 (Simpson and Taylor 1972:206-214). This record documents that at least 310 people lived on Harker's Island and Shackleford Banks, most of whom were mariners and fisherfolk comprised of men who were old enough to work (Simpson and Taylor 1972:206-214). The number of males and females that were calculated to have lived in this census district are split equally at 155 with 298 of them being described as white and twelve noted as "mullato." African Americans were not considered in the census before 1870 and were only accounted for on slave schedules associated with their 'owners' (U.S. Census Bureau 1850-1860). Common surnames in this record include Fulcher, Fulford, Guthrie, Harker, Lewis, Nelson, and Willis. These people formed communities that dotted that island including Lookout Woods/Diamond City, Bell's Island, Sam Windsor's Lump, Whale Creek, Wade's Shore, The Cape, and Mullet Pond (Figures 2.3 and 2.4).

Multiple sources describe the layout of Shackleford Banks in the same way, but with different names (Angley 1982:36; Stick 1958:187-188; Jateff 2006:2-3). Wades Shore is sometimes referred to as Wades Hammock (Angley 1982:36; Jateff 2006:3). According to Ira Lewis, Sam Windsor's Lump is sometimes referred to as Divine's Lump, but states that there was a creek separating the two areas (Lewis 2011). Barfield combines Mullet Pond with Wades Shore to make it one large community (Barfield 1995:15). Other sources split Shackleford Banks between Lookout Woods/Diamond City and Wades Shore (Angley 1982:36; Davis 1997). The variety of names does

not change the general layout, with Wades Shore located closer to Beaufort Inlet and Lookout Woods/Diamond City located west of the lighthouse. This is shown in Connie Mason’s map (Figure 2.4) which Emily Jateff considered to be accurate after personal communication with a descendent, Ira Lewis (Jateff 2007:2).

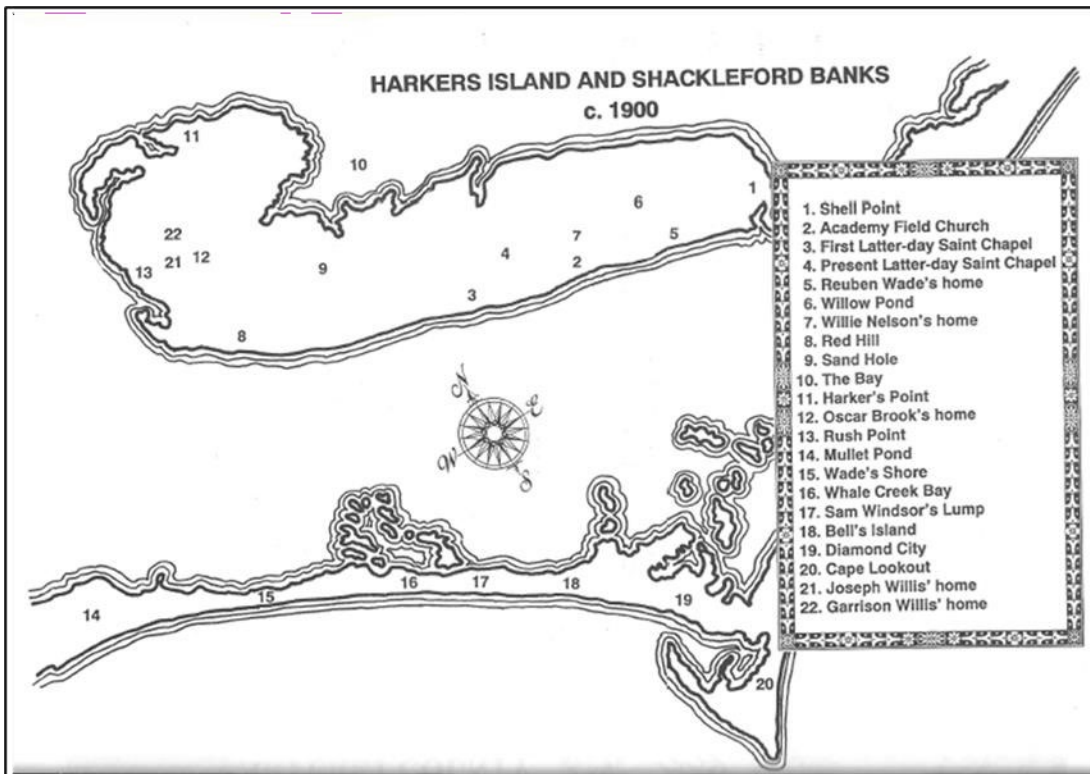


FIGURE 2.3: Map of Joel Hancock’s estimation of locations on Shackelford Banks in 1900 (Hancock 1988:10).



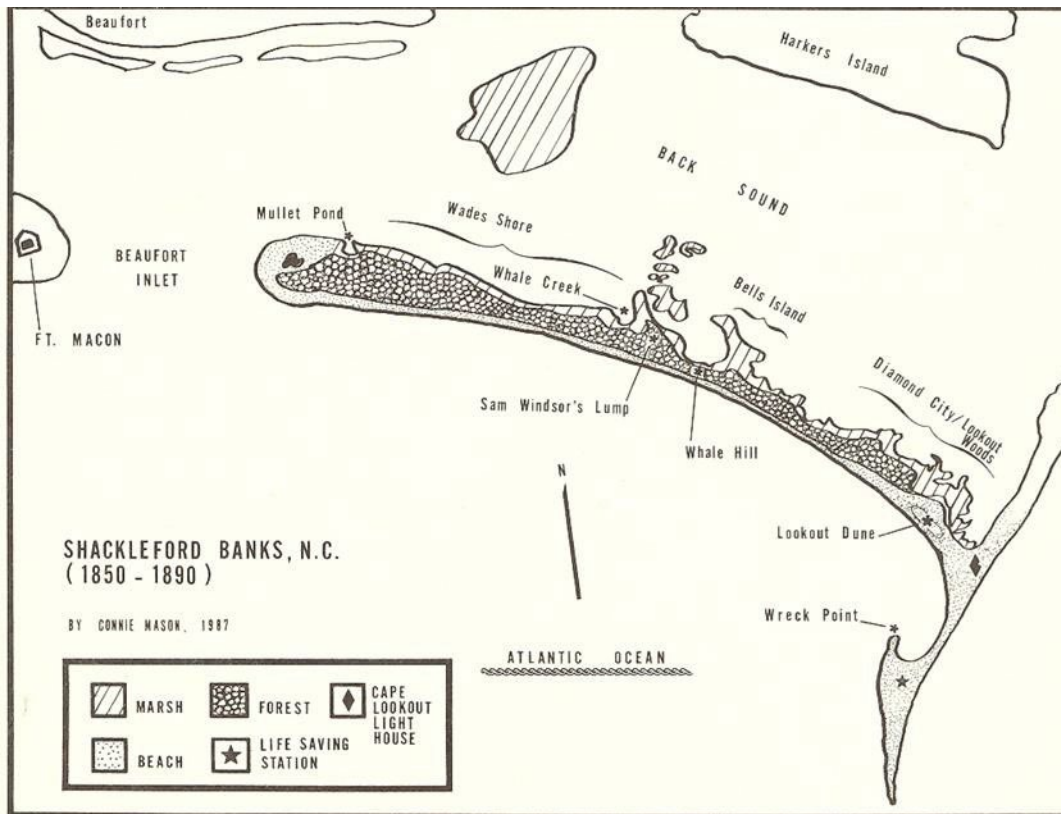


FIGURE 2.4: Map drawn by Connie Mason, interpreting where she believed communities were located on Shackleford Banks from 1850 – 1890 (Mason 1987)

The naming of the locations, as depicted in Figure 2.4, follows a literal approach, reminiscent of the naming conventions employed for the whales they caught (Reeves and Mitchell 1988:17; Simpson, and Simpson 1988:37; Tursi 2014c; Whisnant and Whisnant 2015:81). Lookout Woods, named due to the villages looking out over the Cape and the forest situated nearby, was said to be the largest camp on Shackleford Banks in the 1880s with a capacity of nearly five hundred people (Hancock 1988:6-8; Garrity-Blake and Amspacher 2017:231). Mullet Pond, located on the western end of Shackleford Banks, was named after the pond where they would catch mullet fish. Lookout Dune, later referred to as Diamond City Hill, and Whale Hill were named as such because the height of these dunes was used as lookout stations for whales (Stick 1958:190). Sam Windsor’s Lump was named for the African American whaler, Sam Windsor, who played a pivotal role in the catching of the Mayflower Whale (Stick 1958:188; Simpson, and Simpson 1988:40; Cecelski

2001:205). This whale was named Mayflower because it was caught in May, which is one month after whale season typically ends (Hart 1984:9; Reeves and Mitchell 1988:17). One of the most renowned whales captured off Shackleford Banks is widely recognized due to its extensive study and the subsequent reconstruction of its skeleton by H. H. Brimley. This reconstructed skeleton is still on display at the North Carolina Museum of Natural Sciences (Simpson and Simpson 1988:40-41; Whisnant and Whisnant 2015:81). Shore based whaling, while notable, was just one of the thriving industries during the mid-19th century on Shackleford Banks.

The occupations listed in the 1850 Federal Census on the Shackleford Banks, and Harker's Island district are as follows: mariner, fisherman, ship carpenter, carpenter, boatman, and the keeper of the light house (William Fulford). In subsequent years, the census records include occupations traditionally synonymous with female efforts, such as domestic work and keeping the house. Concurrently, the census also expanded upon the types of marine jobs for males, such as seaman, sailor, surfman, and the addition of an assistant lighthouse keeper (U.S. Census Bureau 1850-1880). While the occupations are listed in these records, the industries the communities were taking part in are not as well described. Shore whaling, mullet and porpoise fishing, the menhaden industry, crabbing, oystering, clamming, and boatbuilding were prominent industries on Shackleford Banks (Angley 1982:36-40; Cecelski 1993; Jateff 2006:2-4; Whisnant and Whisnant 2015:75-104).

In North Carolina, whaling was not as prominent an industry as it was in New England and began due to beached whales drifting ashore, giving these communities opportunities to process a whale for oil and bone (Stick 1958:22-24; Reeves and Mitchell 1988:3-6; Simpson and Simpson 1988:4; Whisnant and Whisnant 2015:78). Whaling in the area would undergo some development with crews of men eventually traveling out in small boats once a whale was spotted, harpoon it to kill it, then drag the carcass back to shore on the sound side of Shackleford Banks to begin

processing (Stick 1958:185-186; Hart 1984:6-7). The shore whaling industry on Shackleford Banks was a prominent industry for about 150 years leading up until the Civil War (Stick 1958:185-186). The leading need for whale oil came from the Outer Banks lighthouses as whale oil was used to light them; it was also used as a lubricant and for regular lamp light (Davis et al 1997:16; Howard 2015). Whalebone, or baleen, was commonly used as ribbing in women's corsets, whips, and umbrellas (Davis et al. 1997:17). This industry began to decline after the Civil War.

The invention of kerosene in 1854 decreased the need for whale oil and the use of alternative ribbing materials replaced the whalebone and therefore decreased the price and demand for whales. Kerosene, petroleum, and other cheaper oils made whale oil too expensive, especially for the U.S Lighthouse Board. These oils burned brighter and longer than whale oil, so there was no longer a need to cut up a large whale and boil it. The corset also eventually became outdated with the invention of lighter girdles. These fashions were easier and cheaper to make, and technology would continue to advance without the need for whale products (Simpson and Simpson 1988:49; Davis et al 1997:55; Jateff 2007:18-19; Howard 2015).

While the industry and demand were declining, there was still a fair amount of money to be made if a whale was brought in. Shackleford Banks had typically averaged two to four whales per season; each whale sold for approximately \$1,000 per whale, which was divided equally amongst the crew (Paul and Paul 2008:26; Stick 1958:187). The whaling season was limited from February to the beginning of May. In tandem with whaling, porpoise fishing thrived during the same months and became a pivotal economic industry. However, as late summer approached, the focus gradually shifted to mullet fishing, which remained prominent until November. These activities formed a dynamic seasonal pattern of fishing industries on Shackleford Banks, each playing a significant role in the local economy (Stick 1958:185; Hancock 1988:7; Reeves and Mitchell 1988:11; Cecelski

2001:78).

Along with hunting whales, there was a similar overlap with the porpoise fishery in the need for their oil to be utilized as lubricant or illuminants (Hart 1984:7; Cecelski 2015:53). The use of the term porpoise is a misnomer as it was primarily the bottle-nosed dolphin (*Tursiops* sp.) that were hunted for the oil found in their jaw bones (Simpson and Simpson 1988:23; Bradley 2015:141; Howard 2015). Porpoise hunting was more like mullet fishing on a larger scale. When a pod of dolphins was spotted, the crews would launch dories to position themselves in and around the pod. They would then attach a large seine between two dories, capture the dolphins, then drag them to shore and beach them (Simpson and Simpson 1988:26; Senter 2003:361; Bradley 2015:23; Cecelski 2015:70). The crews would then ‘tryout’ the oil found in the fatty tissues of their jawbones, make glue from their fins and tails, and use their hide to create leather (Cecelski 2015:54).

While whale hunting and porpoise fishing primarily took place in the winter months, mullet fishing was from summer until fall (Cuzzart 2009:9). Salted mullet was popular in the 1860s in eastern North Carolina and became a booming industry in Carteret County in the 1880s (Little 2012:54). Like dolphin fishing, as stated previously, mullet was caught in a very similar manner using large nets or seines out in open water and smaller nets in the sound (Stick 1958: 215-217; Angley 1982:39; Cecelski 1993:3; Luster 1994:13-15; Whisnant and Whisnant 2015:86). Typically, mullet was salted, but they could also be smoked, and then packed into barrels to be shipped bringing approximately three dollars per barrel (Stick 1958:2018; Whisnant and Whisnant 2015:86). Any barrels not sold would be brought upriver to be traded for corn or kept by the crews who caught them to feed their families for the winter (Stick 1958:218-219; Cecelski 1993:6, 2001:61; Little 2012:55; Whisnant and Whisnant 2015:86).

During mullet season, camps would be created facing the sound side of Shackleford Banks to

block any wind that could stem from a nor'easter or storm once summer turned to fall (Luster 1994:14; Cecelski 2001:78, 2014:108; Whisnant and Whisnant 2015:86; Lewis 2016). Cecelski describes the architectural style of these shelters as coming from West African enslaved persons that were brought to North Carolina (Cecelski 1993:2, 2001:78). The shelters were rounded with conical roofs that had a small hole in the roof for smoke and a rectangular opening to provide access (Cecelski 1993:4, 2001:78; Whisnant and Whisnant 2005:86, Figure 2.5).

Materials for these shelters came from the maritime forests that were on Shackleford Banks and grass from the marshes to ensure fireproofing and enduring salt spray (Cecelski 1993:4, 2001:78). Multiple structures would be created for sleeping while others were built to store their catch (Luster 1994:14). Meals consisted of sweet potatoes, corn meal, salted pork, and anything they could get their hands on while away from their families (Cecelski 1993:6; Luster 1994:14).



*FIGURE 2.5: A picture of a mullet camp on Shackleford Banks ca. 1880 by George Brown Goode (Jateff 2007:42).*

While reliant on these fisheries, the members of these communities were known as “proggers.” Progging is an “Old English term for foraging,” meaning these communities were people of opportunity (Garrity-Blake and Amspacher 2017:36). The inhabitants of Shackleford Banks sustained themselves by relying on the resources available in their surroundings. They engaged in various activities such as fishing, cultivating vegetable gardens, raising small livestock, oystering, clamming, and scavenging for whatever they could find (Kerr 1875:15; Stick 1958:73; Hancock 1988:7; Barfield 1995:15; Garrity-Blake and Amspacher 2017:36). As previously mentioned, the fishing crews often kept any unsold or untraded fish to provide sustenance for their families. Alongside mullet, other popular fish species included shad, hogfish, spot, and drum which were often salted and preserved for consumption during the winter months during whaling season (Dunbar 1956:86; Garrity-Blake and Amspacher 2017:50-51). When it came time to prepare meals, the fish would be combined with the vegetables and potatoes harvested from their gardens (Lewis 2011).

The gardens the bankers would tend to were typically small personal gardens maintained near their homes consisting of sweet potatoes, collard greens, Irish potatoes, onions, and other small plants such as herbs (Dunbar 1956:37, 64-158; Stick 1958:73; Hart 1984:7; Lee 2008:102; Lewis 2011; Bland 2013). The communities on Shackleford Banks also managed a population of free-roaming livestock including, horses, cattle, hogs, and sheep (Paul 1965:76; Lee 2008:100; Stanford III 2014:99; Whisnant and Whisnant 2015:77-79; Garrity-Blake and Amspacher 2017:52-53). Annual pony penning drives were organized to manage the population of horses and create additional income opportunities. During these drives, the ponies were corralled, branded, and subsequently sold to off islanders to help maintain a sustainable population of horses on the banks while also generating extra revenue for the community (Kerr 1875:15; Gruenberg 2015:32). Sheep were corralled into pens and sheared for their wool so these communities could sell it for profit and

make their own clothes (Garrity-Blake and Amspacher 2017:52-53). Unfortunately, the free-roaming livestock had a habit of roaming too close to homes and people were forced to build fences around their properties to keep them out (Garrity- Blake and Amspacher 2017:52).

The homes built on Shackleford Banks were a “story and a jump” type of architecture (Sandbeck 1995:2; Jateff 2007:74; Little 2012:13; Garrity-Blake and Amspacher 2017:232). This meant that the houses were a story-and-a-half to two stories tall built from driftwood or timbers that washed ashore from shipwrecks (Little 2001:29-30; Willis 2002:53; Jateff 2007:74). The layout typically consisted of a sitting room and a small bedroom on the ground floor and the “jump” was an attic under the roof that was accessible by climbing a ladder from the outside and through small windows. It is believed the “jump” part of the name came from children jumping out of the attic room to the ground (Huling 2005:93-94). These small homes would sometimes have an iron stove, or small fireplaces made from brick, that they would use for cooking and warmth (Phillips 1980; Lewis 2011, 2016). The floors consisted of the sand or dirt they were built on with seaweed sometimes being used as protection as well as mattress stuffing (Willis 2010; Garrity-Blake and Amspacher 2017:36). Any whale oil that was left from trying out a whale on the banks would be gathered in a conch shell, combined with a wick, and used as a candle (Garrity-Blake and Amspacher 2017:36). These communities made sure nothing went to waste, which is evident during the exodus from Shackleford Banks.

After an 1896 tropical storm hit, many residents contemplated moving elsewhere (Stick 1958:192; Hancock 1988:12-16; Jones 2012:192). On 17 August 1899, the San Ciriaco Hurricane, known to the locals as the “Great Hurricane,” hit the coast of North Carolina as a Category 3 with 100 mph winds (Davis 2019). It swept over Shackleford Banks, causing destruction the like of which the inhabitants had never seen. These people had been living on the coast for years and were used to

these types of tropical storms and hurricanes. In the decade before the San Ciriaco Hurricane of 1899, however, there were eighteen confirmed tropical storms, seven of which were classified as hurricanes that battered the coast of North Carolina (Barnes 2013:36-41). This caused the nutrient rich soil to erode, killing the trees and crops that grew on the island (Jones 2012:191; Stanford III 2014:71). Livestock were killed and the dead were unearthed (Lewis 2011; Little 2012:69; Gruenberg 2015:38-39; Garrity-Blake and Amspacher 2017:236). The forests that Lookout Woods was originally named for were washed away. With their population already diminished, the San Ciriaco Hurricane was the final blow and Shackleford Banks' Diamond City was promptly abandoned (Jones 2012:192; Barnes 2013:42).

The people in these communities broke down their houses and floated them across the sound on skiffs (Jateff 2006:4; Little 2012:69-70; Garrity-Blake and Amspacher 2017:36). They moved to Harkers Island, Morehead City, Davis, Smyrna, Straits, Harker's Island, Marshallberg, and Beaufort. Previous researchers have noted that the last of the residents of Diamond City left in 1902 (Jateff 2007:4; Garrity-Blake and Amspacher 2017:236-237); however, a picture exists that shows Clem and Louise Gaskill leaving in 1912 (Figure 2.6).



*FIGURE 2.6: Picture of Clem and Louise Gaskill moving from Diamond City c. 1912 (Salsi and Eubanks 1999:13).*



This could be due to the people who used to live on Shackleford Banks returning to continue whaling, porpoise fishing, and mullet fishing until the industries drastically declined (Anglely 1982:26; Rose 1988:4-5). Perhaps, the traditional narrative does not tell us the complete story.

Return Until the Creation of the National Seashore (1900 – 1985)

Descendants would return to Shackleford Banks and build vacation homes sometime after the Great Depression and before World War II (Guthrie 2010; Rose 2010; Whisnant and Whisnant 2015:193). Susanne Guthrie said in an interview that her grandparents moved back over to Shackleford around 1944-1945 and built a “camp” on the sound side of the island. The reasoning her grandfather had given was because the “fishing was better” (Guthrie 2010). The camp was a small, one-room building with a small cookstove, a pump connected to a well, and eventually an ice box was added when her grandfather built one. Other families would return and eventually these small camps became vacation cabins (Garrity-Blake and Amspacher 2017:240).

In 1966, Cape Lookout became a National Seashore “to preserve for public use and enjoyment an area in the State of North Carolina possessing outstanding natural and recreation values” (NPS 2012:8). Many homes on Cape Lookout were either bought by the National Park Service or the private landowners had a lease that ended and eventually the land was turned over to the government (NPS 2004:24; Little 2012:75; Stanford III 2014:99-100). It was not until 1986 that the NPS was able to add Shackleford Banks to the National Seashore much to the displeasure of the locals (Guthrie 2010). They believed they owned the land on the Banks as some of them had old deeds, however; others were just squatters (Oppermann 2008:214; Morris 2009; Guthrie 2010).

The locals decided to retaliate. The NPS was going to dispose of their cabins to create an uninhabited landscape that appeared to never have been occupied. The locals decided to burn down their own cabins before the National Park Service had the chance (Jateff 2007:77; Morris 2009;

Guthrie 2010, 2016; Stanford III 2014:100). Today, the nearby community of Harkers Island is losing the descendants to the modernism of beach houses (Amspacher 2019). The original houses that were brought over to Morehead City's Promise Land have been remodeled or demolished, and only three remain (Little 2012:70-72; Connie Mason 2021, elec. comm.).

## Conclusion

Shackleford Banks holds a history shaped by its environment and the communities that have inhabited it. From the Native American and early settlers' presence to the establishment of Cape Lookout National Seashore, the island has witnessed significant changes and transformations. The mid-19th century marked a period of prosperity driven by industries such as whaling, porpoise fishing, and mullet fishing, which sustained the local economy. The architectural style of the houses, known as "story and a jump," reflected the resourcefulness of using driftwood and shipwreck timbers. These communities thrived by living off the land, catching their own fish, growing vegetables, and raising livestock. The relationship of economic activities and environmental influences, including trade and the utilization of natural resources, contributed to the livelihoods of the island's inhabitants.

The importance of Shackleford Banks lies in its cultural, economic, and environmental significance, which has influenced its usage throughout history. Valuable insights into the dynamics that led to changes in the island's usage over the years by analyzing these factors. As subsequent chapters delve deeper into the periods of occupation, the foundation laid by this chronological approach provides valuable context for further exploration of the island's history and its role in shaping the region's heritage. The understanding of Shackleford Banks' past contributes to a more comprehensive appreciation of its significance and cultural value.

### **Chapter 3: Theoretical Framework**

#### Introduction

This chapter seeks to outline the theoretical perspective that will be applied to answer the questions related to Shackleford Banks settlement abandonment. The use of Michael B. Schiffer's behavioral archaeological theoretical framework, focused on archaeological site formation processes will be used to analyze material remains as indicators of past human behavior and how transformation processes affect archaeological evidence.

Processual archaeologists believe that past behaviors can be reconstructed via the spatial analysis of material culture that people leave behind. The introduction of behavioral archaeology challenged that notion by showing that this relationship is not only about studying the past, but also the present and future (Schiffer 1987:4-5). The artifacts that are left behind change in the time between when they were abandoned and when they were rediscovered. These artifacts are affected by cultural and noncultural factors, also known as *c-* and *n-transforms*, which are umbrella terms for a series of named processes that transform sites from their systemic (use) context to their archaeological (discovered) context (Schiffer 1987:7). *C-transforms* are defined by Schiffer as any physical activity acting on an artifact undertaken by humans whether deliberately or accidentally. *N-transforms* are defined by Schiffer as environmentally sourced events that affect the movement or preservation of artifacts. The systemic context, which represents the past an archaeologist hopes to reconstruct, is also a term that describes how artifacts have been manipulated by a behavioral system. This context cannot be understood until the distortions created by post-depositional archaeological formation processes have been identified (Schiffer 1987:3; Stein 2001:47).

In the case of Shackleford Banks' archaeological sites, this may include movement of sand and marsh sediments that uncover and recover objects. Past vestiges of human activity on this

barrier island have been affected by both transformation processes, processes which have created distortions in the archaeological record which may have led to a reduction in the quantity and quality of evidence there (Schiffer 1987:8). Shackleford Banks is a changing coastal landscape with constant shifting sands due to a range of cultural and noncultural depositional processes. This barrier island is subject to hurricanes, tropical storms, boat wakes, tourists, and the free roaming wild horses that live on the island. Even though this area is protected by the National Park Service, not everything is under their control. The summer season brings not only families looking for a relaxing vacation on the beach, but also hurricane season in full force. This severe weather phenomenon causes flooding and coastal erosion which in turn causes soil, or in this case sand, to cover or uncover artifacts. Wave action is increased and creates strong currents that wash ashore more artifacts that were washed away by previous storms or those that do not have anything to do with the archaeological assemblage. This chapter provides a brief explanation of behavioral archaeology, site formation processes, and site abandonment behavior, before connecting these archaeological theories with coastal processes and the affects they have on them before connecting all these theories to Shackleford Banks.

#### Behavioral Archaeology and Site Formation Processes

Behavioral archaeology is built on the foundational notion that all humans behave in an analogous manner regardless of time and space. Michael Schiffer pioneered this theory in the 1970s to expand upon the relationship between artifacts and human behavior (Schiffer 2010:3-4). Schiffer believed that the archaeological record was not perfect, as the record could be manipulated by cultural and noncultural processes and distorted the reflected human behavior (Schiffer 1987:7). Any aspect of human life can be scrutinized in the archaeological and systemic context if the research questions that are being asked outline human interactions related to material culture remains (LaMotta and

Schiffer 2001:15).

Schiffer outlined four strategies in which the relationship between past human behavior and material culture can be analyzed. The first strategy seeks to examine how discovered material culture can answer present-day historical questions about human behavior in the past in both a descriptive and explanatory way (Reid et al. 1975:864). The second strategy involves the utilization of ethnoarchaeology and experimental archaeology. Ethnoarchaeology is the study of material culture in the present, while experimental archaeology is a sub-field dedicated to recreating or replicating ancient practices to evaluate hypotheses and understand present material culture. These approaches aim to answer broader questions about present material culture, which, in turn, contribute to developing principles for examining past human behavior (Reid et al.1975:865; Johnson 2020:58; Schiffer 2010:6). The reason these questions were considered ‘general’ is because they did not face the same time and space constraints as the more scientific question of the first strategy did. The third strategy examines past material culture to generate principles, or rules, which can be applied to understand human behavioral changes over time (Reid et al 1975:865; Schiffer 2010:7). The fourth and final strategy is the study of material culture and its contemporaneous cultural context explain present/current human behavior while asking specific questions (Reid et al. 1975:866). Figure 3.1 shows a simplified outline of the four strategies and is more easily understood, much like a Punnett square in biology.

		Material Items	
		<u>Past</u>	<u>Present</u>
Human Behavior	<u>Past</u>	1. Prehistoric, historical and classical archaeologies	2. Ethnoarchaeology and experimental archaeology
	<u>Present</u>	3. Study of long-term behavioral change	4. Modern material culture studies

FIGURE 3.1: Four strategies of behavioral archaeology (LaMotta and Schiffer 2001:16).

The thesis utilizes the first strategy to analyze material culture remains discovered during the 2021 ECU summer field school, and to comprehend the landscape of Shackleford Banks. This required analyzing the different processes defined by Schiffer as depositional, reclamation, disturbance, and reuse processes. Depositional processes take the artifact from its systemic context, when it was in use, to its archaeological context (Schiffer 1987:266-267). This is the time from when the artifact was originally discarded and covered in a layer of ‘deposits’ (soil-fill, layers of waste, floor of a structure) until it was later ‘rediscovered’ in the post-depositional process by archaeologists (Schiffer 1987:265-266). The primary depositional process is a c-transform, as it was placed there by cultural, or human, means. This process can be interrupted or distorted by an n-transform, such as the shifting environment, thereby creating a secondary depositional process (Schiffer 1987:199-200; LaMotta and Schiffer 2001:40-42).

As implied previously, artifacts do not always stay where they were placed and are often taken out of archaeological context and placed back into a systemic setting. This is defined as reclamation which is also a c-transform (Schiffer 1987:99). Reclamation does not only involve artifacts, but it can also involve reoccupation of a site by returning them to the systemic context as well (Schiffer 1987:100). In this instance, Schiffer describes an occupation as a “continuous and uninterrupted use of a place by a particular group” (Schiffer 1987:100). Due to the recurrences of occupation on Shackleford Banks, it may be determined that this is an instance of multicomponent reclaimant reoccupation.

Disturbance processes are different from reclamation as they do not introduce the artifacts back into a systemic context (Schiffer 1987:121). In this process, their location can be disturbed, and in some instances, the artifact is destroyed or damaged. This process can be both cultural and noncultural, depending on the circumstances (Schiffer 1987:121). It can be cultural by way of

human disturbances, such as altering the earth's surface through plowing. Afterwards, the artifacts are then exposed to the noncultural, or natural, elements and deteriorate at a faster rate due to the protective layer of in situ preservation being removed (Schiffer 1987:121).

Finally, reuse processes are sometimes confused with reclamation processes; however, they are different because they do not enter the archaeological context with the same purpose as when they were manufactured (Schiffer 1987:27-30). The artifact is affected by cultural processes (e.g., alterations by humans), but is transferred from state-to-state in the systemic context (Schiffer 2010:32). Within this process are different varieties of reuse which include lateral cycling, recycling, and secondary use. Lateral cycling is reuse as the object was originally intended with no change in form. This can be confused with recycling in a modern-day context in how recycling is termed as people know it today. In archaeological terms, recycling an object means changing its form as well as its intended use but can still be identified once in the archaeological context (Schiffer 2010:33). Secondary use does not modify the objects' form but does change the original intended use. Figure 3.2 shows the flow of an artifact's life history as it moves from process to process.

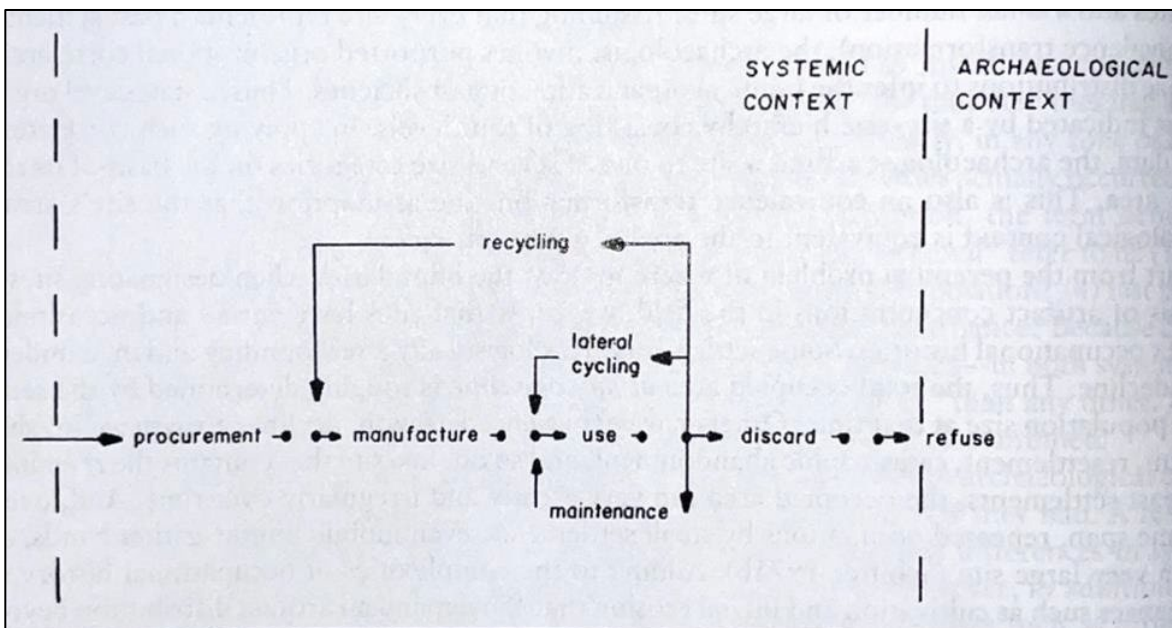


FIGURE 3.2: A basic flow model of an artifact's life history (Schiffer 2010:22).

These processes should assist in determining the usage of certain artifacts and the spatial and relational dimensions that may suggest certain areas of occupation on Shackleford Banks, whether they be residential or industrial. The determinations made can then be used to go back in time and explain the reasons behind the abandonment of Shackleford Banks.

### The Behaviors Driving Site Abandonment

Abandonment is a behavior that can be interpreted in the archaeological record, but not all places were abandoned in the same manner (Cameron and Tomka 1993:3). There are processes behind abandonment that occur before, during, and after abandonment of a site has been completed. De facto refuse is a process that happens during abandonment that entails materials that are still able to be used being left behind instead (Schiffer 1987:89). This is the opposite of curate behavior, which entails the transport of objects for continued use when humans see them still being viable or repairable (Schiffer 1987:90). These two types of refuse behaviors should theoretically make up an entire 'inventory' of archaeological remains that were in use during the specific period being examined (Schiffer 2010:36-37).

According to Schiffer, many variables determine when de facto refuse occurs. These include the "rate of abandonment, means of available transportation, season of abandonment, distance to the next settlement, principal activities in the next settlement, size of emigrating population, and whether or not return is anticipated" (Schiffer 1987:90-91). Other factors are related to the artifacts in question relative to their "size, weight, replacement cost, remaining life of usage, and function" (Schiffer 1987:91). All these factors could be important in determining why certain artifacts were left behind at Shackleford Banks instead of being taken with them when they left. While historical sources suggest the rate of abandonment was achieved over a period as evident by the growing population in surrounding communities, some of the items in question could have been easily



replaced by new ones. The distance between their new settlement was not far, and that could be the determining factor behind some of them deciding to cut up their houses, float them across the sound, and rebuild in places like nearby Harker's Island or Morehead City, where there are documented cases of houses remaining.

This is an example of curate behavior. Schiffer hypothesizes that one of the deciding factors for curate behavior is that the distance between the new settlement is close to the old one (Schiffer 1987:94). However, in some ethnographic studies it is shown that typically larger objects are left behind while smaller objects are 'curated' (Schiffer 1987:268). This raises a question as to why these people decided to take their houses. This curate behavior is also a part of the reuse processes as stated previously.

Reuse processes and curate behavior typically coincide with each other while depositional processes and de facto refuse are like each other. In the case of Shackleford Banks houses, the reuse process takes the form of lateral cycling because they were not modified, and they were rebuilt with their original intended use in mind. There may be other artifacts that have been passed down in generations from Shackleford Banks that are still being used in their systemic context as family heirlooms or antiques. The depositional processes of the de facto refuse artifacts; however, would still be located on the island. The *c-* and *n-transforms* that have affected these artifacts could also potentially involve disturbance processes and reuse processes that are unknown due to them being disturbed or taken out of the archaeological record.

There were attempts made to return to the island, but not for the purpose of permanent occupation. As stated in the previous chapter, people would return to attempt to reestablish their industry of fishing from the island before ultimately giving up. This could be a hint at the possibility that the Ca'e Bankers wished to return and reclaim the island which could have affected their

abandonment behavior (Cameron and Tomka 1993:11). Whether or not their return was anticipated or spur-of-the-moment, the de facto refuse and curate behavior need to be considered to accurately determine why some objects were left behind and others taken.

Typically, the percentage of broken items increases with the length of abandonment (Cameron and Tomka 1993:14-15). Therefore, a temporal/spatial frequency could be determinable by examining the objects found on Shackleford Banks and analyzing the datable broken and unbroken objects to determine which period of abandonment was longer. However, the ability of the environment to break and preserve artifacts must be taken into consideration as the noncultural factors can be as devastating as finding nothing at all.

Abandonment of a settlement site can be very sudden due to severe weather patterns or may occur due to economic hardships. Both factors may have been in play and could be the reason behind the abandonment of Shackleford Banks (Stick 1958:184-194; Angley 1982:26; Little 2001:29-30; Jateff 2007; Barnes 2007:42, 2013:36-41; Bland 2013; Tursi 2014a). The traditional historic narrative of Shackleford Banks paints a picture that abandoning the area was a solution to the hurricanes and the decline of multiple fishing industries (Stick 1958:184-194; Jateff 2007; Whisnant and Whisnant 2015:75-104). Due to the flooding caused by the hurricanes and tropical storms, the land became barren, and all the nutrients were washed from the soil (Hancock 1988). Disasters are one of the main determining factors behind site abandonment (Schiffer 1987:90).

### Archaeology and Disasters

Site abandonment can be rapid and sudden, with no previous planning, due to abrupt catastrophic events (Schiffer 1987:92; Cameron and Tomka 1993:99). While these events may come as earthquakes, tornadoes, volcanic eruptions, or hurricanes, the case of Shackleford Banks will focus on hurricanes and tropical storms. Storms work through the elements of wind and water, creating

devastating effects as they can damage structures and create severe erosional damage (Schiffer 1987:233). These effects are made worse in coastal environments as they are the most fragile and dynamic areas of change (Ford 2011:775). Sea level rises and falls which affect coastlines by either giving land or taking it away (Kraft et al. 1985; Schiffer 1987:255). These changes are still a subject of confusion within coastal archaeology as they are unpredictable in how they cause the coastline to erode (Ford 2011:765). This erosion is also caused by storms and wave action which pull artifacts away from shore and into the ocean, in addition to pushing artifacts on shore. This can cause distortion in the archaeological record by creating new deposits, creating new frequency dimensions, and transforming the view in which an archaeologist can analyze the information present (Schiffer 1983:677-679).

Before understanding the artifact frequencies found on Shackleford Banks during the summer 2021 field school, the physical abandonment of the site due to drastic environmental change must first be realized. The communities living on these barrier islands were accustomed to tropical storms and hurricanes over time and were able to prepare themselves accordingly (Tursi 2014c). Unfortunately, the decade of previous hurricanes before 1900 had devastated the maritime forest that was growing around them and protecting them from the heavy waves and shifting dunes (Stick 1958:74). Due to the island becoming more uninhabitable because of drastic environmental change, abandonment could have been the solution to their problems. Abandoning a site can be seen as a more acceptable option, given certain circumstances (Cameron and Tomka 1993:100).

Catastrophic events can influence economic, social, and technological relationships which can then affect reasoning behind leaving a site (Jones 2012:24). The environmental relationships are the ones that are most obvious and can be seen in the archaeological record by examining the stratigraphic deposits that have been buried by years of other layered deposits.

Economic relationships are more difficult to determine due to the 'deposits' only being

available in the historical context through land deeds, receipts, newspapers, court records, and oral histories. Due to the changing nature of the coastal landscape on Shackleford Banks and lack of important records, such as the 1890 Federal census, some assumptions must be made and compared with other ethnographic studies.

The abandonment of Shackleford Banks is not an isolated incident of communities abandoning their homes in coastal environments. Further up the Core Banks is Portsmouth Island, which was said to have been abandoned similarly to Shackleford Banks due to drastic changing coastal landscapes and devastating storms (Jones 2012:136). Such storms still affect barrier island like Shackleford Banks today in the form of coastal processes. They not only affected the past and were a reason behind abandonment, but they still affect the archaeological record today and could skew the analysis of material culture.

#### Coastal Processes

The coast can be defined as the place where maritime processes influence terrestrial ones. The maritime processes would be storm surge and erosion placing effects on the terrestrial ones such as the depositional or disturbance processes in the archaeological record (Ford 2011:764).

Climate change is constantly causing shorelines to appear and disappear due to the melting of the glaciers (Schiffer 1987:255). Shorelines that have not been seen in centuries can reappear along with any archaeological evidence that originally disappeared with them. However, not all these processes are noncultural. Some may even be the work of cultural, or human, forces acting upon them and changing the landscape through events such as dredging (Ford 2011:775).

Severe weather events are considered *n-transforms* in the archaeological record (Jones 2012:248). These types of *n-transforms* can create disturbance processes that may pick up artifacts from their primary deposition and place them in their secondary deposition. Due to Shackleford

Banks being a coastal environment and constantly subject to these types of processes, the archaeological context of the material remains that have been identified in the field surveys need to be considered for bias. The first term of abandonment was in the beginning of the 20th century which means that there have been 120 years of coastal processes that have acted upon the island from which artifacts from that time are being affected. The second term of abandonment was after the creation of the National Seashore, which creates a significantly less amount of time between the period of abandonment to the present day. Other factors that must be considered are the fact that parts of the site have been completely submerged (Ford 2011:766). As stated in the previous chapter, Shackleford Banks was once connected to Cape Lookout in the area that is now inundated and known as Barden Inlet.

Erosion is one of the principal problems in coastal archaeology. Many sites have been destroyed by being submerged or are on the brink of destruction (Ford 2011:766). Tangier Island in Virginia is an example of an island that is on the verge of being completely submerged. Rising tides and wave action are pulling the island underwater and has already submerged and unearthed burials and an old fort site of Fort Albion (Barber et al. 2015:6). With the dwindling surface area, the population is also in danger of turning into a comparable situation for Shackleford Banks. Shackleford Banks is facing the same problem of erosion causing the shoreline to change; however, the area where the Barden Inlet is currently situated has been completely submerged. This could affect the archaeological record as evidence of occupation has been lost or destroyed. The case of the Barden Inlet is also affected by *c-transforms* in the disturbance process due to the dredging that occurs to keep a deep enough channel for the National Park Service ferry. Due to constant boat traffic activity, it is also possible that the wake caused by waves has covered archaeological evidence.

Coastal processes are still not entirely understood in the realm of maritime archaeology (Ford 2011:778). While they are mostly affected by *n-transforms*, they can occasionally be affected by *c-transforms*. The coastal processes of Shackleford Banks are affected by both and shown through analysis of material distribution.

## Conclusion

Settlement abandonment is a phenomenon that often follows occupation; historically, people often leave communities they consider home, seeking to live elsewhere (Cameron and Tomka 1993:1). This behavior is observed across time and at many places on planet earth. The traditional and widely accepted narrative is that the communities living on Shackleford Banks abandoned it due to environmental issues (Senter 2003:339; Jateff 2007:4; Lewis 2011; Barnes 2013:36-41). However, ethnographic studies of other abandoned sites, such as those outlined in Cameron and Tomka's edited volume *Abandonment of Settlements and Regions* (1993), show that environmental factors are not always a sole deciding issue leading to settlement abandonment. Considering that research suggests that human responses to cultural and environmental change often culminate in similar historical and archaeological patterns irrespective of time or location, the processes that have been outlined in this chapter help determine the reasons behind abandonment of Shackleford Banks and help analyze the frequencies of artifact distribution in the archaeological record.

## **Chapter 4: Charting Shackleford Banks: A Methodological Voyage**

### Introduction

Creating a timeline of history for the human occupation on Shackleford Banks involved several methodologies which are outlined in detail within this chapter. This process involved in-depth historical research, fieldwork conducting surface surveys, and mapping and analysis utilizing GIS software.

Historical research is a pivotal precursor to any archaeological investigation. It provides context from the people who once inhabited a land to the industries that shaped their livelihoods. Initial archival work revealed that much of the information available is based off stories passed down through generations. Along with those sources were maps, both hand-drawn and official surveys, which provided general knowledge of the area to be surveyed as well as where most areas of habitation were located on the island. This historical background provides context for any items or structures discovered during surface surveys.

Field work began with systematic surveys conducted using skills acquired from previous academic training, enabling the identification and documentation of apparent wrecks exposed in the sand on Cape Lookout. These wrecks were deemed unrelated to the primary focus of the Shackleford Banks survey, so were intentionally omitted from this analysis. Over the course of four days, the survey team conducted fieldwork utilizing cameras and GPS units but with a different number of students each day. Weather conditions posed constraints, limiting the number of workable days on the island. Nevertheless, the entire expanse of the sound side of the island was successfully surveyed.

Upon the culmination of fieldwork, data analysis began. This primarily involved mapping points of interest documented during the surveys of artifacts and structural remains found. Accounts

of each of these facets are detailed in each section of this chapter.

### Pre-Field School

Prior to the commencement of the Summer 2021 ECU field school, students engaging in thesis research connected to this field school were encouraged to independently conduct historical research, making use of online resources and the North Carolina Collection accessible at ECU's Joyner Library. Due to a limited number of primary resources available, secondary sources were, such as oral histories, are utilized more often but under scrutiny. Primary sources include census records from 1850, a journal of a French traveler in the colonies, land grant deeds, geodetic survey markers, maps, and charts. Secondary sources include oral history interviews from descendants of those from the original communities, previous thesis work, books, and reports of investigations conducted by the National Park Service.

### *Secondary Sources*

While there were many oral history interviews conducted by the Core Sound Waterfowl Museum (Harkers Island, NC) for the Cape Lookout Oral History Project, only a few of them mentioned Shackleford Banks specifically and stories their ancestors told them about living there. During interviews, individuals like Mattie Willis and Ira Lewis provided firsthand accounts of their grandparents and great-grandparents residing at Shackleford Banks during the late nineteenth century. Mattie Willis recounted specific details about her grandfather's living conditions, notably when Mormon missionaries ventured into North Carolina (Willis 2010). Similarly, Ira Lewis shed light on their housing situation and elaborated on their survival strategies, emphasizing their reliance on fishing and cultivating modest crops during opportune times. Lewis's interview also gave insight into erosion as a probable reason as to why his ancestors began leaving Shackleford Banks in the 1890s (Lewis 2011).



There are also many oral history interviews kept in the Outer Banks History Center archives (Manteo, NC) that were conducted between 1968 and 1985. Unfortunately, most of the interviews are not transcribed completely and most are associated with Portsmouth Island, with only a few mentioning Shackleford Banks. An illustrative interview took place in 1980 with Bruce Weber, who engaged with H. Orlandah Phillips. During this interview, Phillips shared accounts from his grandparents who resided on Shackleford Banks when the first Cape Lookout lighthouse was demolished, and shore-whaling was a prominent industry. Phillips provided information aligning with previous hand-drawn maps and interviews that detailed the divisional landmarks on the island. Familiar mentions of names such as Whale Creek, Wades Shore, and Diamond City reaffirmed their historical significance and existence. Phillips also introduced lesser-known names, including Joe Lewis's Breakwater, Yellow Hill, and Bottle Rum Point, shedding new light on the island's geographical nomenclature (Phillips 1980). Nevertheless, the challenge arises in pinpointing the approximate locations of these namesakes without corroborating maps or additional descriptive references.

Previous thesis work was conducted by Emily Jateff (2007), Stephen Taylor (2009), Jennifer Jones (2012), Ryan Bradley (2015), and George Huss (2019). These thesis manuscripts provided an understanding of the area, the sources used in their thesis research, and any previous archaeological work that was not completed by the NPS. Huss's 2019 thesis "Of Blood, Salt, and Oil: An Archaeological, Geographical, and Historical Study of North Carolina's Dolphin Fishery" and Bradley's 2015 thesis "Where Were the Whalers? An Investigation of the Archaeological, Historical, and Cultural Influences of North Carolina Whaling" were insightful to the industries and employment opportunities that were available to the communities of Shackleford Banks. Jones's 2012 thesis "Scattered to the Wind: An Evaluation of the Disaster Landscape of Coastal North Carolina" was insightful to the environmental struggles that these communities faced, especially

during hurricanes, and gave a plausible reason as to why they left the area, but not their homes, behind. Taylor's 2009 thesis "A Home Transformed: Narratives of Home, Loss, Longing and the Miniature from Portsmouth Island, North Carolina" served as a valuable comparative study as the historical record of Portsmouth has been more extensively documented compared to the communities on Shackleford Banks.

Emily Jateff's 2007 thesis "Hain't Bin Found Yet: The Search for Archaeological Evidence of Shore Whaling at Diamond City Shackleford Banks, North Carolina" provided vital context for historical and archaeological information before ECU's 2021 field school students conducted archaeological work. Her research delved deeply into the background of Shackleford Banks, dedicating three comprehensive chapters to the history and establishment of shore whaling as a prominent industry, aiding in the understanding of how these communities survived. The archaeological work conducted for Jateff's thesis gave insight into what may be found, or not found, during the surface surveys conducted in 2021. As explained in previous chapters, there was not likely to be an abundance of evidence suggesting human habitation on Shackleford Banks as storms and tourists have ravaged it. Jateff (2007:66-72) had results depicting this, finding only the barest remnants of structures, bricks, and ceramic pieces dating to the time of habitation of the mid-to-late 1800s, and the mid-1900s. Other thesis projects such as those written by Stephen Dilk (2012), Paul Gates (2019), were utilized to assist in understanding how similar uses of site formation processes were applied to other studies that were like this thesis.

Descendants like Karen Amspacher and Joel Hancock have authored books describing the communities of Shackleford Banks from research they have conducted. Hancock's book *Strengthened by the Storm: The Coming of Mormons to Harker's Island, N.C., 1897-1909* (1988) and Amspacher's book *Living at the Water's Edge: A Heritage Guide to the Outer Banks Byway*

(2017), co-authored with Barbara Garrity-Blake, both give important insights into life on Shackleford Banks. Other historians have drafted books and articles surrounding life on the Outer Banks and the hardships they faced economically and environmentally (Stick 1952, 1958; Simpson and Simpson 1988; Cecelski 1993, 2001; Barfield 1995; Prioli 1998; Willis 2002; Senter 2003; Barnes 2007, 2013; Morris 2009). The National Park Service has also conducted many historic resource surveys, historic structure reports, and park reports from 2004 to the present that detail the history of industries, wars, resources, culture, tourism, and management for Cape Lookout National Seashore.

### *Primary Sources*

As previously mentioned, the examination of North Carolina census records from the year 1850 was conducted. This particular year was chosen because it marked the first instance in which Shackleford Banks was explicitly identified as a distinct entity separate from its surrounding counties. Additionally, it was the initial year in which the census inquired about the type of employment individuals were engaged in. This information proved crucial in estimating the population residing on the island, which was linked to Cape Lookout, around the year 1850. Furthermore, it provided insights into the range of employment opportunities that individuals were able to pursue in a remote area secluded by water.

*The Journal of a French Traveler in the Colonies, 1765* (An Unknown Traveler 1921) lists land grants, deeds, and wills that were important primary sources confirming that Shackleford Banks was being utilized before a community was officially established. Land grants, such as those given to John Shackleford, further establish that these territories were owned and eventually utilized when the owners gave permission to whale off the shores of Shackleford Banks. This creates a verified timeline of colonial habitation beginning in the mid- 1700s. When combined with other primary

sources, such as maps, this journal offers concrete evidence that there were established whaler's camps in existence in 1765.

The most important primary sources available were the maps and charts depicting the Cape Lookout area that ranged from 1764 to around 1933 that were available online through NOAA's historical charts website and University of North Carolina's online library of North Carolina maps. The earliest map titled "A Plan of the Harbour of Cape Lookout Surveyed and Sounded by His Majesty's Sloop *Viper*" was completed by Captain J. Lobb in September 1764 and showed "Whaler's Hutts [sic]" established on Shackleford Banks. Navigation charts and United States coastal survey charts proved valuable, particularly when structures were represented as small, shaded squares on these maps. Maps indicating such structures were subsequently georectified using ArcGIS, with their approximate GPS locations archived for future reference. Additionally, these locations were utilized to devise a comprehensive plan for prioritizing areas of Shackleford Banks to be thoroughly investigated by ECU's field school students (Figure 4.1).

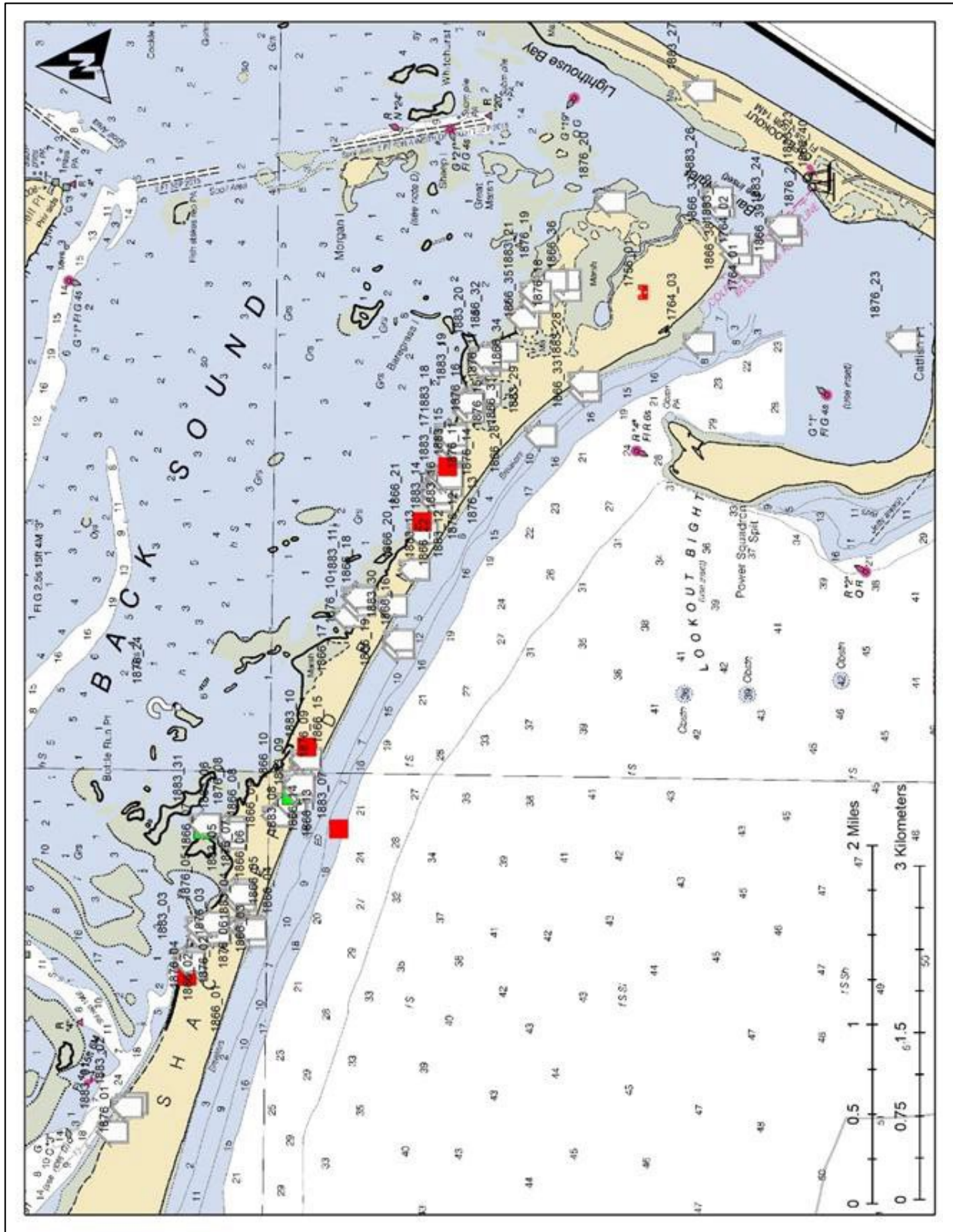


FIGURE 4.1: Potential habitation and working locations on Shackleford Banks, as extracted from charts and maps (1764- present) superimposed on modern NOAA chart (Richards 2021).

## Field School

Due to State and Federal Historic Preservation laws, state permits are required for any surveys completed on Shackleford Banks and federal permits are required for any surveys conducted in the water surrounding the island as well as Cape Lookout National Seashore due to it being managed by the National Park Service. Permit applications were drafted and submitted to the federal and state government for the summer of 2021 field school for ECU (Figures 4.2 and 4.3) and were granted. The area upon which the archaeological field work focused is located on the sound side of the island (Back Sound), as identified by the red arrows in Figure 4.2.

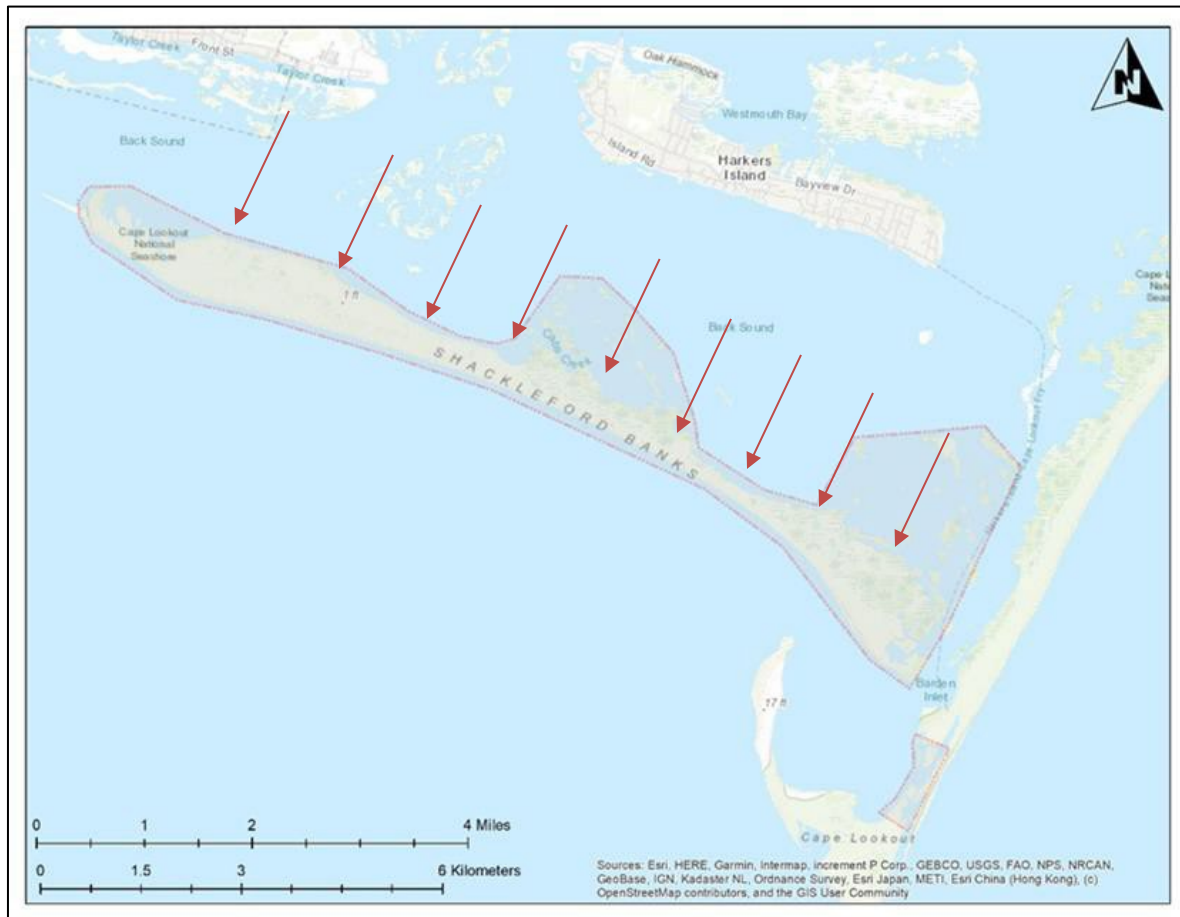


Figure 4.2: NPS permits (land-based) made by Dr. Nathan Richards and Jeremy Borrelli (2021).

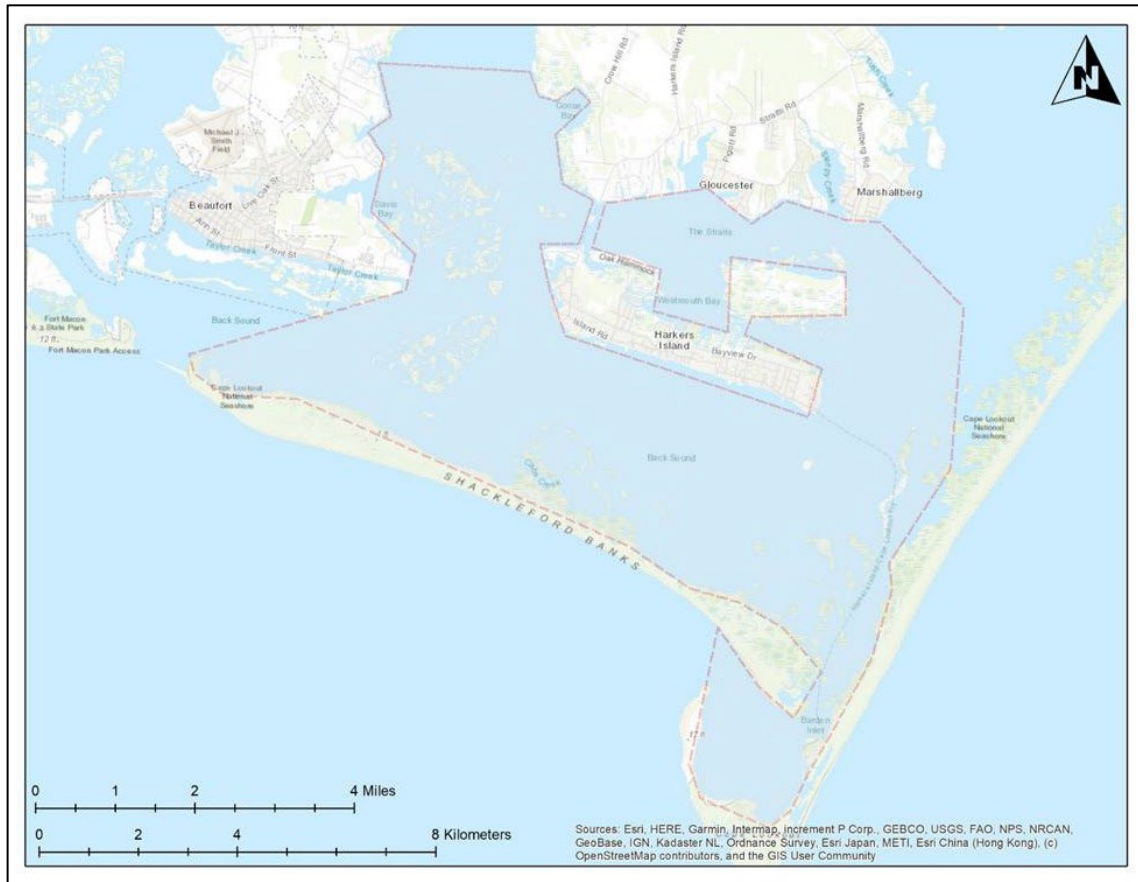


FIGURE 4.3: NCDNCR/UAB permits (water-based) made by Dr. Nathan Richards and Jeremy Borrelli (2021).

While the original plan for the field work also involved side scan sonar and magnetometer surveys at site locations from georectified maps, the resulting data was not included in this thesis as no pertinent results were found from the data gathered.

Surface surveys were conducted of the sound side of Shackleford Banks on the 16<sup>th</sup>, 17<sup>th</sup>, 19<sup>th</sup>, and 24<sup>th</sup> of June 2021 by students in ECU’s summer field school. GPS units were utilized as the survey teams walked, photos were taken, and GPS points logged of any surface finds such as bricks, ceramics, wooden pilings, iron pieces, glass, and other debris that appeared to be connected to evidence of human habitation. This process was repeated each day with the survey team starting in a different location but ending in an area that had previously been surveyed to cover all ground.

16<sup>th</sup> June 2021

The survey team consisted of Dr. Jason Raupp and four students: the author, Jill Schuler, Winston Sandahl, and Stephanie Sterling. The team arrived on the middle section of the western, sound side of Shackleford Banks, known as Wades Shore, at 9:45 AM and began surveying along the shoreline while walking East towards Whale Creek. Two Garmin GPS units and two Olympus Tough cameras were utilized to mark points and take photos of any survey findings while which points were associated with which photos were written down in field books.

Findings consisted of wooden pilings, bricks found both singularly and in clusters, iron fasteners, ceramic sherds both native and modern, glass sherds, intact glass bottles, utility poles (often listed as “telephone poles” on maps), and the remains of cars. When pictures were taken of these findings, an 8 cm ECU Maritime Studies Program measurement card was used if the artifact was small. If the artifact was large, a 1 m black and yellow photo scale was used where the black and yellow markings alternated indicated 10cm each. These measuring tools were also utilized in the following days of surface surveys.

*17<sup>th</sup> June 2021*

The survey team consisted of Dr. Jason Raupp and three students: the author, Jill Schuler, and Winston Sandahl. This team was dropped off at an NPS dock near the western end of Shackleford Banks at around 9:30 AM. The group had the same gear as the previous day, except one less camera, and began making their way West towards Shackleford Point. Since nothing noteworthy was discovered, the team made the decision to ascend the largest sand dune at that end of the island to gain a sense of what it was like to search for whales from such vantage points. The team then began walking East towards Mullet Pond. The current area of Mullet Pond has expanded and shifted from what historic maps have shown (Figure 4.4).



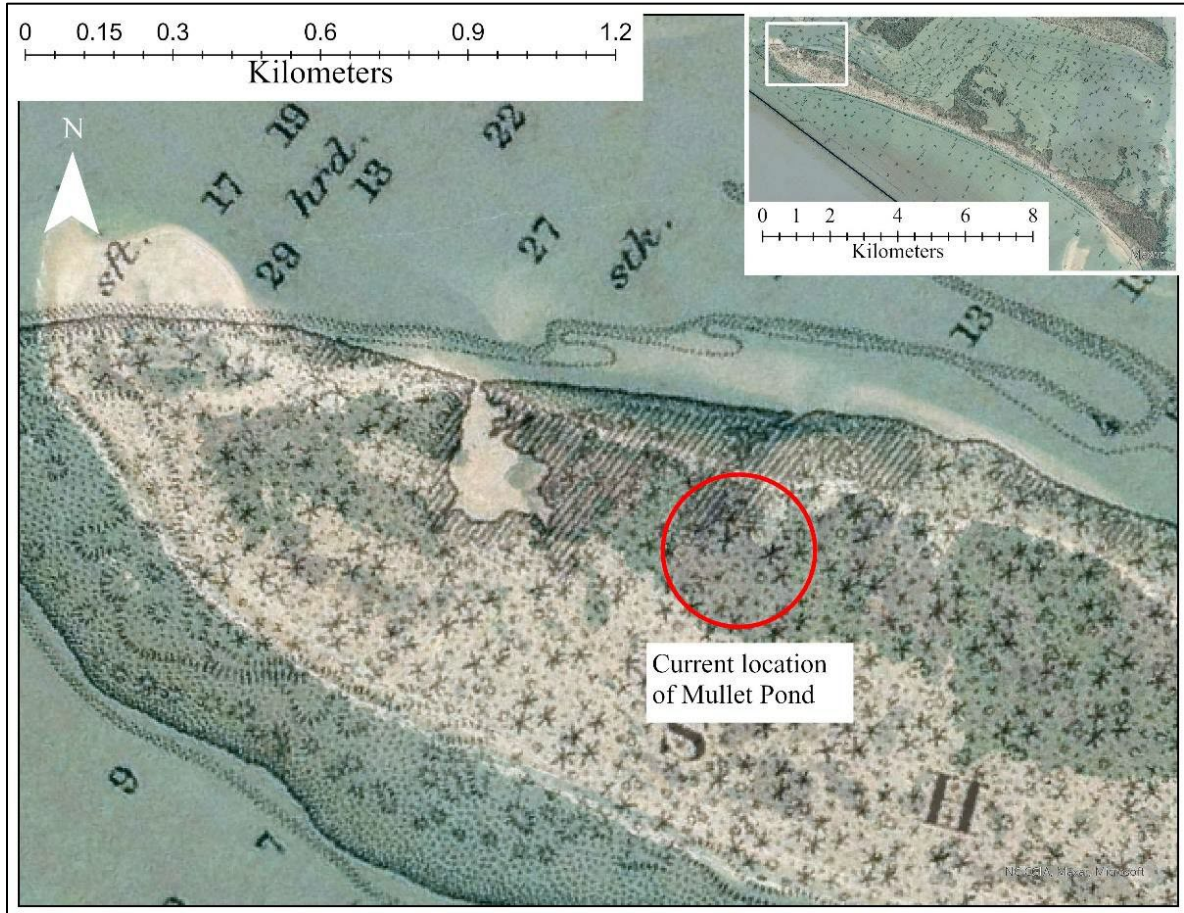


FIGURE 4.4: Map created by the author showing the 1883 location and current location of Mullet Pond.

During surface surveys, artifacts were found like those from the previous day. Just east of Mullet Pond, a brick structure was located, and each student took a video to later be used to create photogrammetric models of it. The team was able to locate the Wades Shore cemetery but did not enter the rope fence to take measurements, write down the locations or names on any of the stones (Figure 4.5). The day ended at the location where the survey team had found the remains of the car from the previous day.



FIGURE 4.5: Image P6180053 taken by Jill Schuler of the Wades Shore cemetery (Schuler 2021).

*19<sup>th</sup> June 2021*

The survey team consisted of Dr. Raupp, Dr. Nathan Richards, crew chief Amber Cabading, and six students: the author, Alyssa Saldivar, Michaela Hoots, Matthew Pawelski, Lydia Downs, and John Detlie. The team landed at Shackleford Banks at around 9:45 AM. Due to the low tide, it was difficult to find a landing point, but the team was able to begin the survey in the area where the 16<sup>th</sup> of June survey ended at Whale Creek. On the 16<sup>th</sup>, a site location was noted and returned to on the 19<sup>th</sup> for closer inspection. Dr. Richards and Cabading took photos and videos of the site to be later utilized for practice in photogrammetry for the students. This area contained a large amount of brick scattered along with small areas of glass and ceramic sherds. Nothing was definitively identifiable, and the survey team walked East of their beginning location along the shoreline of the sound side of Shackleford Banks.

Due to the low tide, the trek was very marshy and caused multiple students to become stuck

many times. However, this low tide exposed artifacts and structural remains that would have been covered had the tide been high. At around 11:25 AM, the team was forced to move the survey inland as the terrain near the shore became impassable. Nothing of note was discovered inland and the team was able to trek back to the shoreline before noon. At 12:30 PM, the survey splits into two teams. Dr. Raupp, Downs, and Pawelski broke off and began surveying the center of the island, between the sound side and ocean side. They were searching for any remains or evidence of sites that may have existed more inland, a theory perpetuated by the changing coastline.

Dr. Richards, Cabading, Detlie, Saldivar, Hoots, and the author continued their coastal survey during which the remains of a wooden structure were discovered that showed signs of burning. Measurements were taken, employing a 50-meter (m) measuring tape of the structure to determine its size while taking note of the material remains nearby. The material culture consisted of many large, thick ceramic pieces suggesting plumbing. Few photos were taken of the posts as the greenery was high surrounding it, covering a proper view of the area (Figure 4.6).

Both teams converged at around 1:20 PM with Dr. Raupp noting remnants of structures and telephone poles located further inland. Photos and GPS points were logged using Dr. Raupp's personal GPS unit and a Tough camera. Dr. Raupp's team was able to get ahead of Dr. Richards's team on the shoreline and doubled back to rendezvous. Further exploration along the shoreline revealed additional burned structural remains, accompanied by artifacts that showed signs of burning. In addition, various other materials bore evidence of having been corroded from being in or near the water for an extended period. The survey ended halfway from the edge of the eastern section of Shackleford Banks.



FIGURE 4.6: Photo P6200012, taken by John Detlie, depicting the structure remains of a house that was likely burned by locals when the NPS took over (Detlie 2021).

24<sup>th</sup> June 2021

Due to weather conditions on the 21<sup>st</sup> of June, no surveys were conducted on Shackleford Banks. The 22<sup>nd</sup> of June was dedicated to visiting sights outside of Harker’s Island to gain more context to lives of those living on Shackleford Banks. Fort Macon was one location visited as well as ‘The Promise Land’ in Morehead City, one of the areas where the Ca’e Bankers settled their houses they floated over from Shackleford Banks (Figures 4.7 and 4.8). The 23<sup>rd</sup> of June was utilized to move the men of the field school out of their accommodations due to flooding from frequent storms.



FIGURE 4.7: Image taken by the author on 21<sup>st</sup> of June showing the sign pointing to the “Promise Land.” (Ellis 2021).



FIGURE 4.8: Image taken by the author on 21<sup>st</sup> of June showing a sign at 205 S 10<sup>th</sup> St in Morehead City of a home, since remodeled, that was originally on Shackleford Banks (Ellis 2021).

When field work resumed, the survey team on the 24<sup>th</sup> consisted of Dr. Raupp, Dr. Richards, and six students: Downs, Hoots, Saldivar, Detlie, Pawelski, Sterling, and Caleb O’Brien. The author was unable to engage in the survey due to a medical issue two days previous. The survey team embarked on their expedition early, arriving at Shackleford Banks around 8:00 AM. This timing was chosen to coincide with the high tide and the boat used for transport was anchored on the ocean side at the eastern end of the island. Their equipment consisted of three GPS units, and two GoPro cameras as well as photo cards and a 1 m photo scale. The survey team was split into two teams (Dr. Raupp, O’Brien, Downs, and Pawelski, and Dr. Richards, Detlie, Sterling, Saldivar, and Hoots) and both walked eastward towards the tip of the island with the first group walking along the sand dunes inland and the second walking along the shoreline.

Both teams surveyed the edge of Shackleford Banks and swung around to begin surveying the sound side of the island. Artifacts, artifact scatter, and structural remains were logged in GPS units as points and photographed. The GPS unit O’Brien was using became corrupted and erased a few of the points taken from that day. The GoPro units utilize GPS coordinates when taking photos,

however, which made it possible to retrieve the lost data. In case of further corruption, this GPS unit was switched to Dr. Richards's personal unit and utilized for the rest of the survey.

John Altman, from the NPS, joined the survey teams around noon as the group began to head towards the "Diamond City Hills" marker. The remains of a jetty were found in the marshes and was photographed, measured, and GPS logged. At one point the surface survey teams realized they had not reached the area where the survey ended on the 19<sup>th</sup>. Dr. Raupp and Downs headed west to reach that point while the rest of the survey team headed east. Attempts to reach the Diamond City Hills marker were thwarted by thick brush, but the team continued marching East looking for relevant structures and artifacts.

Dr. Raupp and Downs walked West where a large site was found, causing them to radio the other team to make their way towards them. Multiple pilings, bricks, and barrel remains were discovered then photographed, measured, and GPS positions logged (Figure 4.9). Dr. Raupp theorized that the barrels indicated that this was a possible whale trying out spot, which would be consistent with Diamond City being known as a whaling location. The survey team swept the surrounding area for more artifact scatter before heading East back to the boat. While walking back, nothing was noted as the day was getting late and the focus was on reaching the boat and getting it off the beach.



*FIGURE 4.9: Photo GOPR0227, photo taken by Caleb O'Brien of iron barrel remains and structural remains of a fence and post (O'Brien 2021).*

### *Post Processing*

At the conclusion of each day, all the collected data was processed and immediately uploaded to a shared folder on OneDrive. This approach was taken as a safeguard against data corruption or loss. All GPS points were placed into a spreadsheet and uploaded with accompanying information like time, date, coordinates, elevation, and point number. The photos were put into a spreadsheet for each day and uploaded with accompanying information like the photo identification number, date, description, and who took the photo. Each set of data was placed into a reference list of all days recorded. Each camera that was used in the field school was placed into a separate tab with the associated pictures within that spreadsheet, all compiled into one primary sheet. All this data would eventually be scrutinized in detail and utilized for data analysis discussed in further chapters.

### *Post Field School*

Following the conclusion of the field school, the relevant collected data was catalogued and

processed. Artifact photographs were edited, with backgrounds removed, and scale bars added to provide a clear indication of each object's size. The GPS coordinates, logged during fieldwork, were integrated into a Geographic Information System (GIS) to generate track lines and pinpoint artifact locations.

GPS points were integrated into a comprehensive spreadsheet with descriptions involving the artifact's category, site type, presumed function or purpose, and, if available, associated images. This spreadsheet was categorized based on the function of the artifacts, classifying them into distinct categories of buildings, domestic, industrial, governmental artifacts, and those with an unknown function (see Appendix A). These GIS-projected points allowed for the determination of artifact density within each functional category, shedding light on whether the artifacts originated from domestic residences, industrial sites, or unidentified structures (Figure 4.10). The density of each object's function was accomplished using the point density tool in ArcGIS, classified as a tool to "calculate a magnitude-per-unit area from point features that fall within a neighborhood around each cell" (ESRI 2023).

This was done for all artifact points, then broken down by object category. The output cell size was set to one for each to give a better resolution for a 1 by 1 m square. It was important to set up the environments tab so that the area where no artifacts were located was not included in the use of the tool. The coordinate system was set for UTM Zone 18, for eastern North Carolina, and the extent of the tool was subjected to the extent of the survey area by utilizing the mask section within a 50 m buffer to account for any *n-transforms* or *c-transforms*. The radius of the circle was automatically calculated by the program based on the "shortest of the width or height of the extent of the input point features, in the output spatial reference, divided by 30" (ESRI 2023).



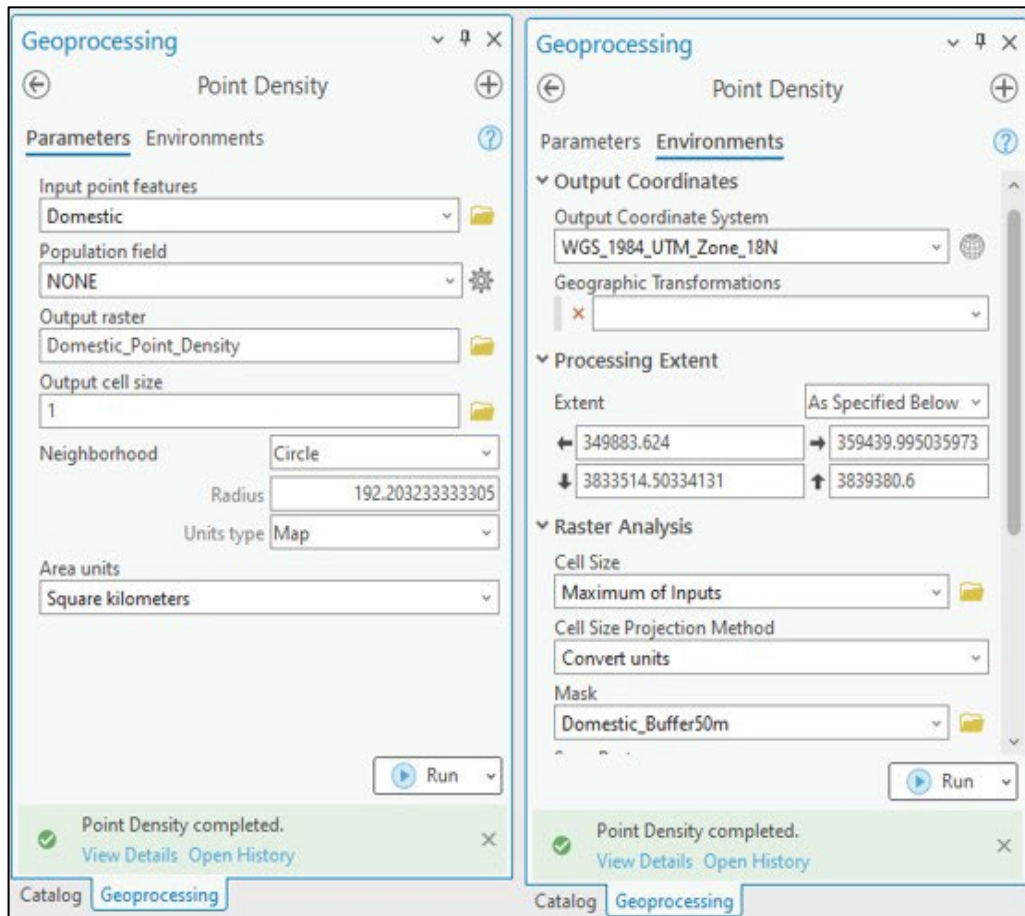


FIGURE 4.10: Screen grab of the author's workflow using the point density tool and the environments tab (Ellis 2023).

Subsequently, each artifact was assigned an approximate date of manufacture that fit into a temporal range, referred to as "terminus post quem" (earliest) and "terminus ante quem" (latest). This dating process aimed to establish the range of time during which each object might have been in use. These date ranges were then categorized into four distinct periods, aligning with the periods of occupation on Shackleford Banks. The primary objective of this step was to identify potential overlaps between artifact dates and known structures from their respective time periods. Integrating this layer of spatial analysis with previously collected data from georectified maps, the goal was to pinpoint areas where artifact dates aligned with the historical context of specific structures and their periods. This process allowed for a more nuanced understanding of the temporal and spatial relationships between artifacts and the island's evolving landscape across different historical eras.

This process was also utilized for each function of these artifacts to approximate if the known historic structures were domestic houses, industrial sites, or buildings of unknown use.

The minimum bounding geometry tool was utilized to understand the boundaries of each function during each period (Figure 4.11). This tool “creates a feature class containing polygons which represent a specified minimum bounding geometry enclosing each input feature or each group of input features” (ESRI 2023). The specific geometry type was the convex hull which created “the smallest convex polygon enclosing an input feature” (ESRI 2023). This means that the GPS points of each artifact, within that function’s period, were used to create the smallest possible polygon. The result of this tool does include parts of the island that were not surveyed. This is because the tool is not creating an outline of the points, but like a rubber band placed around a bunch of nails on a board. The mean center tool was also used in conjunction with the minimum bounding tool (Figure 4.12).

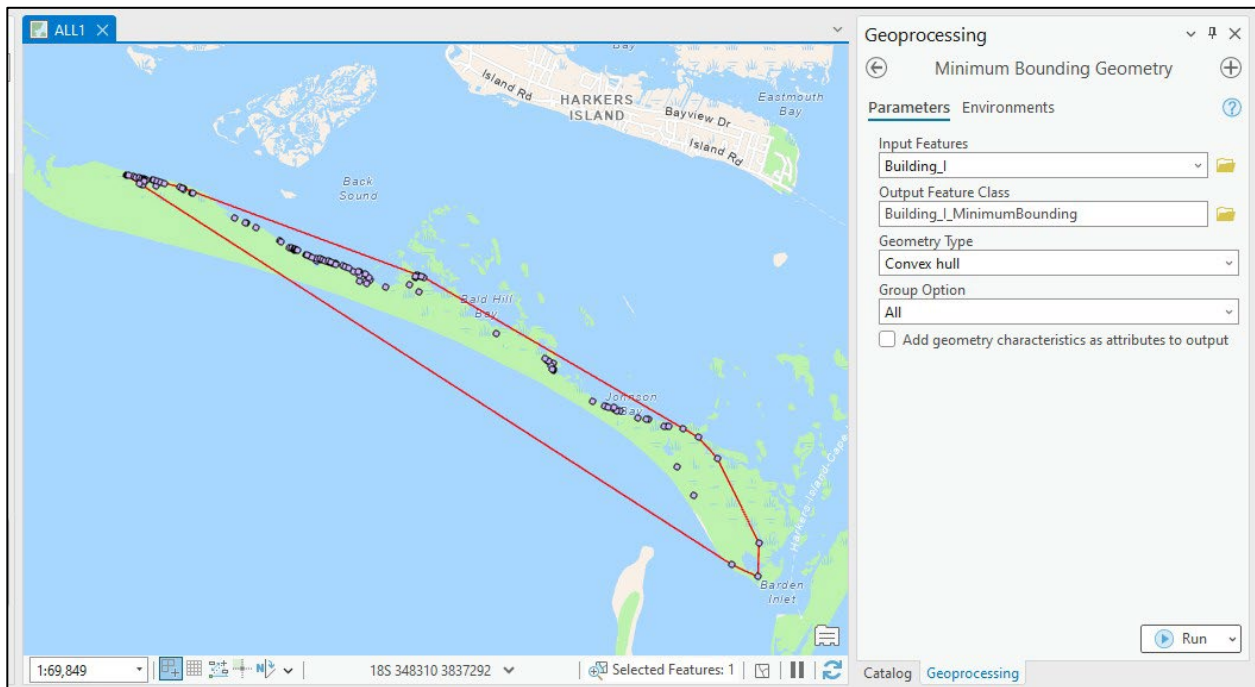


FIGURE 4.11: Screen grab of the author’s workflow using the minimum bounding geometry tool (Ellis 2023).

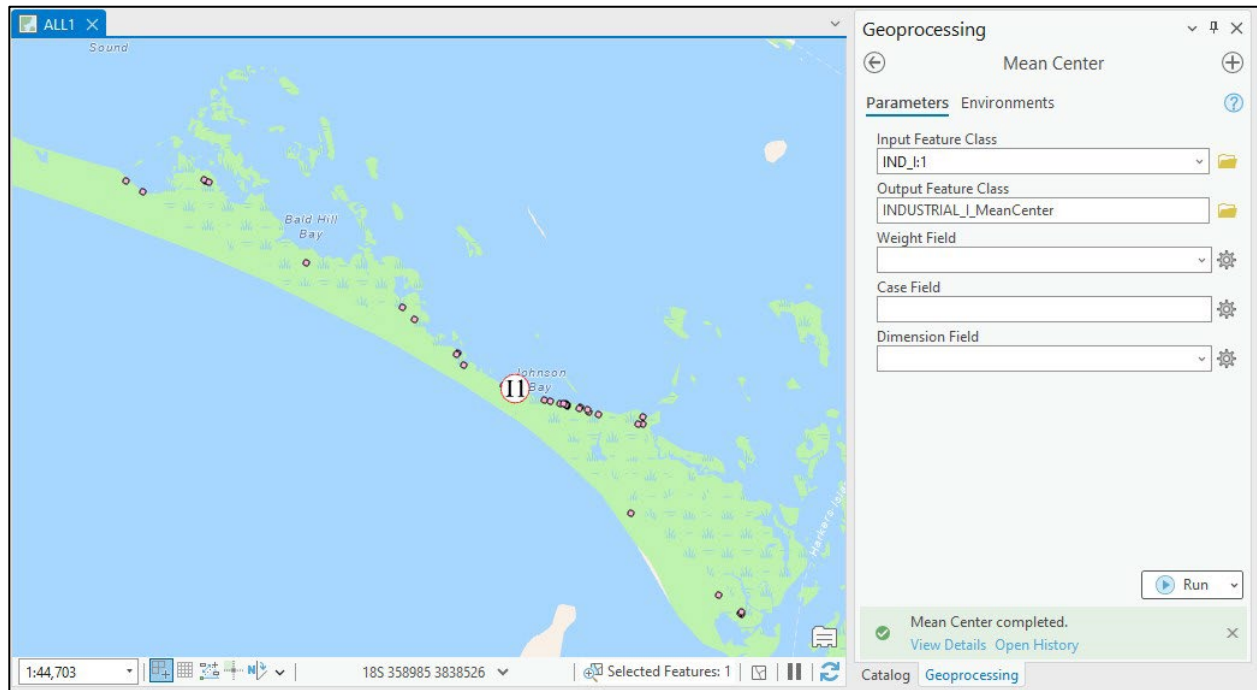


FIGURE 4.12: Screen grab of the author's workflow using the mean center tool (Ellis 2023).

The mean center tool identifies the central point for a set of features (ESRI 2023). This tool was used for each function during their respective time periods and determined the main area of concentration of those GPS points. This was used in hopes of identifying the main area of activity for each function during each period specified in the analysis chapter. Having laid the foundation through extensive methodology, the following chapter shows the findings and insights gleaned from historical research, fieldwork, and thorough data analysis.

## **Chapter 5: An Inventory of Sites and Artifacts on Shackleford Banks: Results of 2021**

### **Fieldwork**

#### Introduction

The following chapter contains an inventory of sites and artifacts that were located and recorded during field work in the summer of 2021. In total, 364 objects were identified and catalogued comprising of six functional categories: building, domestic, industrial, government, unknown, and not applicable to the study (Figure 5.1). How the sites and artifacts were determined to be in each function category is explained under the associated sections of this chapter which follow the order of highest percentage to lowest. Due to the unknown and industrial categories resulting in the same percentage, their order was determined according to the number of artifacts and sites found in each section, with unknown containing fifty-two and industrial containing fifty, making the unknown function category come first. The definitions of these functions are in conjunction with the theoretical perspectives described in Chapter 2. While all data associated with the 2021 field work is included in this chapter, some data was excluded in further chapters as it was found to be irrelevant to this study.

Each section is broken down into different sites and objects by the fabric/material that are associated with the specified function. The identified sites are highlighted locations where the objects in that location determined a possibility that the area may have been an important location during either occupational period of Shackleford Banks. The reasoning behind the determination of a site rather than individually identifying the objects in that location is explained under the identified site's section within each function section.

During the field work, many GPS points associated with artifacts contained a description of multiple different artifacts at that point. At first these points were referred to as a cluster. It was

determined that the data would benefit from separating out the cluster to show each artifact that was in the associated cluster to better categorize them and determine functionality. The GPS point itself was duplicated, the description remaining the same, the artifacts given an object category, but maintained the same overall functionality as they were still considered a ‘cluster.’

Each section contains an associated map showing the site and object distribution on Shackleford Banks with site locations being enhanced and nearby object identifiers indicated. The overall distribution associated with the maps and their sections show certain areas of clustering which may be further considered in the analysis chapter to show more site locations when compared to maps that were georectified before the field work began. Thus, this chapter describes the results of data found, with analysis occurring in the following chapter.

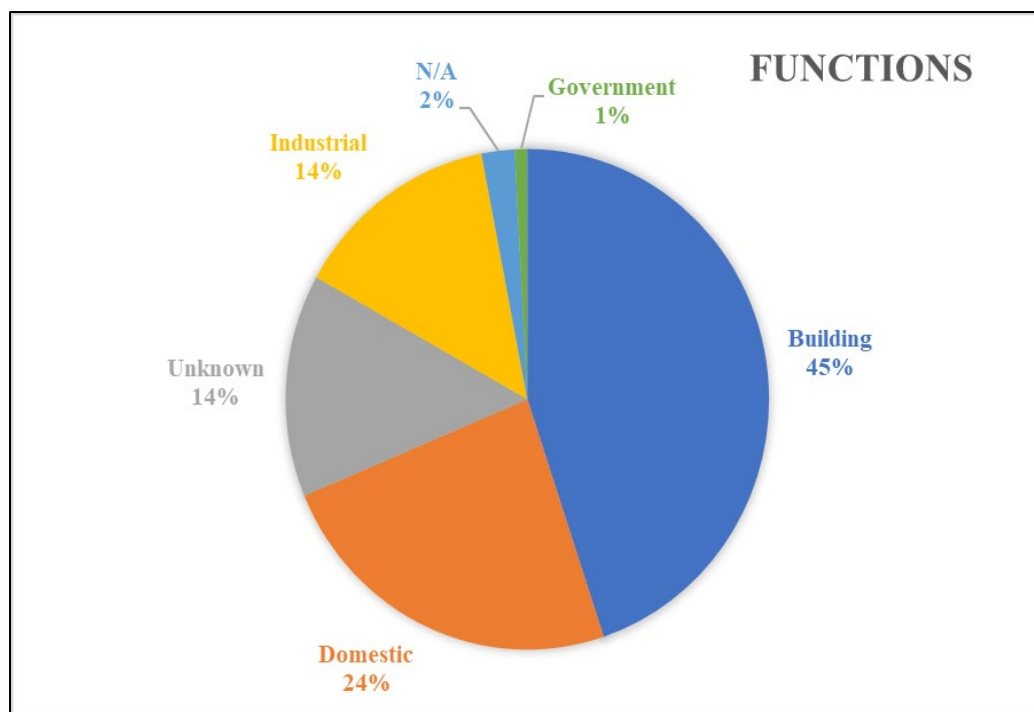


FIGURE 5.1: Pie chart depicting the different categorical functions determined for the Shackleford Banks artifacts (Ellis 2022).

### Building Function

Items fall in the “building” function when they represent materials associated with architectural structures. When there was a cluster of items, such as brick and glass fragments, that were identified

together at a point, that point would be duplicated, and each object category would be placed into their own column in the database table. The function of ‘building’ was then determined for both object categories due to all involved being a part of materials used for architectural means. The most prominent of items surveyed on Shackleford Banks under the function of building was determined to be wooden objects at 48% (Figure 5.2). Brick follows at 29%, iron at 12%, glass and unidentified metal at 3%, tabby at 2%, and stone and concrete at 1% each. Only 1% of the building function contained identifiable sites.

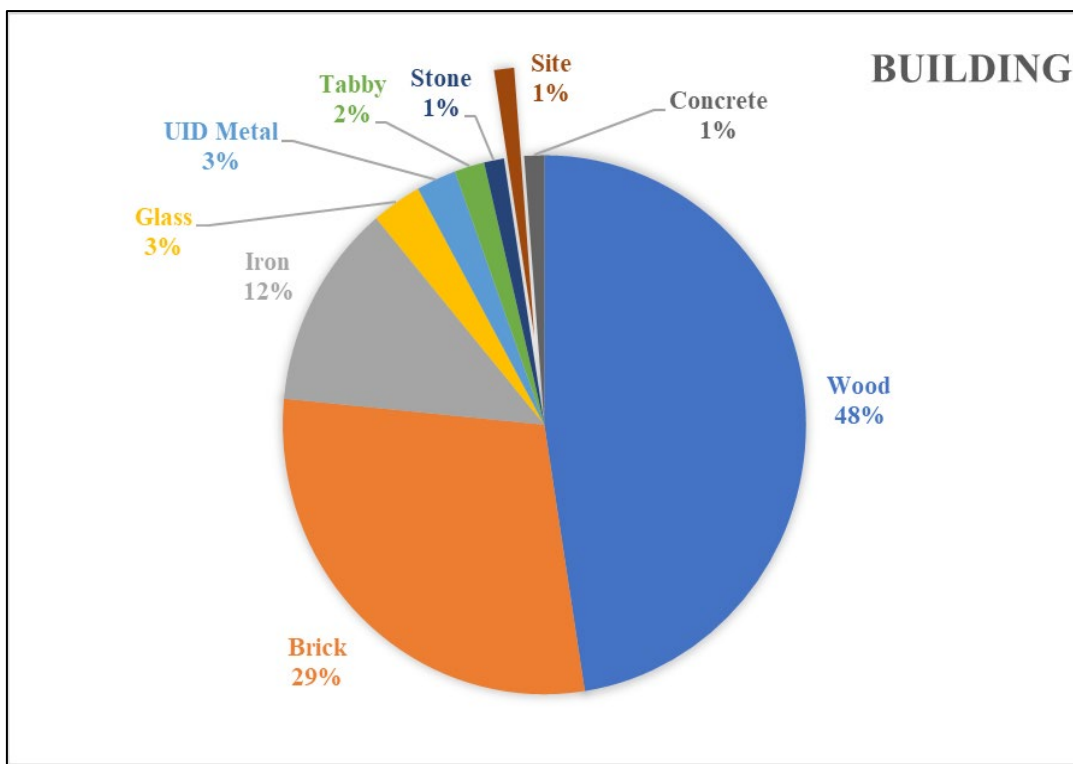


FIGURE 5.2: A pie chart depicting the different object categories associated with the building function (Ellis 2022)

### Identified Sites

Two locations tagged were large enough to be determined as a site (see points 133 and 229 in Figure 5.3). Instead of individually labeling every object category and material in this determination, it was decided to keep the singular area as it stands out as a large number of materials in a singular vicinity. Both sites contain large clusters of brick, wooden planking, tabby, iron, and some small remnants of

ceramics. There was no accurate count taken of the materials found in these two sites, but with the overwhelming number of architectural materials present it was decided to mark these sites in the 'building' function even though a domestic item is present. Furthermore, given our limited knowledge of the ceramic types at the sites, the 'building' function took precedence over the domestic function.

### Wood

Of the 161 locations identified, seventy-seven were classified in the wooden material category. These materials consisted of wooden posts and pilings that are the remains of docks, fences, and stilts that cabins were placed on in the second period of occupation (Figure 5.4). The wooden objects surveyed consisted of multiple objects clustered together, some of which suggest their function. An example of this can be seen in Figure 5.4, where the remains of posts are in obvious lines. From the number of pilings in the same vicinity, it can be determined that a structure was there at one point in time.

Due to the fieldwork being limited to the recording of only surface finds, no diagnostic tests could be done on any of the pilings found to determine an accurate date (e.g., dendrochronological analysis). However, an indication to the age of those in Figure 5.4 is apparent in the indentation of the pilings, suggesting that those areas were once constantly hit with wash from the back sound (sound side of the island). Without additional data supporting evidence, it is impossible to determine whether these places were domestic structures.

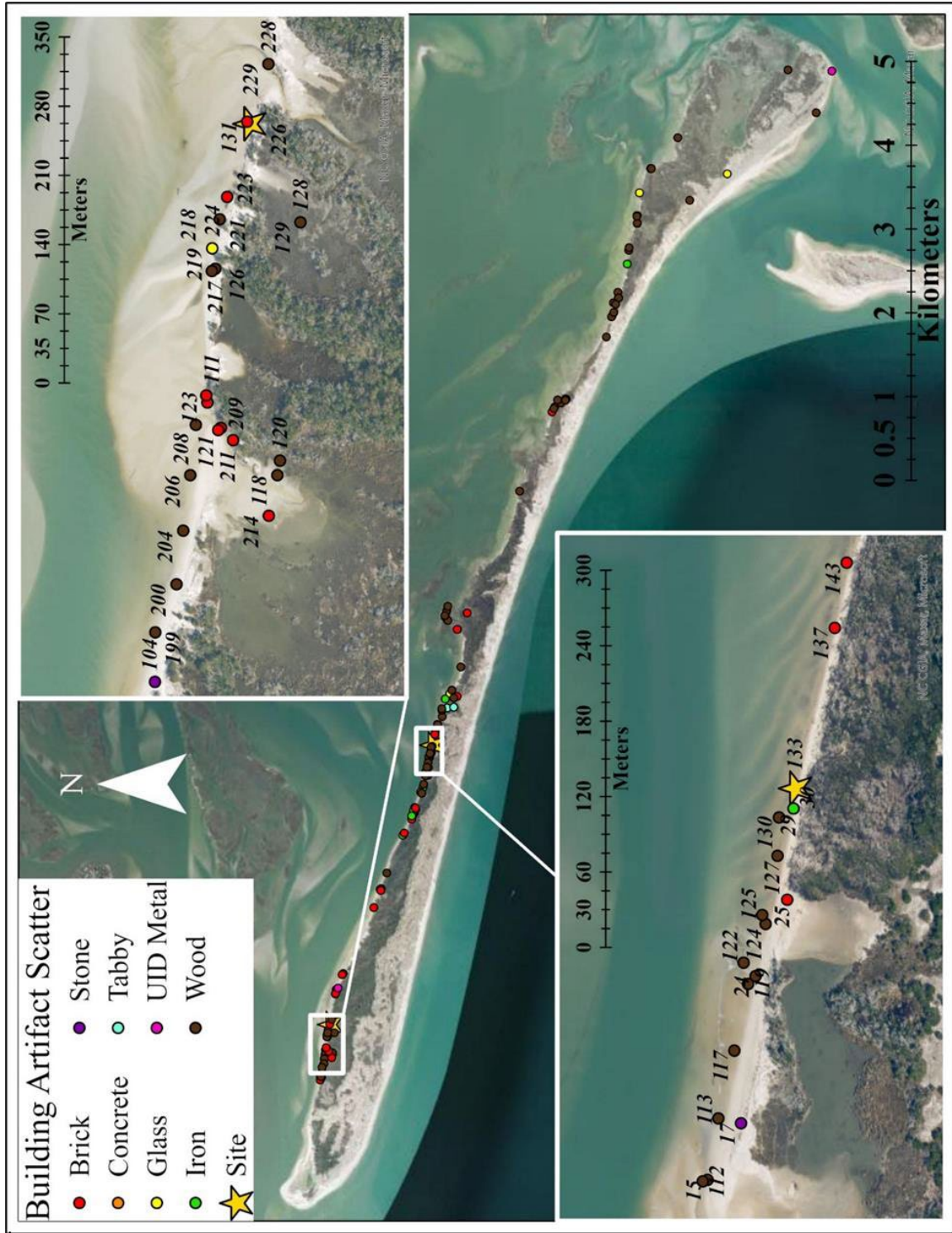


FIGURE 5.3: Map depicting the distribution of artifacts' GPS locations within the building function (Ellis 2022).





FIGURE 5.4: GOPR0244, 06/24/2021, scale bar is one m photo taken by Caleb O'Brien of wooden posts (O'Brien 2021).

### Brick

Forty-seven locations were identified with brick scatter during the field surveys conducted in 2021. Some brick scatter included a single brick, others had clusters or a multitude of brick fragments across a range of multiple meters. Many of the bricks were eroded from having been on a beach for many years, however, the exact number of years is unknown. Most of the bricks located were found to be individual, meaning they were not mortared to any other bricks or other materials. They were found near other materials such as iron or wood, but they were not connected.

One of the locations at which brick was identified differed from the other surveyed. This location yielded a large, brick structure that was broken in two (Figure 5.5). The size of the structure suggests that it was built on Shackleford Banks and did not wash ashore. It is possible, due to heavy over wash, that this may not be the original location of the brick structure. This structure was first speculated to have been an area for trying out oil during the peak of the whaling industry on the island. However, analyzing drawings and diagrams of tryworks that were on Shackleford Banks, it was determined that the appearances between the tryworks and this structure are not similar (see Brimley 1894). The appearance of the angled structure suggests that it is a fireplace. Whether or not

this was used for cooking or warmth is undetermined, though it is likely to have been used for cooking as very few of the communities had available stoves (Phillips 1980).



FIGURE 5.5: P6180028, 06/17/2021, scale bar is one meter. photo taken by Jill Schuler of a brick structure (Schuler 2021).

## Iron

Twenty locations were determined to have iron materials located within them. There were two ways to determine whether an iron object belonged to the building function. The object needed to be in close proximity to another object that was also identifiable as part of the building function, or the object was able to be definitively established as an iron material that was inherently part of materials involved in creating a structure. For example, Figure 5.6 is an iron hinge and could definitively be determined that it was a part of some sort of building material. However, another location with iron material could only be determined under the building function due to brick materials appearing within the vicinity.

Due to the exposure to the elements, all the items are heavily encrusted and corroded. Without the ability to remove the object or conserve them, this makes identifying what the iron material definitively is impossible and makes relying on surrounding resources necessary. While

other corroded iron materials make dating impossible, the hinge shown in Figure 5.6 can give insight into which period may be depicted at the location found. Oral histories that discuss how and what the Shackleford Banks houses were made of in the 19th century explain that the communities would use porpoise or shark hide as door hinges rather than metal ones (Garrity-Blake and Amspacher 2017:232). This does not remove the possibility of this hinge existing in the first period of occupation; however, it was likely used during the second period around 1950s until the NPS obtained the island due to the location of nearby pony pens.



Centimeters

FIGURE 5.6: P6180041, 06/17/2021, photo taken by Jill Schuler of an iron hinge (Schuler 2021).

Of the twenty iron objects, ten were determined to represent distinct fasteners. Fasteners under this category include nails, spikes, and tacks that were used in building structures on the island (Figure 5.7). While it is difficult to determine whether the singular fasteners washed ashore from wrecks or storm debris, the nails depicted in Figure 5.7 are more than likely from actual structures that were built on Shackleford Banks. Due to them having corroded together, it can be determined

that these nails spent an amount of time under water. These nails were found next to another set of corroded nails as well as wooden pilings, which is suggestive of a building function.



FIGURE 5.7: P6190032 (2), 06/19/2021, photo by Lydia Downs and Michaela Hoots of iron nails (Downs and Hoots 2021).

Due to the heavy corrosion, it is difficult to determine the date of manufacture for any of the fasteners. One of the fasteners shown at the top of Figure 5.7 shows the circular head of a nail. The round appearance suggests that this nail would have been created using more advanced technology. This could date that nail to around the 1890s when the modern wire nail was developed but this does not assist in establishing the occupational period during which these fasteners were in use (Nelson 1968:9-12).

### Glass

Five of the locations recorded in the survey contained glass materials that are associated with the building function. Like the iron category, it was determined that these glass fragments were a part of the building function due to them being within the vicinity of other objects in the same function. Most of the glass found during the survey had been melted at some point, which suggests an extremely hot temperature had altered the structure (Figure 5.8). This may be indicative of previously referenced incidents of burning cabins in the 1980s.



FIGURE 5.8: P6190038, 06/19/2021, photo by Lydia Downs and Michaela Hoots of melted glass (Downs and Hoots 2021).

Due to the glass having melted or having been broken at one point in time, no identifying features were located on any of the materials found. This makes definitively dating the materials difficult, so inference is necessary. An example is Figure 5.8, which appears to be a piece of glass melted to a wooden material. This is indicative of a windowpane in a frame and places the date of this material to the second occupation of Shackleford Banks since during the first, oral histories indicate that the houses only had boards over the windows (Lewis 2011).

### Unidentified Metal

Four locations were found to have unidentified metal materials within the function of building. Two of the locations were described in the survey results as containing metal fasteners; however, no corresponding pictures were taken with which to compare the descriptions which makes it impossible to identify the type of metal. One of the locations was a pipe near many wooden pilings and was embedded deep in the sand. The pipe was small in diameter and its buried depth may suggest that it was used to reach water deep in the ground. This suggests this metal pipe was used in the second period of occupation, as during the first period the communities used wells or cisterns to obtain their water (Guthrie 2010; Garrity-Blake and Amspacher 2017:232). Another location of an unidentified metal object was a bracket that was located individually (Figure 5.9). This bracket was

not located near any large clusters of other building materials, but it was concluded to have an architectural purpose. With no definitive markings or knowledge of bracket use and making, establishing a date of manufacture and usage is impossible.



FIGURE 5.9: P6180056, 06/17/2021, photo by Jill Schuler of a metal hinge (Schuler 2021).

### Tabby, Stone, and Concrete

Three locations were determined to have tabby stones, which is an early type of construction material that typically consists of sand, lime, and water with the materials of lime coming from ground up marine shell (Fischetti 2009:169). During the initial surveys conducted, it was theorized that tabby may have been used in building the homes on the island. However, no conclusive evidence from research has shown this to be true and makes dating these tabby materials impossible. Another two locations had stone material that is ballast, or stones that were used to stabilize the weight of ships (Powell 2006; Little 2012:20). This could be indicative of the first period of occupation as these ‘progrgers’ would salvage items from shipwrecks and use anything they could find to build their homes (Barfield 1995:31). The final two locations in this section had materials found to be made of concrete. These items were cinderblocks and were located near several wooden pilings. These modern cinderblocks may be indicative of use during the second period of occupation,

as there are examples of cabins in the Cape Lookout Village being supported on cinderblock or concrete blocks (NPS 2004i:38).

### Domestic Function

The materials found during field surveys in this section belong to the ‘domestic’ function category.

The items or materials in this category fall under what could be considered personal items found in domestic households. The process for this section was like that of the building function category.

The points on the database list that had more than a single object category had the point duplicated and each object listed singularly to make sure both items counted in the final analysis. For example, if wooden pilings and ceramics were found in the same GPS point, the point was duplicated, and the object category of wood and ceramic were listed separately. The most prominent material found in the domestic category was glass at 27% (Figure 5.10). Ceramics follow at 25%, cars at 16%, bricks at 9%, wood at 3%, and unidentified metal, shell, and iron at 1% each. Nine percent of the locations under the domestic function category were considered identifiable sites. Even though the object categories of wood and brick are considered part of the building function on their own, in this section these items were determined to definitively be a part of a domestic household.

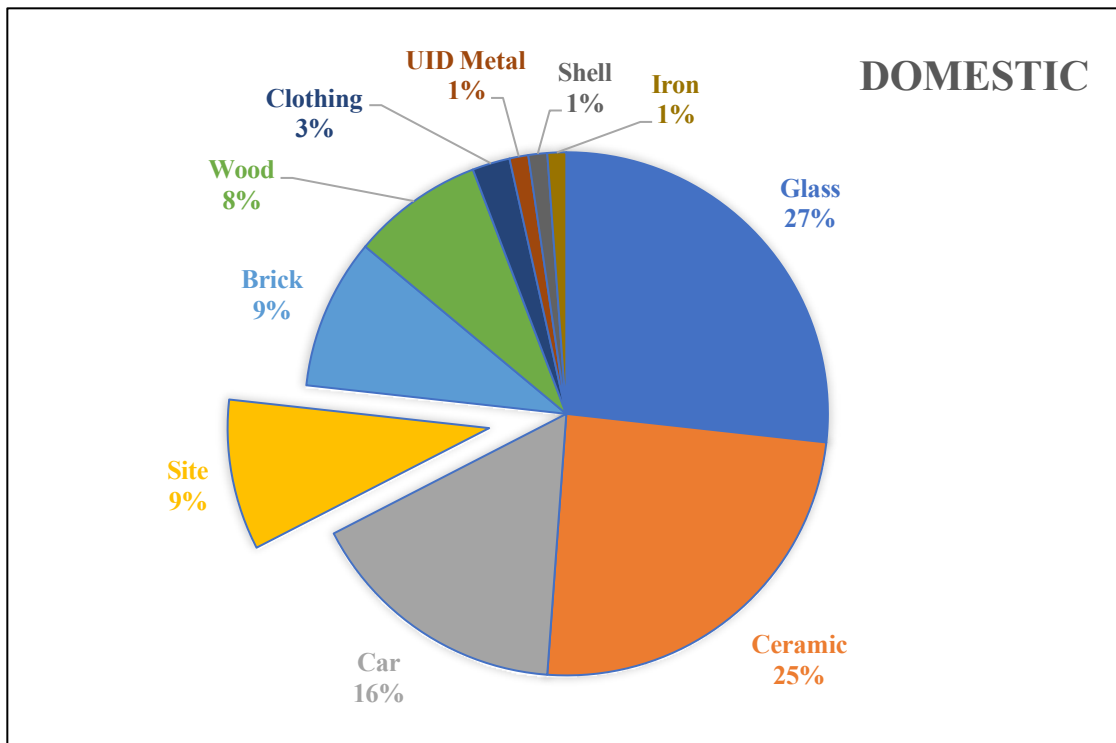


FIGURE 5.10: Pie chart depicting the different object categories associated with the domestic function (Ellis 2022).

### *Identified Sites*

Eight recorded locations were considered prominent sites in the domestic function (see points 35, 320, 341, 343, 351, 352, and 364 in Figure 5.8). A defining factor that these sites belong in the domestic function was the location of these sites was more inland on the sound side of the island. All sites contained a considerable number of artifacts scattered that included bricks, ceramics, nails, and wooden pilings. Similar with the site object category in the building section, it was determined that due to the number of items found in these locations the points would not be duplicated and have the object categories separated. This is because the area is believed to be a full site and all the items need to be considered together rather than separately.



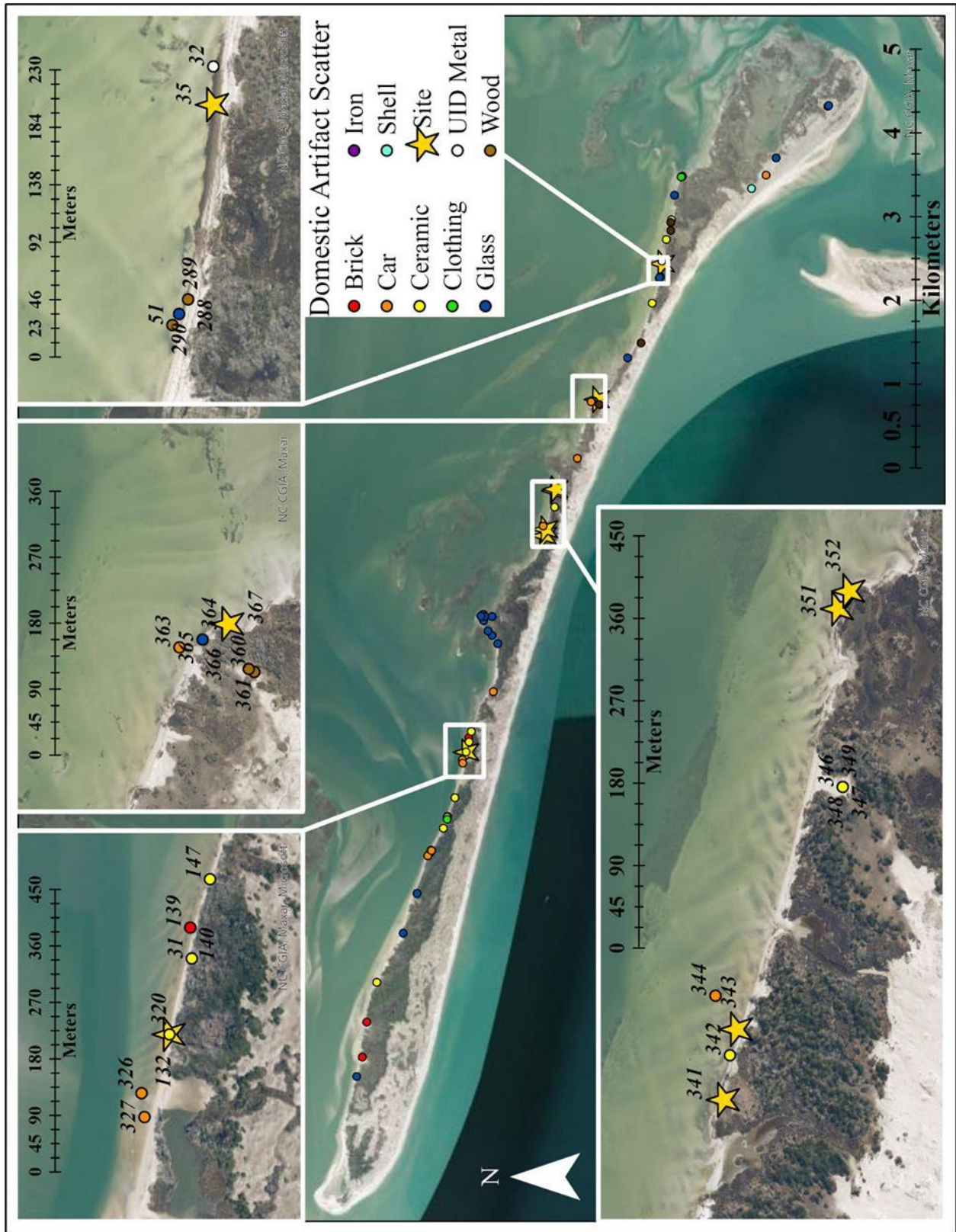


FIGURE 5.11: Map depicting the distribution of artifacts' GPS locations within the domestic function with possible site locations identified by stars (Ellis 2022).

Some of the most defining items found at one of these site locations were many kitchen items such as a pot, a pan (Figure 5.12), a fork, and a spoon. Some of these artifacts were encrusted in corrosion and barnacles from being underwater; however, they were easily identifiable for their intended use. This site provides suggestive evidence that this site was a domestic structure, such as a house or cabin. Without any defining features, it makes determining the period of use difficult.



FIGURE 5.12: P6200031, 06/19/2021, photo by John Detlie of a concreted frying pan (Detlie 2021).

Another site contained roof shingles along with burned bricks, glass, ceramics, and a portion of a structure. The shingles are indicative of the second period of occupation as during the first, people used shingles made of cypress or juniper trees to cover their homes (Barfield 1995:32). Other evidence, such as the burned bricks and melted glass, also suggests this would have been a structure from the second period of occupation as that is when the locals set fire to their own cabins on the island.

The final site location is the only cemetery to have a confirmed location. Named Wade Shore Cemetery, it was known to the field surveyors prior to the surveys completed. No measurements were taken to determine the size of the cemetery nor was a count of the number of headstones, though it is believed to be around twenty headstones with dates varying from the 1850s to the early 1900s (Thompson 1980). The surnames that have been inscribed on headstones include one Brady, one Guthrie, one Hancock, five Lewis's, four Moore's, one Parsons, two Willis's, and one Yeomans. The names of Lewis and Moore are corroborated to have lived in the Wade Shore area of Shackleford Banks in an architectural survey report conducted in 2012 (Little 2012:64).

### Glass

Of the eighty-six locations identified, twenty-three were found to include glass fragments, and most of those fragments were determined to have been a part of a glass bottle even when the material was melted. These bottles and fragments varied in color such as brown, clear, blue, black, green, and sun-turned purple. Due to spending time on a beach with constant sand and water running over the materials, many of the fragments have turned into what beachcombers call sea glass or weathered glass (Whitten 2023). A few of the bottles found were intact and some of those that were fragmented had makers marks or visibly identifiable details.

One clear bottle had the words "federal law forbids the sale or re-use of this bottle" on its side and "D-126, 18, a diamond mark, 53, and made in the USA" on its bottom. The inscription about federal law dates the bottle to a time between 1934 and 1964 when after prohibition, the United States government made it a law to emboss that phrase in the side of liquor bottles and was then repealed in 1964 (SHA 2022). "D-126" is the user permit for the liquor which is owned by Seagram's (Lockhart 2010:58). The number "18" is the bottle maker permit number and the diamond mark shows the bottle was made by the Diamond Glass Company in Pennsylvania (Lockhart et al.

2015).

A full, amber-colored bottle had “Clorox” embossed on the band near the neck and “reg.”, a diamond mark with an ‘O’ and ‘I’ in the middle of it, the number “18”, “U.S”, a diamond with “Clorox” inside, “pat.”, the numbers “14” and “51”, and “off” on the bottom (Figure 5.13). This bottle also has a screw-top type mouth. According to Clorox’s vintage bottle design website, screw-tops began manufacture and use in the 1940s (Clorox 2022). The outlined lettering near the neck of the bottle began being applied in 1951. The diamond mark with the ‘O’ and ‘I’ in it is indicative of the Owens-Illinois Glass Company (Lockhart and Hoenig 2018:299-300). The number “14” means the bottle was made at the fourteenth factory in Bridgeton, NJ, and the number “51” is the date code for 1951 (Lockhart and Hoenig 2017:303-308).

Bottles and shards of glass were not the only type of glass fragments found on Shackelford Banks in the domestic function. One item was a standard, incandescent lightbulb (Figure 5.14). Other items were jars with embossed designs around the whole jar; although those items were not able to be completely identified but were still determined to have a domestic function.



Centimeters

FIGURE 5.13: P6170045, 06/16/2021, photo by Stephanie Sterling of the bottom of a Clorox bottle (Sterling 2021).



Centimeters

FIGURE 5.14: GOPR0128, 06/24/2021, photo by Lydia Downs of a lightbulb (Downs 2021).

## Ceramic

Twenty-one tagged locations contained ceramic materials such as whiteware, native American pottery sherds, terracotta pieces, stoneware, earthenware, and porcelain. The two native American sherds appear to be fabric impressed rather than cord marked with one being a reddish-brown color (Figure 5.15) and the other being brown almost black in color. From research, these two pieces may be associated with the Cape Fear or Hanover (Carteret) ceramic tradition of the Middle Woodland (300 B.C. – A.D. 800) period (Blanton 2022, elec., comm).



FIGURE 5.15: P6170037, 06/16/2021, photo by Stephanie Sterling of a Native American ceramic sherd (Sterling 2021).

Many of the earthenware sherds are blue shell-edged pearlware, dipped banded wares, and one dipped mocha decorated. Makers marks were able to be identified on four of the ceramic sherd pieces found on Shackleford Banks. One sherd had a partial mark on it with “Granite,” the letter ‘P,’ and “Co.” visible (Figure 5.16). A picture was located showing the entire mark was “Semi-Granite, E.B.P. Co.” and was determined to be the mark of the Edwin Bennett Pottery Company from Baltimore, Maryland (MD), which was in operation from 1846-1936, but this specific mark was used from 1892 to around 1895 (Barber 1904).



FIGURE 5.16: GOPR0146, 06/24/2021, photo by Dr. Jason Raupp of two ceramic sherds (Raupp 2021).

Another visible partial mark is “warrant,” found on the bottom of a plate. A picture showing that the entire mark had the word “warranted” on it and the designs underneath appear to be a crown. This mark is from the Maryland Pottery Company in Baltimore, MD and was used from 1880-1892 (Barber 1904).

Other makers marks include one with the word “China,” and another is “St., Fine, and Japan 103”. The sherd with the word “China” on it appears to be the British Royal Coat of Arms that were used on ironstone or white granite ware in America in the 1870s (Kowalsky and Kowalsky 1999). The second mark is St. Regis Fine China Japan 103, which was a pottery company located in Japan with an unknown manufacture date. Many of these photos required significant editing, such as

lowering the brightness and exposure while heightening the contrast, to counteract the effects of glare and poor photo quality.

### Cars

Fourteen tagged locations were determined to have pieces from automobiles left on Shackleford Banks, whether through abandonment or attempts at strengthening the dunes. What remains of those vehicles in most areas are covered in oyster encrustation and without further examination would not easily be recognizable. Luckily, some of the material such as the window glass and rubber of the tires has been preserved (Figure 5.17).



FIGURE 5.17: P6190001, 06/19/2021, scale Bar is one meter, photo by Lydia Downs of the remains of a car (Downs 2021).

There are two instances where there was no glass or rubber to indicate that the material surveyed belonged to a car. One was determined to be a car engine because of its appearance and its close proximity to the location of a car that did have partially intact rubber tire. The other location



that contained relatability to a car part was determined through closer examination of photographs which revealed two pieces of the rim of a tire.

### Brick and Wood

Eight tagged locations contained brick materials and seven other locations contained wooden materials, both of which belonged to the domestic function rather than the building function. If a point included a piece of brick and a piece of ceramic material, then the point was duplicated, and each object category would label their own point. Having a piece of ceramic in the same vicinity as the wood or brick is what determined the domestic functionality of the items. The determining factor for the wooden materials was the burned wooden pilings that were found to be organized in rows, which is an indicator of cabins being burned on Shackleford Banks in 1985. However, one wooden item was not a burned piling but was placed under this function because a piece of ceramic was found in the vicinity. This item is the handle of a scrub brush, but it is difficult to determine from the picture alone (Figure 5.18).



FIGURE 5.18: GOPR0230, 06/24/2021, photo by Caleb O'Brien of a wooden brush (O'Brien 2021).

### Clothing

Only two items of clothing were found through all of the field surveys. One item was the heel of a shoe, with visible holes where nails would have been driven through to attach it to a sole. The second item was, upon closer inspection, discovered to be the pull tab and slider of a zipper after

having initially been thought to be the pull tab of a soda can (Figure 5.19). The zipper piece has been heavily corroded due to exposure to the elements which makes it difficult to determine a possible date of manufacture.

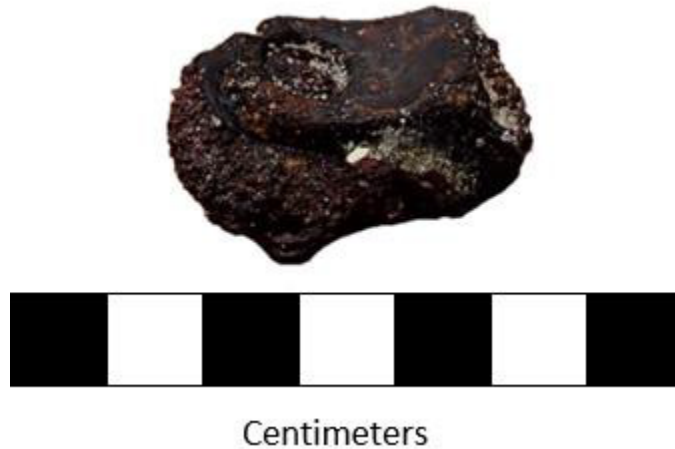


FIGURE 5.19: P6160010, 06/16/2021, photo by Jill Schuler of a concreted zipper pull (Schuler 2021).

#### Unidentified Metal, Shell, and Iron

One location was tagged with unidentified metal material and another singular location was tagged with a cut marine shell. The unidentified metal pot is described as a “filled in pot or bowl.” However, no picture was taken of this object, so the notes taken on where the object was found, and its description are the only available evidence to apply to this analysis. The iron piece was in the same vicinity as other materials, such as ceramic. This point was duplicated with the other materials, and all were determined to fall under the domestic function as they were located near ceramic pieces.

A portion of a lightningwhelk shell (*Sinistrofulgur perversum*) exhibited artificial cut marks on it rather than jagged edges which would suggest breakage (Figure 5.20). This item was also found farther inland which would support the determination that this shell was cut rather than broken and eroded over time by the weather and waves. This cut marine shell could be indicative of the first period of occupation of Shackleford Banks, before electricity was available. Early communities used conch shells as lanterns or candles by filling them with whale oil (Garrity-Blake and Amspacher

2017:232).



FIGURE 5.20: GO040129, 06/24/2021, photo by Lydia Downs of a cut marine shell (Downs 2021).

#### Unknown Function

The unknown function category is full of materials that have an unknown or indeterminable function. These objects do have a function, however; it is not possible at this time to determine them without the full context of how the item was originally used or how it was deposited. The most prominent material was wood at 52% (Figure 5.21). Iron follows at 25%, glass at 9%, clusters and unidentified metal at 4%, and stone and bricks at 2%. Another 2% of the tagged locations were determined to be identifiable sites. While wood and bricks would normally be considered part of the building function, these materials were determined to have an unknown function as will be described.

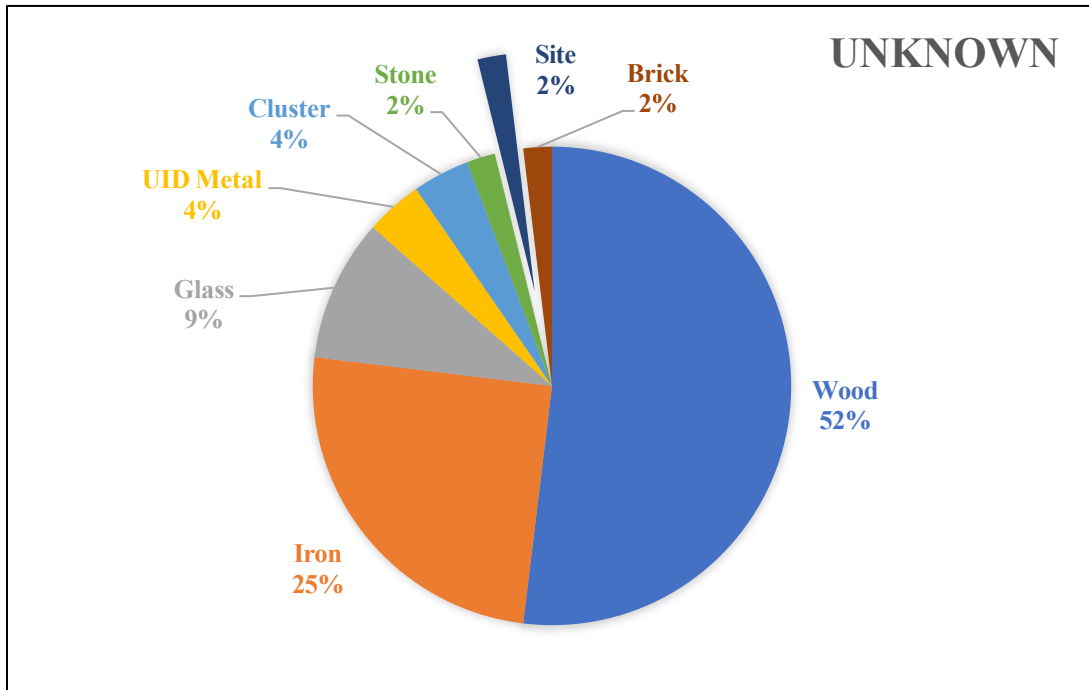


FIGURE 5.21: Pie chart depicting the different object categories associated with the unknown function (Ellis 2022).

### *Identified Site*

One site was placed in the unknown function group as the only information that was associated with it was “debris field” (see point twenty-eight in Figure 5.22). One picture was taken of the location; however, the quality was poor, and no specific materials can be discerned from it. This location was established to be a site instead of a cluster as the picture suggested artifacts were dispersed over a wide area. Without any materials listed or able to be established in the photo taken, it is impossible to verify any functions or dates associated with the possible site.

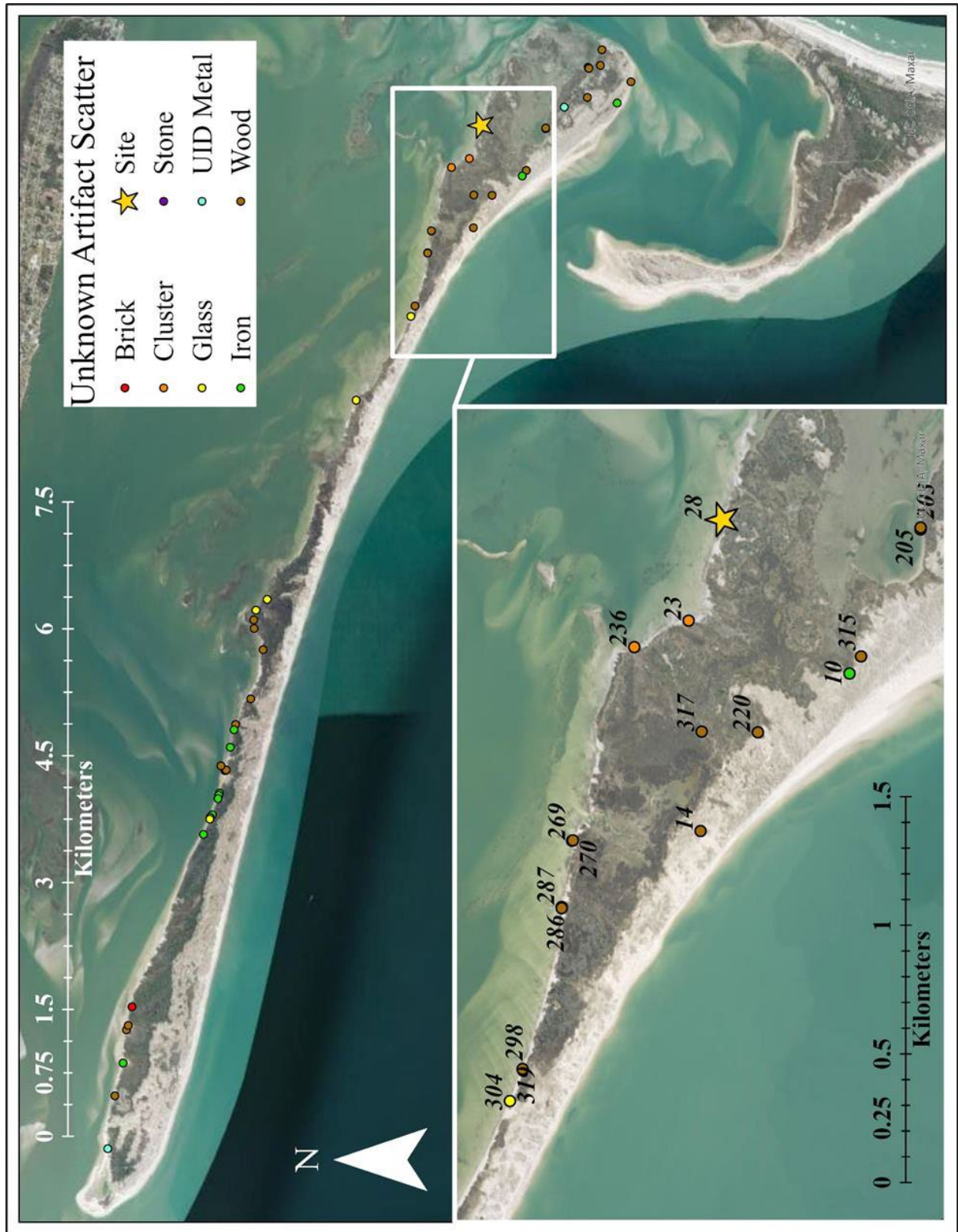


FIGURE 5.22: Map depicting the distribution of artifacts' GPS locations within the unknown function (Ellis 2022).

## Wood

Twenty-seven of the fifty-two tagged locations contained wooden objects that belong to the unknown function. These objects include timbers, sheets of wood, planking, and boards. A specific function is unable to be determined for these wooden materials as most of them were found in isolated locations with no other defining features or artifacts in the vicinity. Some of these materials were in piles that were labelled as storm debris by a CALO NPS sign, likely indicating that this debris washed ashore during a recent storm and the park rangers had canvassed the area to consolidate the debris to be removed later (Figure 5.23). The objects found in the storm debris could be remnants of old housing that were located on the island or timbers from shipwrecks that are known to have occurred near Shackleford Banks.

Some of the descriptions suggest that these wooden materials could also be a part of demolished duck blinds, as waterfowl hunting is popular in and around the seashore and the National Park issues a lottery service for where people can place temporary blinds for the hunting season (NPS 2022). These pieces could also be remnants of boats that were either left behind or had washed ashore at some point.



*FIGURE 5.23: G0031243, 06/24/2021, scale bar is one meter, photo by Michael Hoots of wooden debris (Hoots 2021).*

## Iron

Thirteen tagged locations were determined to have iron materials of indeterminate function. These iron fragments were not in the vicinity of any other materials that may have been beneficial in determining the object's function. The iron materials were encrusted with corrosion and buried in the sand (Figure 5.24). Without being able to conserve them and remove the encrustations, it is impossible to adequately establish a proper function and period of use.



FIGURE 5.24: P6170016B, 06/16/2021, photo by Stephanie Sterling of iron piece (Sterling 2021).

### Glass

Five tagged locations were determined to have glass material of an unknown function as these fragments were found by themselves and not near any other materials that could assist in determining a proper function. Four of the five glass objects listed in the spreadsheet made for Shackleford Banks's field survey have no pictures associated with the GPS tags and the descriptions given are the only available information to determine the function of them. Due to this lack of information, it is also impossible to determine any period or range of use of the fragments.

There is one picture of a piece of melted glass from the survey, but no features are discernible (Figure 5.25). The translucent, aqua-tinted color could indicate that this fragment was a piece of a jar or bottle. According to the Society for Historical Archaeology, aqua glass fell out of common use around the 1920s, which could indicate that this piece of glass is from the first period of

occupation (SHA 2022). However, the sharp edges and distinct shape of the fragment suggests it could also be sand particles that melted together to form glass under extreme heat.



FIGURE 5.25: P6160009, 06/16/2021, photo by Jill Schuler of melted glass (Schuler 2021).

### Cluster

Two tagged locations were identified only as a “cluster” and were placed in the unknown function category. The only descriptions provided for these two locations was “debris field”, which makes it impossible to determine what materials were sighted within the area, their functionality, and any period or range of use. No photos are associated with these clusters, so no clues can be gathered from photographic evidence.

### Unidentified Metal, Stone, and Brick

Two locations were tagged with the unidentified metal object category. Both were determined to be wire cables of which their original use could not be established without associated materials (Figure 5.26). Although the intended use of these cables is unknown, it is likely of a modern function and not associated to either period of occupation on Shackleford Banks.





FIGURE 5.26: P6180003, 06/17/2021, photo by Jill Schuler of a metal cable/wiring (Schuler 2021).

At one location three stones were identified, of which the function could not be determined (Figure 5.27). Finally, the location of the bricks was believed to have been a fire pit that may have been used by people camping on Shackelford Banks. These bricks were likely scavenged from the surrounding area to create a fire pit, making their original function indeterminate.



FIGURE 5.27: P6160028, 06/16/2021, photo by Jill Schuler of a stone (Schuler 2021).

### Industrial Function

The materials in this section fall under the ‘industrial’ category. This category helped determine which areas of Shackelford Banks were used for industrial purposes. These purposes may have included whaling, fishing, or pony penning as discussed previously. The most prominent object

category in this function is wood at 60%, followed by barrels (wood or iron) at 28%, and unidentified metal, iron, glass, and ceramics at 2% each (Figure 5.28).

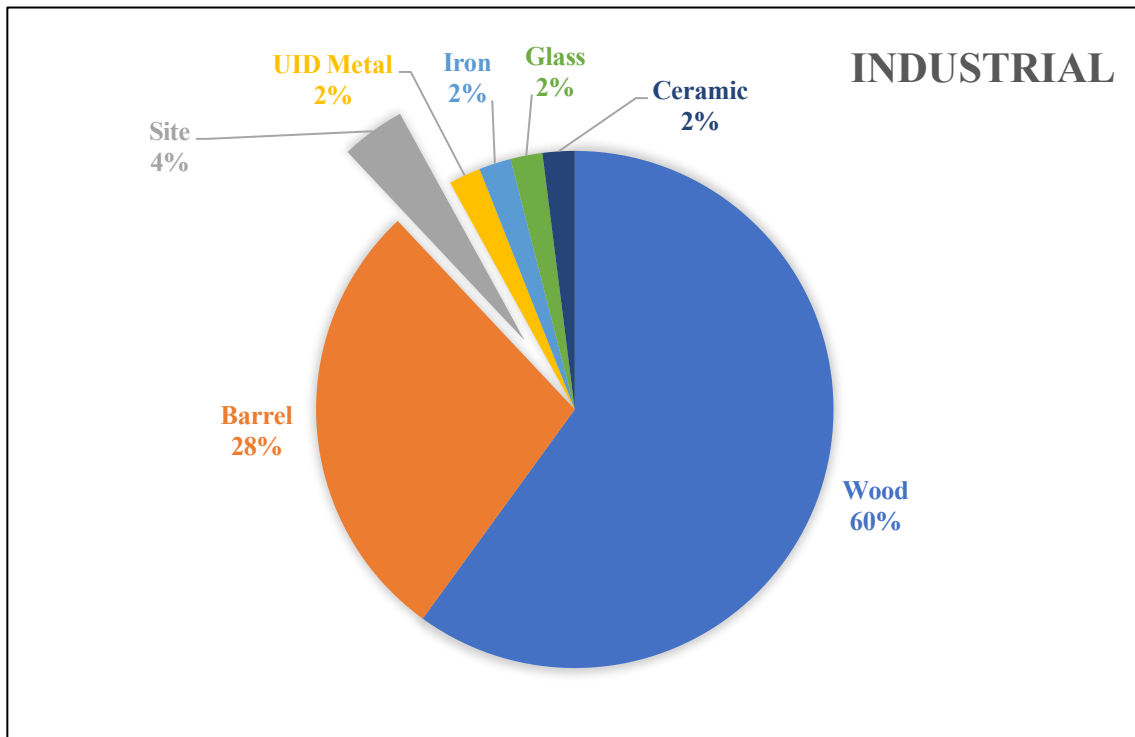


FIGURE 5.28: Pie chart depicting the different object categories associated with the industrial function (Ellis 2022).

### Identified Sites

Two locations were determined to be industrial sites based off the information provided in the description of the GPS point, as no pictures were taken (Figure 5.29). One of the sites was described as having the remains of a pony pen along with pieces of iron and brick. The pony pen remains indicate that the pony penning industry took place in that area so that people could gather the ponies and eventually sell them off for profit. The species of horse and age is unknown as they were only ever referred to as banker ponies.

The second site location was described as having pieces of porcelain, glass, iron, bricks, and a crab pot. The crab pot is an indication that this area may have been a location for either catching or shelling crabs. The porcelain items could indicate plumbing such as a sink or a toilet and establish this site in use during the second period of occupation.

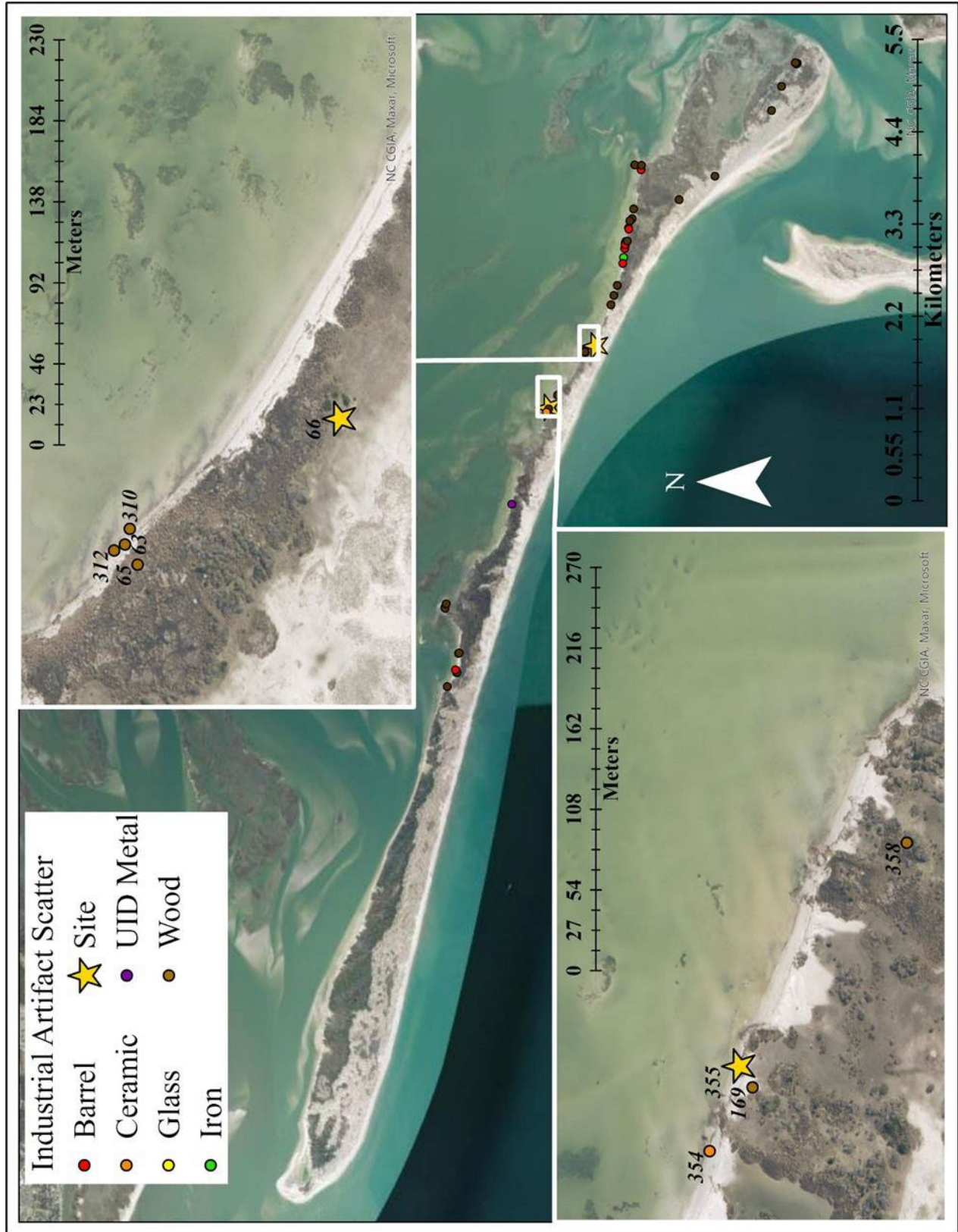


FIGURE 5.29: Map depicting the distribution of artifacts' GPS locations within the industrial function (Ellis 2022).

## Wood

Industrial wooden materials were found at thirty of the forty-nine tagged locations identified through the Shackleford Banks survey. Most of these materials consisted of long lines of posts or pilings that could indicate these remains were not a structure but rather a jetty or fencing for pony penning. Based on the in-situ length of the wooden pilings in Figure 5.30, this was the location of a jetty. Whether they were private jetties is undetermined, but it is likely the jetties were used to dock vessels in the shallow marshes used as breakwater, as these remains are located on the sound side of the island. Establishing a period of construction and use is difficult without additional historical information.



*FIGURE 5.30: GOPR1298, 06/24/2021, no scale available, photo by Stephanie Sterling of wooden pilings covered in oysters with red lines running parallel to annotate the pilings (Sterling 2021).*

Some of these wooden pilings appear to be large branches that have been placed in the ground. This can be attributed to the fences used for pony penning events that were held on the island. As shown in Figure 5.31, some of the fences used for pony penning were built from processed lumber and others appear to have been constructed using harvested materials that were readily available on the island. Although the photo dates to the 1940s, it is possible that it could be earlier or later.



*FIGURE 5.31: Image AV.5127.2 from the North Carolina Digital Collections titled Banker Pony Penning, taken by Aycock Brown (1945-1950).*

Nine of the thirty wooden materials found were identified as telephone poles. The exact date of when telephone poles were erected on Shackleford Banks is unknown, but maps from the 1940s detail a telephone line that extends from one end of the island to the other (USGS 1949). These poles have been placed in the industrial function category because they deal with the telephone and electrical industry during the second period of occupation. It is likely this line was destroyed when the National Park Service took over in 1985 and these poles are the remnants.

### Barrels

Fourteen barrel remains were tagged on Shackleford Banks. These remnants were typically wood that had degraded down to a circle of wooden remainders (Figure 5.32). These barrel ruins are kept separate from the wooden material category as they are an important indication to the use of these

objects and can be properly identified rather than classified simply as wooden remains.

Barrels were used in the fishing industry to store salted fish, such as mullet, to preserve them for a long journey (Little 2012:55; Stanford III 2014:72). Barrels were also used to collect whale oil after it was tried-out on the island and then shipped over to Beaufort (Whisnant and Whisnant 2015:90). These barrel remains could be evidence of the first occupation of Shackleford Banks and may indicate the possible locations of where whales were tried-out or where fishing activities took place.



FIGURE 5.32: GOPR0218, 06/24/2021, scale bar is one meter, photo by Lydia Downs of barrel remains (Downs 2021).

#### Unidentified Metal, Iron, Glass, and Ceramic

A number of singular objects were identified and included in the Industrial Function group. These include one location with an unidentified piece of metal; one location with a piece of iron; one location with a piece of glass; and one location was described as a ceramic piece associated with a possible septic tank. Both the unidentified metal and iron piece were described as pipes, but no pictures were taken of either item. From the description of these two items, the conclusion was that

they were used for industrial purposes such as plumbing appliances. It is unknown whether these objects were found in the ground or on the surface, but the likelihood is that they are from the second period of occupation.

The glass that was found is described in the collective ECU summer 2021 field school database as an intact bottle located near barrel staves. This places the glass in the industrial category as it was in the vicinity of another industrial item. No photographs provide a description of the bottle, so the GPS tagged description is the only indication of identity. Dates are undetermined as there is no corroborating information of any marks that were found on the glass bottle.

One area had pieces of what are described as part of either a septic tank or septic system. No images are available, making the description given the only evidence of the object. There are no sources that explain how the communities of Shackleford Banks used the bathroom, but it is likely that the septic pieces found were modern and could belong to the second period of occupation. It is also possible that this could be part of a system that the National Park Service installed when the island became a part of Cape Lookout National Seashore as there are facilities on the island for public use.

Not Applicable to Study

Some identified materials were GPS tagged and photographed but found to not be relevant to the field surveys completed at Shackleford Banks. Though excluded from subsequent analysis, since these items or materials were recorded they should be mentioned for the sake of transparency. Some of the object categories may have been taken simply for a reference, accidentally recorded, or were thought to be relevant at the time but later determined not to be.

*Nature*

Five of the eight “nature” tagged locations were included in the original field surveys. Three of the

five locations were areas near what was believed to be Mullet Pond and have since been confirmed to be correct based on map research. One tagged location is described as a very packed area of sand and was believed to be flooring of a house during the first period of occupation; however, without photos and by description alone it is unreliable. The final tagged location is described as possibly being the location of Lookout Hill. The description is the only source of information available, but it is likely the GPS point was taken at the top of a sand dune and is used to show elevation. This GPS point could indicate the usefulness of tall sand dunes to spot whales during whaling season.

### *Tracks and a Road*

One location was tagged as the end of an apparent road and another location was tagged with the description of tire tracks. Both locations are used by the National Park Service for off-road vehicles to patrol or clean up the island. While it is known that cars were used on the island, as evidenced by the previously mentioned remains of vehicles, any tire tracks or roads that were used in the 1960s would be gone due to weather activity and natural growth.

### *Iron*

The specific location tagged with a piece of iron was an iron buoy that had drifted ashore at some point in time. This buoy is not relevant to the study of occupational periods on Shackleford Banks.

### Government Function

The final functional category from the Shackleford Banks field survey has a governmental association. There are three tagged locations in total and two of them are United States Geological Survey (USGS) markers while the other one is a National Park Service datum point. One of the USGS markers is a triangulation station, as shown from the triangle stamp on the bronze disk. This is a reference point to the station for 'Jack,' as noted from NGS data sheet recovered for that station (NGS 2022). These reference points were established in 1947 and set in six-inch, concrete-filled



stovepipes which is shown in the photo (Figure 5.33).

The second USGS marker is inscribed with “NO 4, Bull, 1962,” and an arrow. This reference marker was placed in 1962 to show where triangulation station Bull is located. The description given by the NGS data sheet says that the bronze disk was clamped to a pipe and driven deep into the ground (NGS 2022)

The final marker is an NPS marker inscribed with NPS B1-CALO 02. No information can be found on the datum marker, but from the inscription it is likely that this marker was placed in that location in 2002.



FIGURE 5.33: GOPR0210, 06/24/2021, scale bar is one meter, photo by Dr. Jason Raupp of a USGS marker (Raupp 2021).

## Conclusion

This chapter has inventoried the multitude of sites and artifacts discovered during fieldwork conducted in the summer of 2021. A total of 346 objects were identified and cataloged, classified into distinct functional categories with the rationale of assisting in understanding the representation in analysis. This arrangement led to sections dedicated to building, domestic, unknown, industrial, not applicable, and government functions.

It is important to note that the definitions of these functions align with the theoretical perspectives outlined in Chapter 2, providing a comprehensive framework for understanding the roles of these sites and artifacts within the context of Shackleford Banks' history. While all data associated with the 2021 fieldwork is included in this chapter, some details may be excluded in subsequent chapters as they are found to be irrelevant to the overarching study.

Each section expanded upon the sites and objects based on fabric/material associations, shedding light on the connections between these elements and the specified functions. The concept of identified sites, or highlighted locations where objects collectively suggest significant historical importance, has also been introduced. This strategy assisted in further analysis and helped delineate areas of potential interest for each of Shackleford Banks' occupational periods.

The chapter addressed the handling of GPS points associated with artifact clusters, a methodical approach that enhanced categorization and functionality determination. The provided maps visually illustrated the distribution of sites and objects across Shackleford Banks, offering valuable insight into clustering patterns further explored in the analysis chapter. The goal is to unveil the stories and historical significance that these sites and artifacts hold and contribute to a richer understanding of Shackleford Banks' past.

## **Chapter 6: The Geospatial Analysis of the Findings from ECU's Summer Field School**

### Introduction

This chapter represents a multifaceted exploration of the establishment, development, and eventual abandonment processes that characterize the coastal communities of Shackleford Banks in Carteret County, North Carolina. To achieve this goal, a geospatial analysis is applied through which historical, cartographic, and archaeological evidence is examined. Within the scope of the geospatial analyses outlined in this chapter, there are a series of questions. Do patterns emerge that reveal a correlation between coastal climatic processes, economic fluctuations, or a complex combination of both factors, and the establishment, growth, or decline of Shackleford Banks?

The distribution of sites and surface finds (artifacts) were categorized based on function. These data points collectively hold insights into the daily lives and activities of the island's past inhabitants. By assessing their distribution, a better understanding of how these communities functioned is revealed. The analysis then takes a temporal turn, examining the extent of each function during different periods. Each period writes its own indelible signature on the island, and through geospatial analysis, these temporal shifts in use can be interrogated. The epicenter of activity during each period, represented by the mean center, provides a spatial focal point for understanding the dynamics of Shackleford Banks through time.

This chapter relies extensively on historic and cartographic sources before moving on to the archaeological interpretation of the distribution of surface artifacts to determine whether patterns correspond with historical features identified on the maps. Under the archaeological evidence section, the data will be broken down into sections analyzing artifact density. First the density of all artifacts is analyzed, and then distinct functions (as determined in the previous chapter) are isolated for examination. Each functional analysis will determine whether the areas of high density overlay

with possible identified structures from historic cartographic evidence and thereby show what sort of land use occurred. From a temporal perspective, the earliest and latest manufacture date of each object is represented in the four distinct time periods of Shackleford Banks: Period I of 1764 – 1849, Period II of 1850 – 1899, Period III of 1900 – 1985, and Period IV of 1986 – 2021. This will assist in forming arguments that the artifacts found correlate with the historical periods.

### *Historical and Cartographic Evidence*

Historical records documenting settlement establishment on Shackleford Banks are scarce. While documents indicate that John Porter sold a portion of land to John Shackleford, there exists no conclusive evidence to affirm either of their residency in the area (Stick 1958:32-33). John Shackleford's last will and testament suggests that his place of residence was in Virginia at the time of his passing. This inference arises from the fact that he granted permission to his son-in-law, Joseph Moss, to construct a house on the island where he currently resided. The will gives permission to Moss to whale off the “Banks,” suggesting that the aforementioned island is not the island of Shackleford Banks and Cape Lookout.

Accounts from an anonymous French traveler describe whale fishers’ tents located seven miles from Cape Lookout and suggests they were closer to Beaufort rather than existing northward along the Core Banks (An Unknown Traveler 1921:733). These descriptions are corroborated through cartographic evidence completed by His Majesty’s Sloop *Viper* under the command of Captain Lobb in 1764 (Figure 2.1). The descriptions given of ‘tents’ and ‘hutts’ suggest that these structures were not meant to be permanent at the time of their construction.

From the late 18<sup>th</sup> century, more cartographic sources enhance historians’ understanding of scant written records. Two corroborating sources create a stronger argument to confirm the existence of structures on Shackleford Banks that were initially used for industrial purposes, but eventually

became residential locations. This evidence is presented in charts and surveys by the United State Coast and Geodetic Surveys (superseded by the National Oceanic Atmospheric Administration [NOAA]). Topographic map symbols used by the United States Geological Survey (USGS) show that a filled in square indicates the area of a building feature (USGS 2005). These symbols are consistently represented in maps titled “Core Sound and Straits” in 1866 (Figure 6.1), 1876, 1883, 1899, 1910, and 1915.



FIGURE 6.1: Portion of Core Sound and Straits Map from 1866 showing all of Shackleford Banks with the square outlining the area of circled structures (NOAA 1866).

However, researchers must consider that some of the survey maps were considered republished. This includes the 1899 and 1910 maps, which were republished versions of surveys completed in 1876 thus making the 1866, 1876, 1883, and 1915 maps more dependable. Other cartographic sources include nautical charts of Beaufort Harbor from 1850, 1876, 1911, and 1927, a hydrographic survey depicting oyster bed locations from 1886, and Coast Chart No. 147 from 1896,

1900, 1905, 1910, 1913, and 1915. The Core Sound and Straits map from 1915 (Figure 6.2), and the Beaufort Harbor map from 1927 are included to show the potential disappearance of some building markers from the surveys which indicates the first period of abandonment after the San Ciriaco Hurricane of 1899.

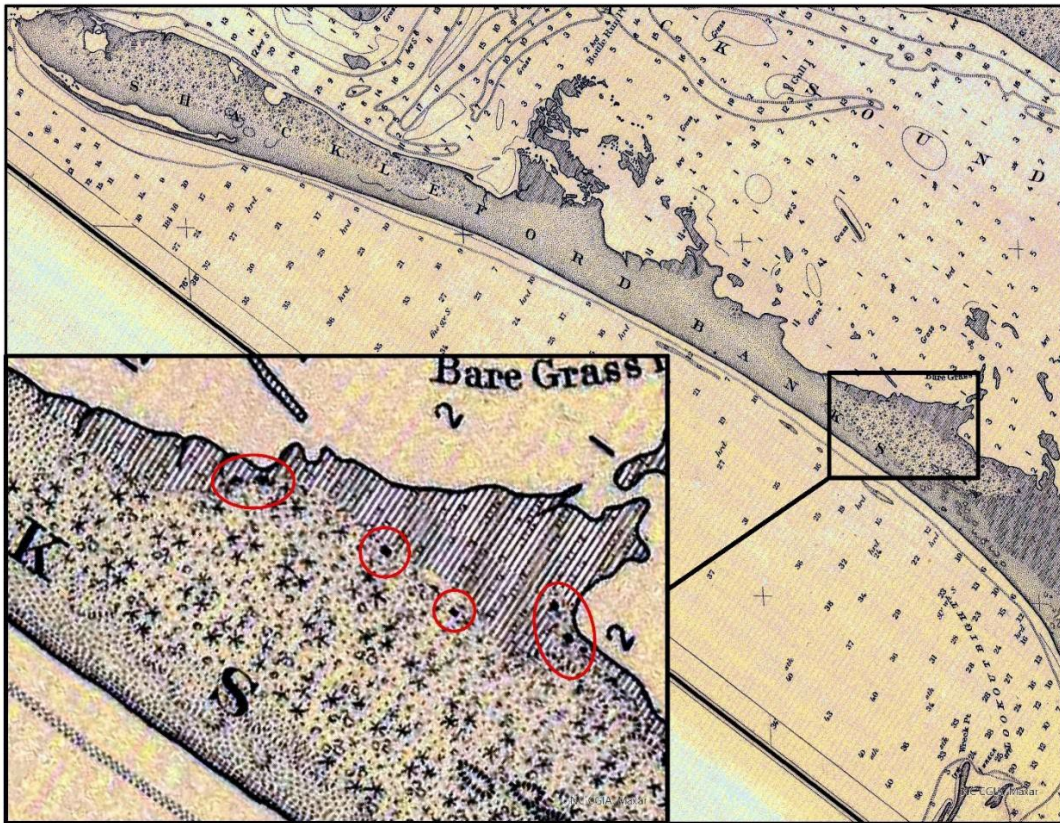


FIGURE 6.2: Portion of the Core Sound and Straits map from 1915 showing all of Shackleford Banks with the same outline area as Figure 6.1 showing circled structures (NOAA 1915).

Comparing Figure 6.1 to Figure 6.2 shows a reduction in building markers by approximately 45%. This is consistent with historical records describing an exodus from the banks and residents moving their homes elsewhere with a few structures remaining on Shackleford to be used exclusively for recreational (Harkers Island United Methodist Women 1987:14) and, in the case of the Mullet Pond fishery, industrial purposes (Smith 1907:409).

This ends the first period of establishment and development, as well as the use of filled in rectangular building markers on NOAA charts of the period. The purpose of these maps and charts

were meant for nautical navigation (rather than a comprehensive record of terrestrial structures) and more details are shown in water than on land. Nevertheless, historical, and cartographic evidence proves that some structures were left behind. It is not possible to prove when new structures were established, and approximate dates only can be extracted from USGS maps, and any oral histories written down by descendants of those in the original period of occupation must be used to estimate when the second period of occupation began.

A USGS map from 1949 does not depict any structures located on Shackleford Banks. A telephone line is shown, however, stretching from Beaufort to the east end of the island on the Back Sound side (Figure 6.3). While no structures are depicted on these maps, there are historic photos of cabins located on Shackleford with the telephone line in the background (Figure 6.4).

Maps published by USGS in 1949 and 1951 show other structures in neighboring towns such as Harkers Island, Beaufort, and Morehead City, but none on Shackleford Banks. This does not mean there were no structures established on Shackleford at that time; instead, it is believed that because the people who had cabins on the island were considered ‘squatters’ and had not legal rights to the land, they were not accounted for when the surveys were completed (The News and Observer 1986:22; Harkers Island United Methodist Women 1987:285).

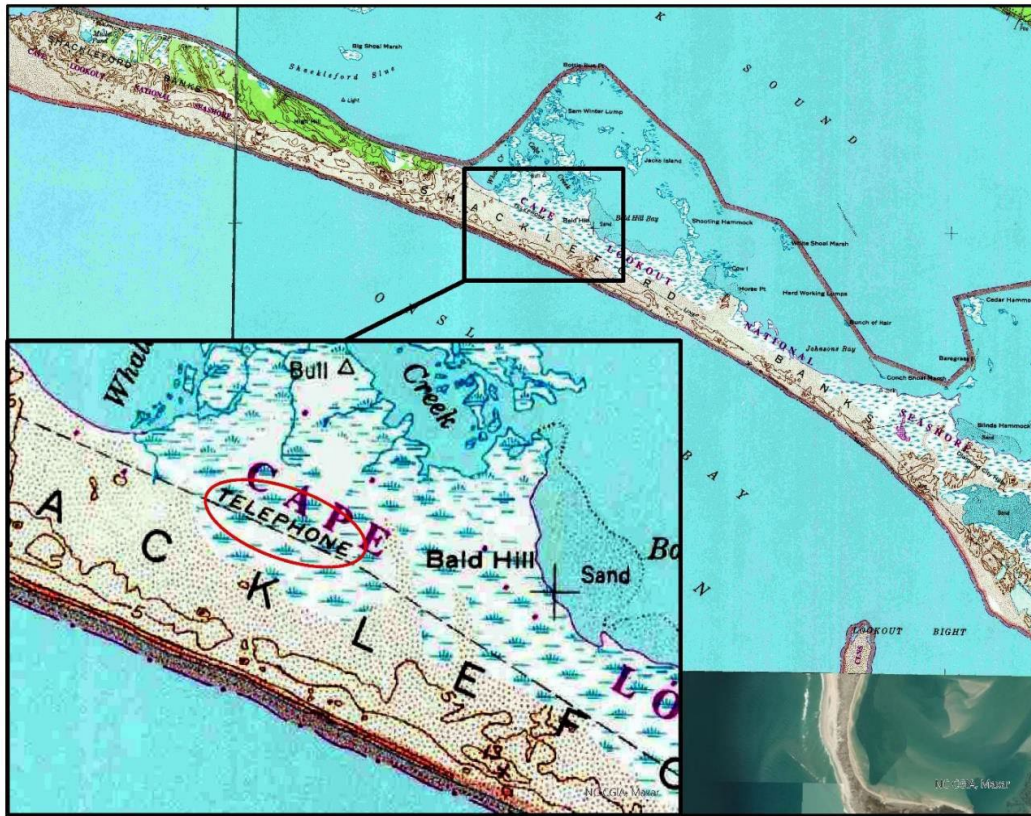


FIGURE 6.3: Portion of a 1949 map depicting Shackleford Banks with an outlined area showing the location of a telephone line (USGS 1949).



FIGURE 6.4: Photo of a fishing cabin on Shackleford Banks with the telephone line in the background from Bob Lewis's Facebook page posted in 2009 (Lewis 2009).



Maps are unreliable for determining where structures were established during the second period of occupation; as such, other types of historical records must be used to locate them. Unfortunately, most of these records are hearsay as they are derived from stories and memories of people visiting Shackleford Banks with their parents and grandparents while listening to the stories told to them. One example is from an oral history interview of Susanne Guthrie who describes her grandparents building a camp on Shackleford Banks in either 1945 or 1946 that stood until Hurricane Hazel hit in 1954 (Guthrie 2010). The only description given of the location is that this camp was on the eastern end of Shackleford Banks near a horse pen where they would conduct some pony penning. A photo from the previous chapter shows a pony penning area likely on the eastern end of the banks because the Cape Lookout Lighthouse can be seen in the background, but it is impossible to prove this is the pen described (Figure 5.25). This information places the construction of these cabins in Period III, beginning in the early 1940s and continuing until the addition of Shackleford Banks to Cape Lookout National Seashore in 1986. The people who had cabins on this land were required to vacate the property by the first of that year, placing the time of any newly established structures and development between the early 1940s and 1985 (Allegood 1985:22).

The historic and cartographic record is inconsistent in providing definitive evidence of the establishment and development of settlements during the periods of occupation of Shackleford Banks. While some historical records can be corroborated by existing map records for the first period, it is not the case for the second. However, data extracted from the archaeological record contributes to understanding each period, and analyzing the spatial distribution of artifacts found during field surveys can be compared to locations derived from georectified cartographic data.

### *Archaeological Evidence*

As explained in Chapter 2 (Theoretical Framework), the approach utilized for this thesis sought to

apply the first strategy outlined by Michael Schiffer (1987), where examining discovered material culture would seek to answer present-day historical questions about past human behavior (Reid et al. 1975:864; La Motta and Schiffer 2001:16). As stated in Chapter 4 (Methodology), cartographic data provided initial target zones for investigation along the sound side of Shackleford Banks. Combined with the GPS point data (sites and artifacts) collected during field surveys, surface find densities may be projected to help visualize correlation with missing historic structures. Specifically, areas of dense artifact distribution and the locations of historic structures shown in maps and charts from the first period of occupation may be superimposed and analyzed by examining overall point densities and by interpolating data points based on previously described functional groupings. This data should be able to yield answers to any depositional, reclamation, disturbance, and reuse processes and behaviors that take place on Shackleford Banks.

It is important to note that the analysis of this data is limited to the areas that were surveyed on the sound side of the island. The data is biased due to the limited time available to survey these areas. Due to the difficulty of traversing the terrain, uniform transects were unable to be completed to cover the entirety of Shackleford Banks. Another important note is that this island is subject to natural and human interactions (non-cultural and cultural site formation processes) that may have altered the location of the surface finds.

#### Overall Point Density

Overall point density was calculated by incorporating the number of points within a certain raster cell, in this instance square kilometers. The output cell size (resolution) was one by one meters, and the radius was an automated calculation from ArcGIS to 211 map units (meters). Four areas in Figure 6.5 show a high concentration of artifact density for all artifacts found during surface surveys. The equation to see how many artifacts were in the red (highest) and blue (lowest) areas

involves taking the largest output and dividing it by the lowest output. For all artifact points, the highest concentration is around thirty-nine, while the lowest is one. In three out of the four concentrated areas, structures from three distinct periods, as per cartographic records, are in the vicinity. This raises the probability that structures indeed existed in those areas, thus strengthening the argument for a higher density of artifacts from the corresponding period. Higher concentrations of artifacts seem to cluster around points of interest extracted from historical sources and georectified maps. However, the accessibility of the area to tourists who may have collected artifacts and the constantly changing shoreline can have a significant impact on the data available. These are the types of primary and secondary depositional processes, both *c-transforms* and *n-transforms*, which have affected the locations and analysis of surface finds. Therefore, the temporal data of the artifacts must be incorporated into analysis.

*Terminus post quem* (TPQ) means the earliest possible date of manufacture, not use, of an object (NPS 2023). *Terminus ante quem* (TAQ) means the latest possible date of manufacture, not use, of an object (NPS 2023). These terms were used with the surface finds of Shackleford Banks to determine the period of occupation in which these items may have been manufactured.

Period I (300 B.C – 1849) holds 297 items that could have been manufactured within that period. Period II (1850 – 1899) contains 303 items, Period III (1900 – 1985) contains 343 items, and Period IV (1986 – 2021) holds 200 items. Many of the temporal spans of individual objects overlap within multiple periods, which is why the total count is higher than that of the number of surface finds.

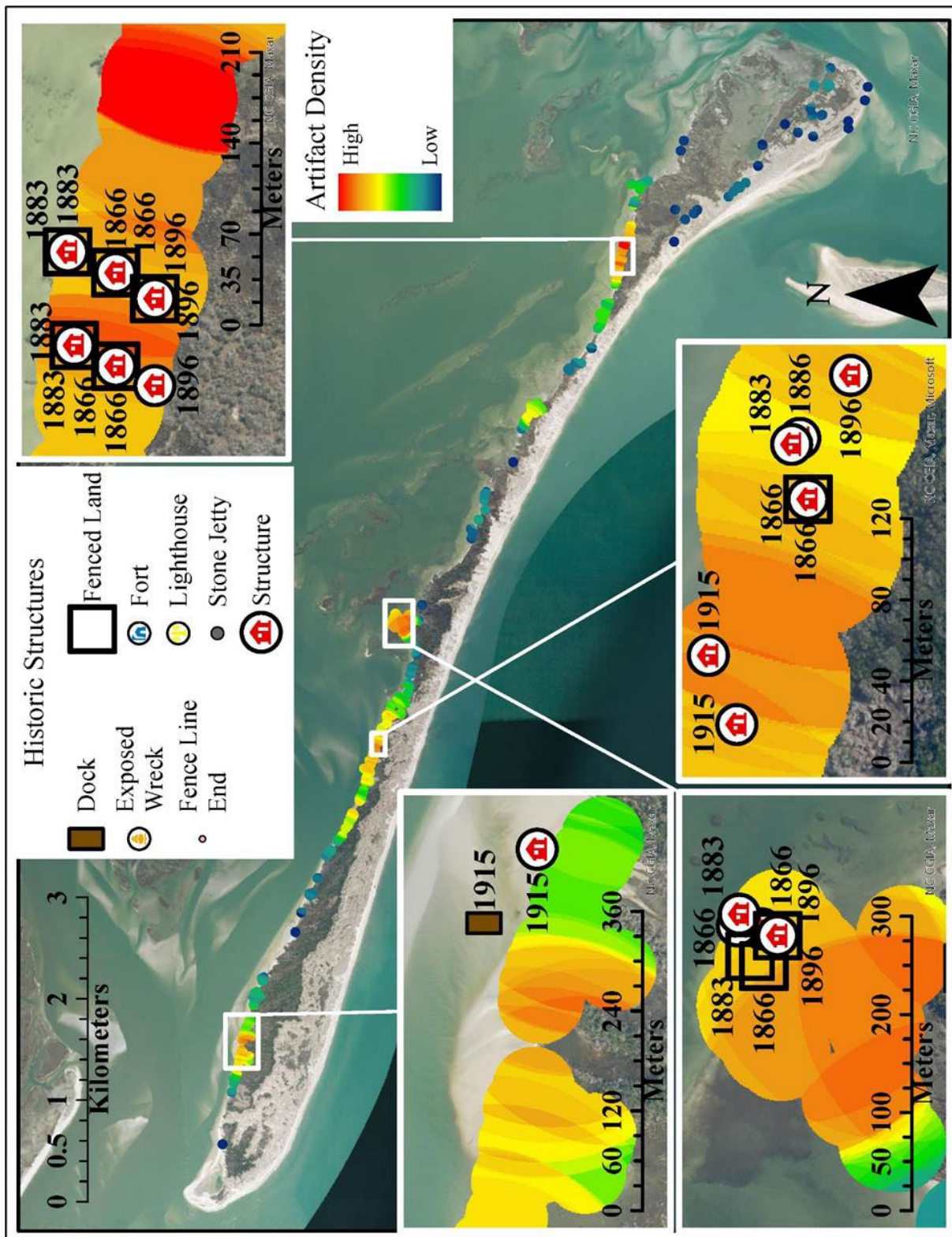


FIGURE 6.5: Map created by the author showing point density analysis of all artifacts, where  $n=346$ , the red output is  $276\text{ m}^2$ , and the blue is  $7\text{ m}^2$ , with nearby structures identified from historic cartographic materials.

188 objects overlap in all four periods as it was found that their TPQ was 1764 and their TAQ was 2021. These artifacts typically consist of ceramic sherds with no distinguishing features, bricks, unidentified metals, iron, and wooden materials where exact dates could not be determined. The artifacts were typically broken, which is why dates were unable to be determined. This could be due to disturbance processes that are both cultural and noncultural that have occurred since these objects were first deposited, to the day they were examined during surface surveys.

Thirteen objects overlap in two periods and 108 overlap in three periods. It must be acknowledged that these multi-period objects complicate the ability to see strong patterns of data and therefore weaken any interpretation regarding correlation between archaeological and historical data. Thirty-seven artifacts were determined to belong to a single period because they were able to be definitively dated. These artifacts consisted of ceramic sherds and glass materials with maker's marks where dates could be specified, as well as cars and wooden materials where dates were determined based on historical evidence. While none of the structures shown in cartographic materials aligned within a single period, there are instances of identified structures aligning with multiple periods within the TPQ and TAQ data. Due to the overlapping periods, it is not possible to determine whether those items within the multiple periods are related to the historic information (Figure 6.6). Due to the cross-temporal/multi-period distribution of most of these artifacts, it is problematic to determine movement through time as these groupings exist on top of one another. Nevertheless, they may demonstrate the persistence of land use in some parts of Shackleford Banks.

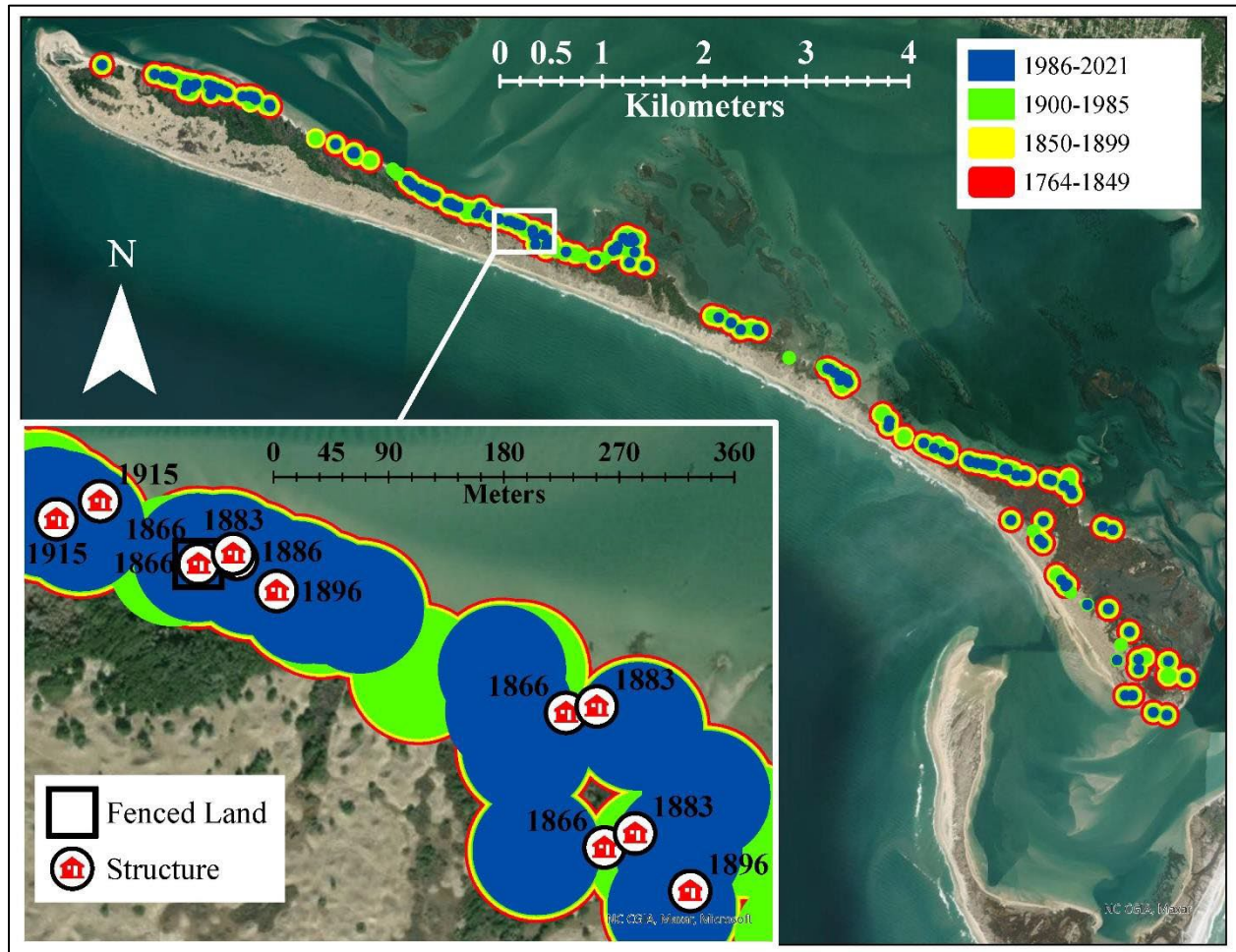


FIGURE 6.6: Map created by author showing the periods of all artifacts where  $n=364$  and historic structures identified from cartographic materials.

### Artifact Density Analysis by Function

Examining artifact density by function aids in showing the possible land uses linked to previously named historic structures. This approach is intended to ascertain the function of areas within a buffer zone, thus mitigating the potential influence of external factors like shoreline changes (*n-transforms*) and human activities (*c-transforms*). As discussed in the preceding chapter, specific areas were designated as sites based on the quantity of artifacts found at that location from notes discussed in field notebooks. It is important to note that such sites were not given different weights in this analysis and may not precisely represent actual historical activity centers.

Examining these artifacts by their functions and comparing them to the locations of identified structures from georectified maps is an example of using spatial frequency (or “association”) of material culture to figure out the relational dimension (i.e., co-occurrence of artifacts) within a landscape (Schiffer 1987:17-21). If artifacts found during surface surveys coincide under the domestic function and are in the vicinity of a historic structure shown on georectified maps, then it could be possible that those structures were for domestic use. This relational method could also be used for the industrial function as well. However, as stated previously, these finds have been subjected to other distorting archaeological site formation processes that may complicate analysis results.

#### Domestic Function Density Analysis

The output cell size (resolution) of the domestic function density analysis was one by one meters, and the radius was an automated calculation from ArcGIS to 192 map units (meters). Two areas have a high concentration of artifact findings within the domestic function, with the northern most site containing a denser region than the one located more westward on Shackleford Banks (Figure 6.7). These concentrations were calculated as the highest (red) being fourteen artifacts in a concentrated area and the lowest (blue) being one. Both locations correspond with cartographic sources showing that multiple structures (and fenced areas) existed in those regions with the northern most section comprising of structures that are closer together and consistently present on multiple Shackleford Banks maps before their abandonment. In this instance, the northernmost region is likely what has been referred to on previous maps as Sam Windsor’s/Winter Lump (Figure 2.3 and 2.4). The location being where the Windsor family lived is further corroborated by a USGS marker, labeled “Bull,” that is in the vicinity of the area with the 1913 station description being near the old ruins of a house (NOAA 2023).

The western region identified in Figure 6.7 includes structures that are more widely spread apart and encompass a period of pre- and post-abandonment from Period II. This area, while having a lower artifact density than the northern tracts, does overlap with an identified site area from the domestic function in the previous chapter (Figure 5.11).

These concentrations of artifacts, while consistent with structure locations shown on georectified maps, contain artifacts from varying periods of time. Period I (300 B.C – 1849) contains fifty-one items that could have been deposited during that period. Period II (1850 – 1899), the major period of occupation, contains fifty-seven items. Period III (1900 – 1985), the second period of occupation, contains eighty-four items. Period IV (1986 – 2021) contains fifty items. There are forty items that overlap in all four periods and consist of ceramics and glass with no identifying marks or features, bricks, indeterminate metal, and a few pieces of wooden material. Ten items overlap in three periods and twelve overlap in two periods. There are twenty- four artifacts contained within a single period and consist of glass and ceramics with maker's marks and the remains of abandoned cars.

Many of the identified structures from cartographic sources overlap with multiple periods and make it impossible to definitively determine if the artifacts found during surface surveys are related. Only one structure was in proximity to an artifact where both exist in the same period (Figure 6.8). The artifact is associated with the structure, making the historic structure a domestic residence that existed in Period III.



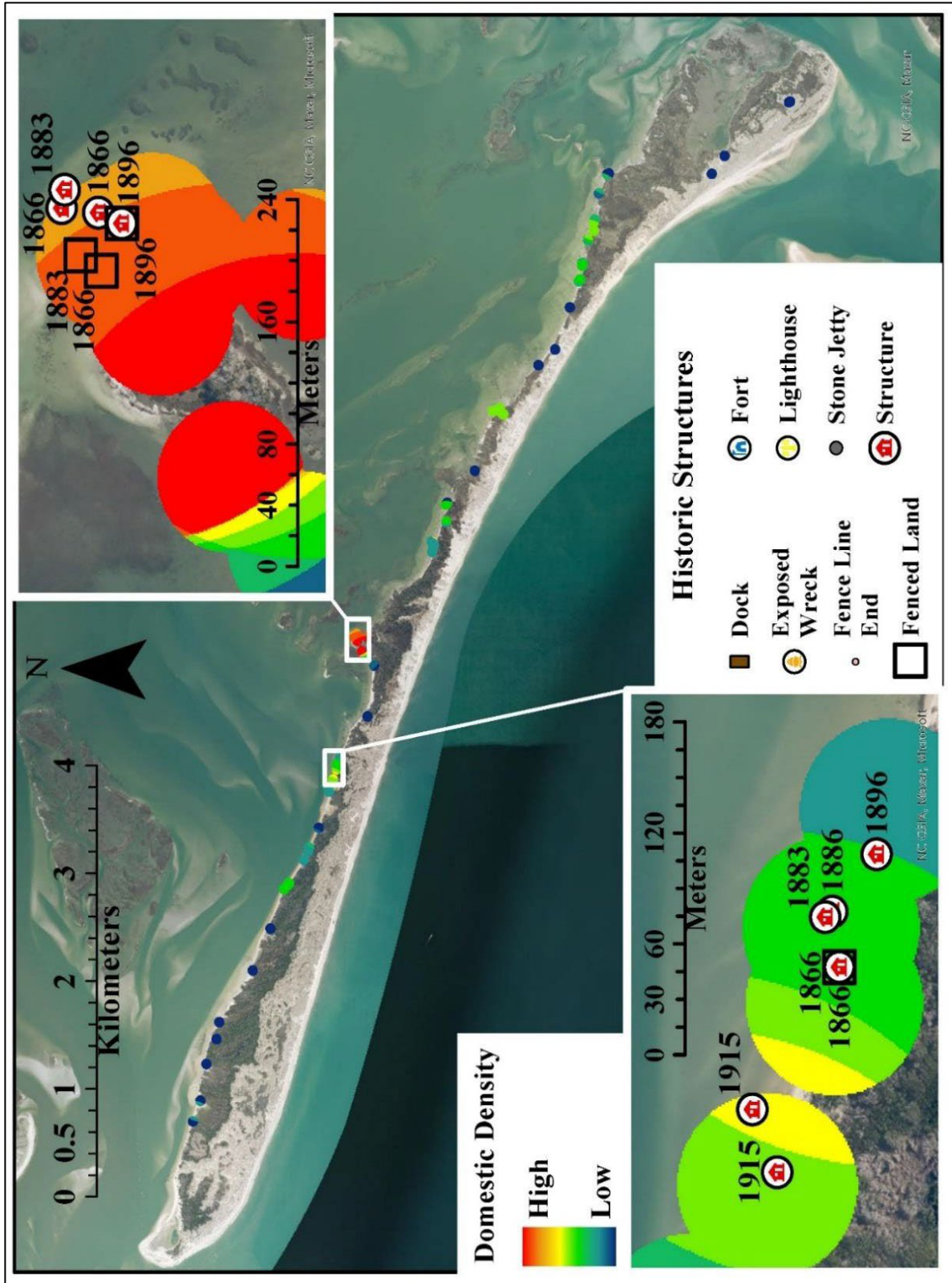


FIGURE 6.7: Map created by author showing artifact density in the domestic function where  $n=86$ , the red output is  $112 \text{ m}^2$ , and the blue output is  $8 \text{ m}^2$ .

Although there are no other historic structures associated with the domestic function found exclusively within a single period, the artifacts within this boundary may still have associations with the structures (i.e., prove relational frequency dimensions). These artifacts do not belong to any distinctive period and may have existed at the same time as these structures, but without definitive dating of the artifacts it is impossible to say with certainty.

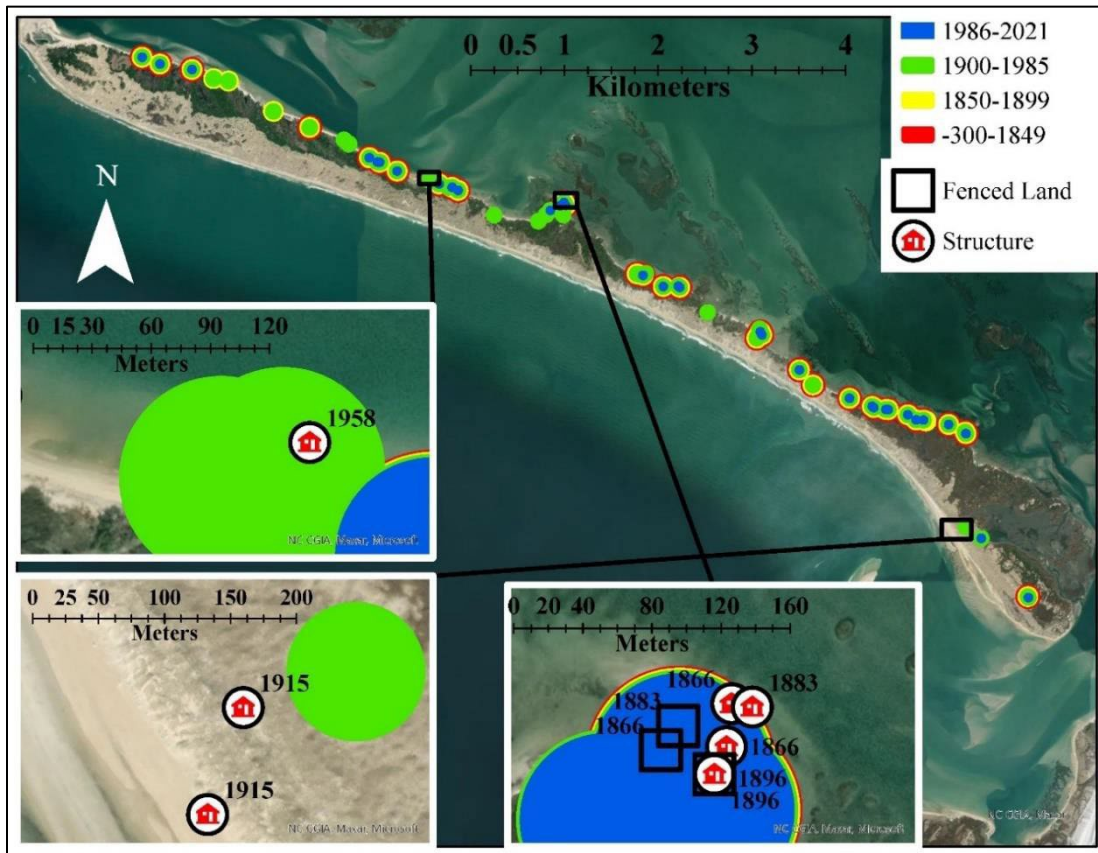


FIGURE 6.8: Map created by the author depicting the densities of domestic artifacts in their specified periods along with historic structures from georectified maps (Ellis 2023).

### Industrial Function Density Analysis

The output cell size (resolution) of the industrial function density analysis was one by one meters, and the radius was an automated calculation from ArcGIS to 142 map units (meters). Only one area on the eastern part of Shackleford Banks was calculated to have a higher artifact concentration of surface finds under the industrial function category (Figure 6.9). These concentrations were

calculated as the highest (red) being about thirteen artifacts in a concentrated area and the lowest (blue) being one. Cartographic information from three georectified maps suggests the existence of two industrial structures during the first period of occupation before abandonment.

There is no overlap between this area and the site locations identified in the previous chapter, which suggests this is another area utilized for industrial purposes (Figure 5.29). This location is closer to what would have been referred to as Diamond City on previously drawn maps and is indicative of industrial areas (associated with fishing) that have been discussed in oral histories but never directly indicated on cartographic sources (e.g., Figure 2.4). However, there is archival evidence of pony penning, showing Cape Lookout Lighthouse in the background, which suggests the area may have also been used for industrial purposes in the second period of occupation (Figure 5.25). Focusing on the temporal analysis of artifacts in the industrial function category could determine the with which period this area is more likely associated.

These areas appear to correspond with structures identified on georectified maps and contain artifacts from varying periods of time. Period I (1764 – 1849) and Period II (1850 – 1899), contained forty items that could have been deposited during those periods. Period III (1900 – 1985), the second period of occupation, contains fifty items and Period IV (1986 – 2021) contains twenty-one items.

Just as domestic artifacts overlap with specific periods in relation to historic structures, many of the structures shown on cartographic materials also span multiple periods (Figure 6.10). Consequently, this makes it challenging to definitively establish a direct relationship between the artifacts found during surface surveys and these structures in the industrial function. This does not imply that these artifacts lack any association with these structures. It is just challenging to make a definitive determination because the artifacts cannot be precisely dated to their specific year of manufacture.

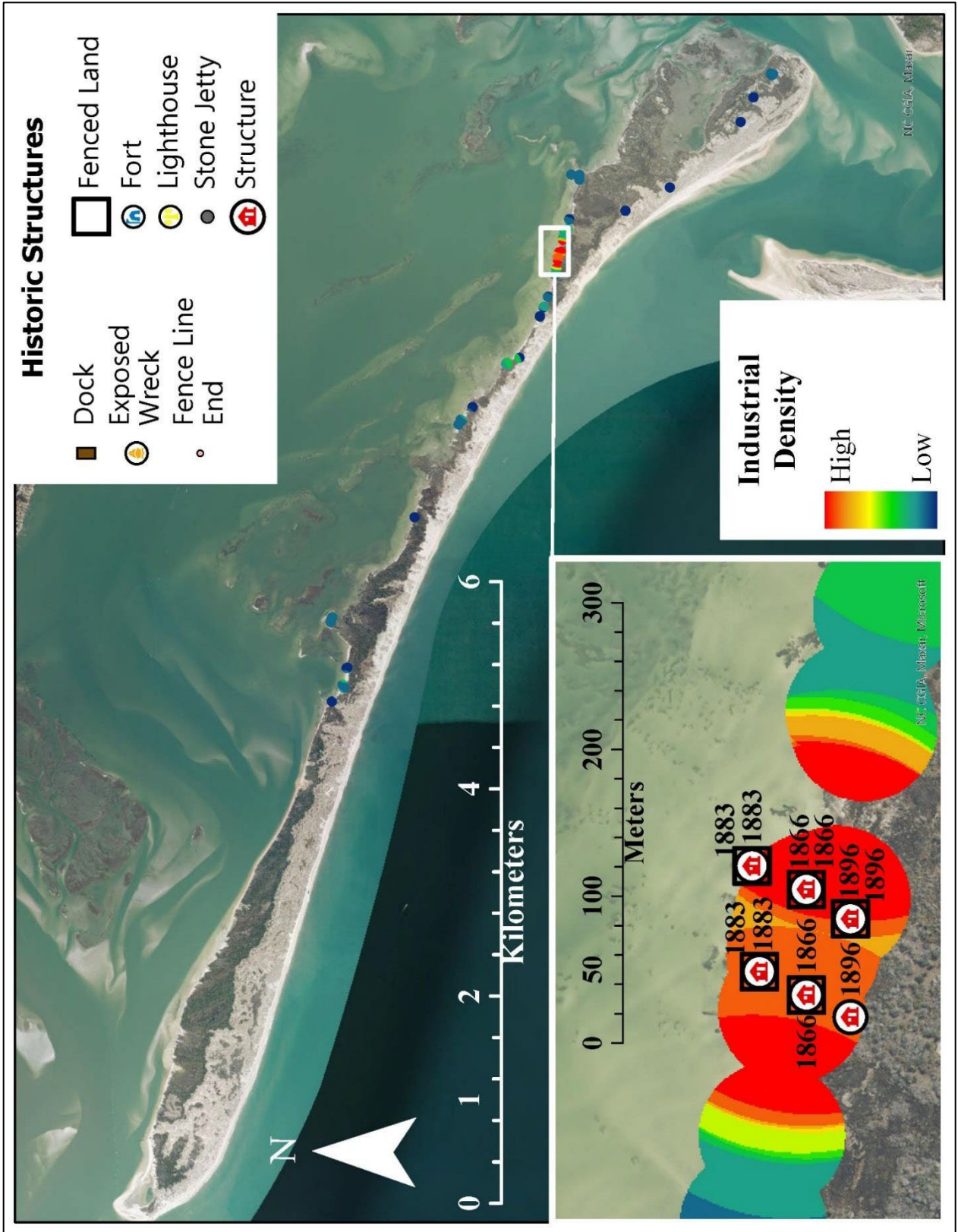


FIGURE 6.9: Map created by author showing artifact density in the industrial function where  $n=50$ , the red output is  $188 \text{ m}^2$ , and the blue is  $15 \text{ m}^2$ .

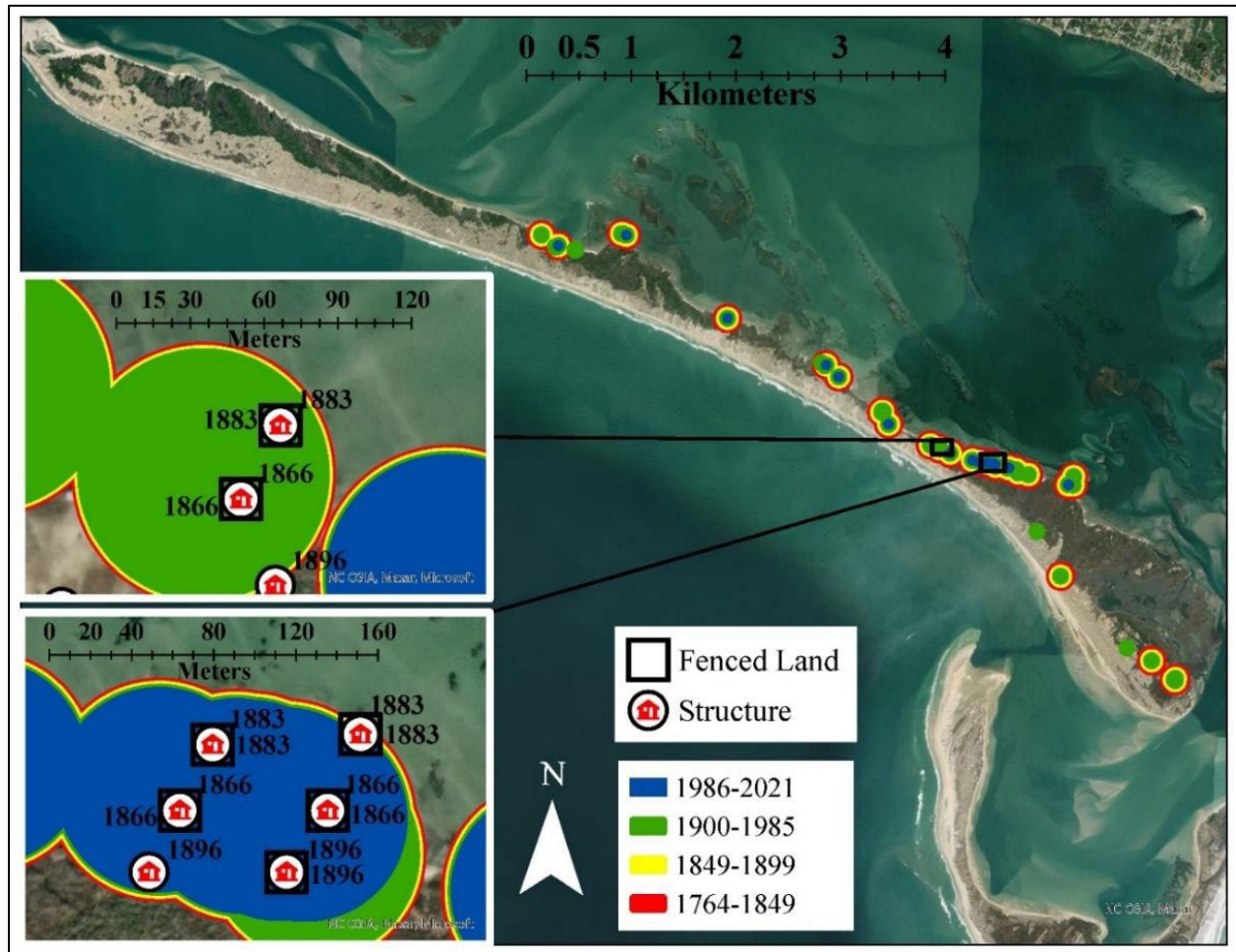


FIGURE 6.10: Map created by the author depicting the densities of industrial artifacts in their specified periods along with historic structures from georectified maps (Ellis 2023).

### Building Function Density Analysis

The output cell size (resolution) of the building function density analysis was one by one meters, and the radius was an automated calculation from ArcGIS to 208 map units (meters). Two regions were determined to have a higher density of artifacts within the building function based on the concentrations calculated (Figure 6.11). These concentrations were calculated as the highest (red) being about twenty-five artifacts in a concentrated area and the lowest (blue) being one. The building function, as stated previously, is applied when materials cannot be categorized as industrial or domestic but are still architectural in nature.

The western-most location contained a higher concentration of artifacts in an area compared

to the rest of the island and includes structures from a single map year (1915), which was the year the Core Sound and Straits map was updated. This updated map shows the deletion of structures from Shackleford Banks, suggesting an exodus and abandonment of land. This western area is close to what previous maps have referred to as Mullet Pond which, according to written and oral histories, contained the Mullet Pond fishery that was still active after abandonment for industrial and recreational purposes (Smith 1907:409). Factoring in later activity could account for a denser artifact distribution due to a shorter amount of time for environmental factors to affect a change.

The second location contains a lower artifact distribution when compared to the one located to the west. This could be because of the greater distance between the structures that were shown on georectified maps. There is also an overlap of this location with one of the building sites identified in the previous chapter (Figure 5.3). This section also contains identified structure locations, from historic maps dating to pre- and post-abandonment periods. To corroborate these cartographic records, the temporal aspect of the artifacts must be examined.

Like the domestic and industrial artifact function groups these artifacts overlap many periods. Period I (1764 – 1849), Period II (1850 – 1899), and Period III (1900 – 1985) each contain the same seventy-two items that could have been manufactured during any of them. Period IV (1986 – 2021) contains all 157 items due to the limited distinctive features available to date these artifacts. As stated in Chapter 5 (Results), most of the items from the building function were wood and bricks that were typically found in singular instances. These items could have been subjected to secondary reuse, which is when an object's purpose has been changed but the form does not change (Schiffer 2010:33). This is another example of *c-transforms* from human interference as it is likely that objects, such as bricks, could have been used to make firepits thereby altering its use from building structures yet not changing the object itself.

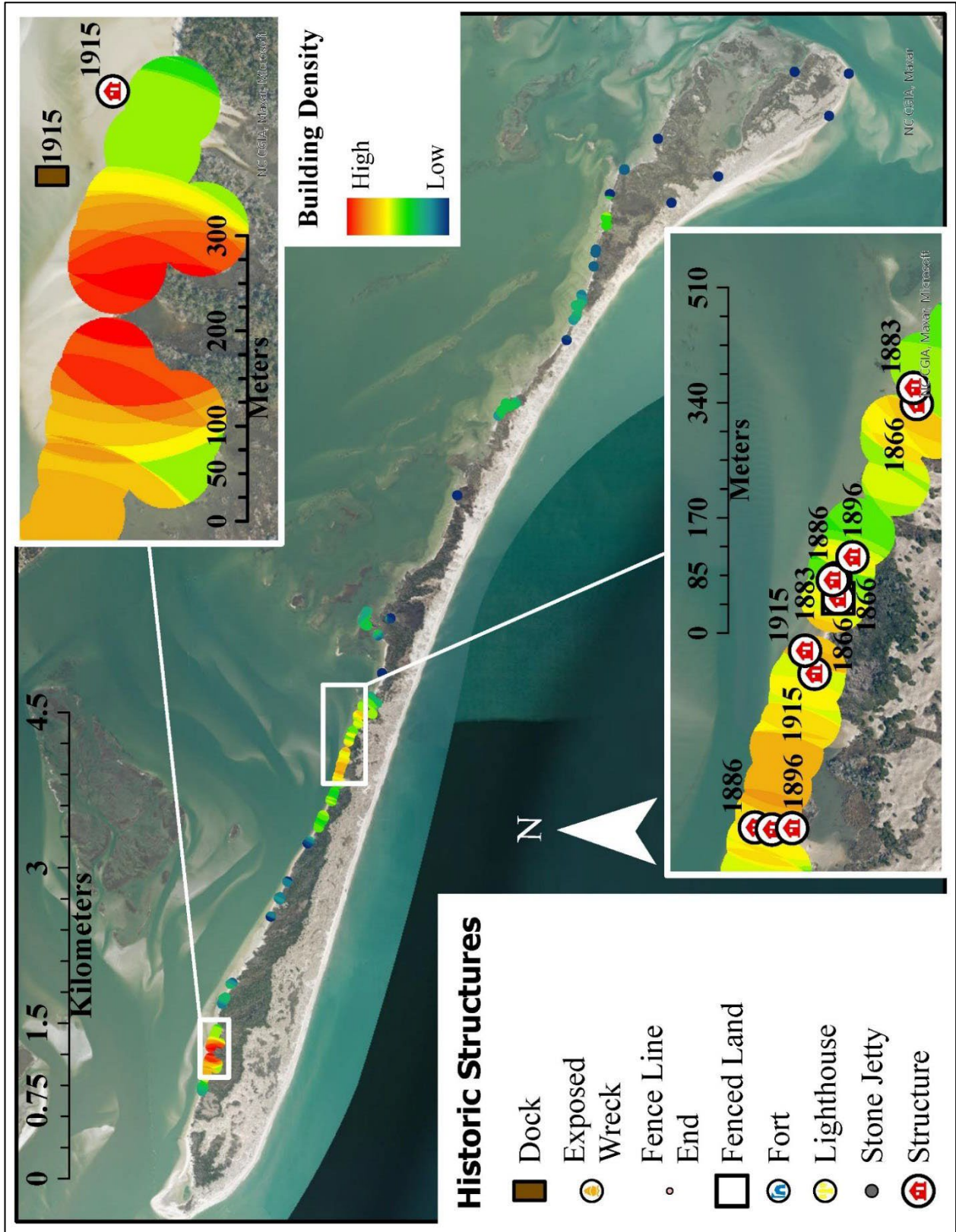


FIGURE 6.11: Map created by author showing artifact density in the building function ( $n=157$ ).

Such as in the industrial and domestic functional analyses, these artifacts span multiple periods. When overlapped with the georectified historic structures, there are no artifacts or structures that cluster in one period (Figure 6.12). This does not mean that these artifacts are not correlated with these historic structures, as it is possible that some of these materials were utilized during Period II when these structures would have been built. Unable to determine whether these materials are within an industrial or domestic function, these items are associated with these structures as building materials, but it is impossible to determine any functional category.

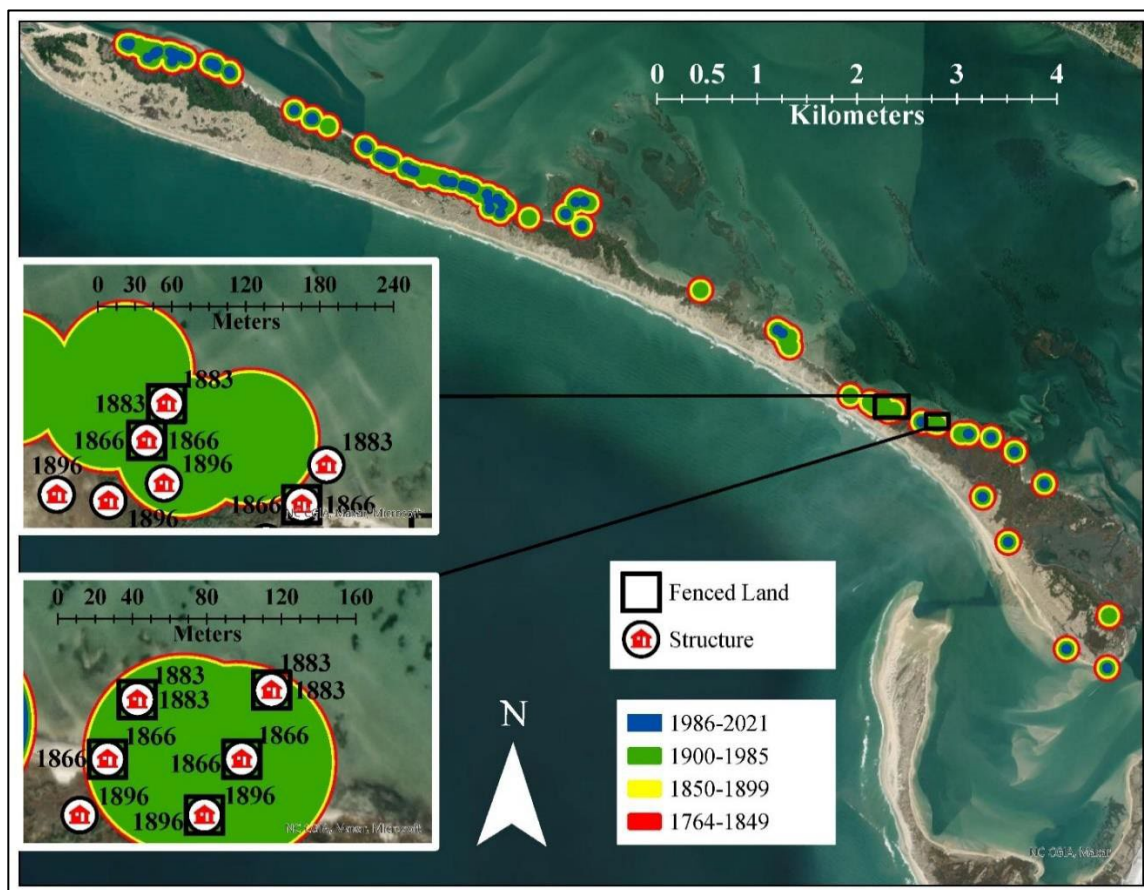


FIGURE 6.12: Map created by the author depicting the densities of building artifacts in their specified periods along with historic structures from georectified maps (Ellis 2023).

### Functional Drift Through Periods

Thus far, the examination of these artifacts has been synchronic (i.e., snapshots of time). While it has been noted that many of the artifacts could have been manufactured and used during Periods I to IV,



the goal of this thesis is to investigate the movement of these communities across time (i.e., engage in a diachronic analysis). This goal seeks to understand the patterns of establishment, development, and abandonment of Shackelford Banks, tracing the movements of its residents and their living and working locations over time.

In this section, all the surface finds within the domestic, industrial, and building function categories were combined for each period of occupation and the mean center and the average area of distance between objects was found for Periods I, II, III, and IV. These points were mapped, as shown in Figure 6.13, and the distance between each center was measured to see how far each center had moved from its last point.

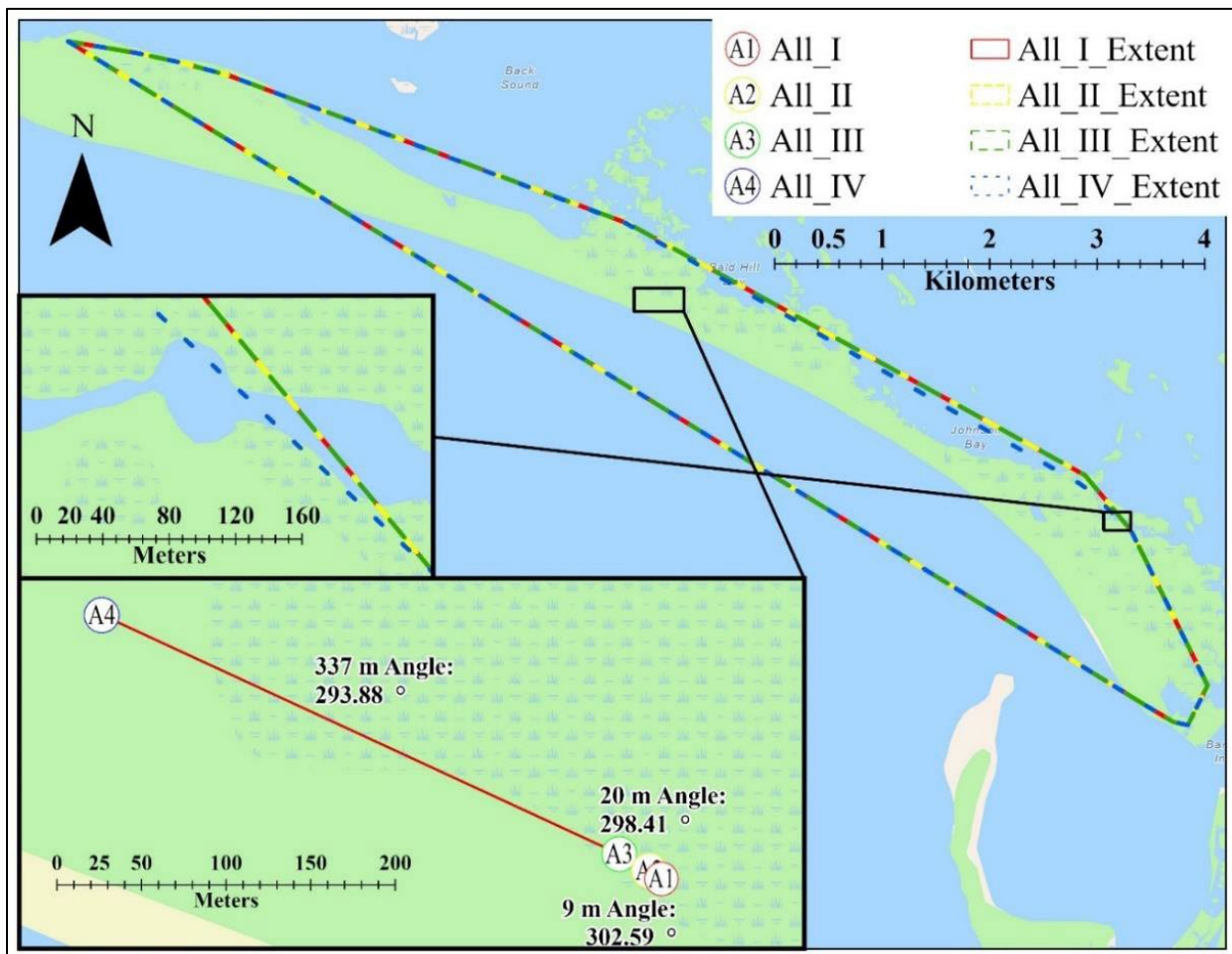


FIGURE 6.13: Map created by author showing the mean center of all artifacts and the movement through each period (Ellis 2023).

This data shows that between Periods I and II, there was a 9 m movement between each of the average centers. Between Periods II and III, there was a 20-meter movement between each of the average centers. Finally, Periods III and IV have a much larger movement of 337- meters between the average centers. Quantifying these distances has the potential to show extent of use in each period, in addition to the movement of centers of domestic, industrial, and building activities on Shackleford Banks across the entire defined period of the study (pre- contact to 2021).

It is tempting to say that this movement is indicative of a western expansion on Shackleford Banks, which is corroborated with the HMS *Viper* map showing establishments on the eastern end of the island and with later maps and records showing a growing population westward, as discussed in the history chapter. The slight shift between Periods I and II might indicate the persistence of residential and industrial activities between the periods. Similarly, though larger, the different mean centers of Periods II and III demonstrate persistence, and some expansion (i.e., a larger boundary). The largest mean center difference, occurring between Periods III and IV shows the movement of communities west, until settlement abandonment and the ultimate takeover by the NPS. Figure 6.13 shows a slight contraction of 2.2% during Period IV which could be indicative of development decreasing due to NPS takeover. However, none of these findings are definitive due to the exceedingly high degree of overlap of each era's minimum bounding geometry. This overlap is created due to the high number of data points with the same TPQ and TAQ dates. The solution to this problem would be to exclude all multi-period artifacts, but this would cause a low sample size for analysis.

The lack of any expansion or contraction between Periods I, II, and III could be interpreted as evidence of persistent settlement and land use on Shackleford Banks from 1764 to 1985. The centralized points of all four periods' mean centers could suggest that activity during these periods of

occupations existed across the entire island. Due to each phase having a similar distribution, the differences are small. However, interpretations may change once functional categories are extracted for interrogation.

#### *Domestic Function Mean Center Movement*

For the analysis of domestic function mean center movement all the surface finds within the domestic function category were combined for each period of occupation and the mean center was calculated for Periods I, II, III, and IV. These points were mapped, as shown in Figure 6.14, and the distance between each center was measured to see how far each center had moved from its last point. This data shows that between Periods I and II, there was a 113-meter movement between each of the average centers. Between Periods II and III, there was a 492-meter movement between each of the average centers. Finally, Periods III and IV have a movement of 314-meters between the average centers.

The movement between Periods I, II, and III could signal minor changes in settlement locations, with a tendency toward a westward movement of residential locations (i.e., domestic artifact density), while the movement between Periods III and IV could show a tendency to settle more to the east. However, these distances (113-492 meters) are small, and point to the persistence of occupation on Shackleford Banks up until settlement abandonment. The historical record already communicates that from Period II to III people began to abandon Shackleford Banks, first moving their homes westward towards Mullet Pond before eventually moving residences off the island entirely. In archaeological site formation parlance, this is an example of curate behavior, identified by Schiffer as the movement of objects from one location for future use in another (Schiffer 1987:89-91). It could also support the historical evidence that most of the people living in these communities moved west towards the Morehead City and Beaufort areas rather than moving northward to Harker's Island and other areas like Marshallberg and Straits. Finally, the distance

between Period III and Period IV could be indicative of the departure of vacation home residents when Shackleford Banks was acquired by the NPS.

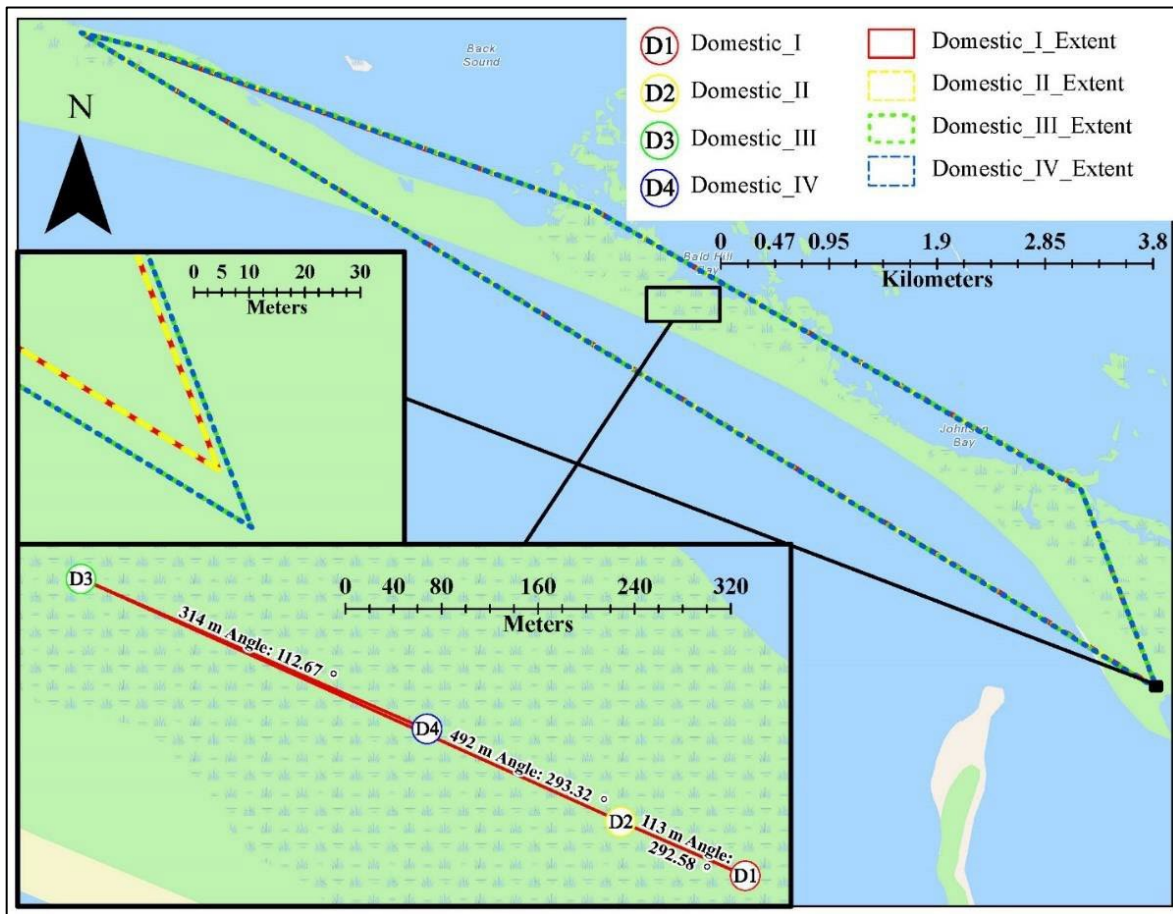


FIGURE 6.14: Map created by author showing the mean center of all domestic artifacts and the movement through each period (Ellis 2023).

Figure 6.14 shows a very minor expansion of artifact distribution from Period II and III (0.38%) with no evidence of expansion or contraction between Periods I and II, and III, and IV. These values cannot reliably suggest that the distribution of sites associated with domestic functions (residences) on the island experienced any contraction or expansion. As noted in Chapter 2, it is likely there was an increase in the construction of vacation homes, and a corresponding rise in recreational and tourism activities occurred between Period II and III, resulting in more substantial evidence of domestic life being left behind in the island's sands and marshes. The centralized points of all four periods' mean centers could suggest that activity during these periods of occupation

existed across the entire island. Due to the data from overlapping periods, it cannot be definitively determined whether there was movement from these surface findings.

#### *Industrial Function Mean Center Movement*

To analyze industrial function's mean center movement, all surface finds within the industrial function category were combined for each period of occupation and the mean center was found for Periods I, II, III, and IV. These points were mapped, as shown in Figure 6.15, and the distance between each center was measured to see how far each center had moved from its last point. This data shows that between Periods I and II, there was no movement. Between Periods II and III, there was a 335-meter movement between each of the average centers. Finally, Periods III and IV have a movement of 134-meters between the average centers.

There is no movement between Period I and II for the industrial function. This could be because the earliest historical evidence shows that the whaling camps were on the eastern side of Shackleford Banks and that is perhaps where they remained into the second period of occupation, with other commercial activities emerging in the same area. The movement from Period II to III could suggest that as people began to move off the island, and early commercial activities (like whaling) waned, the Ca'e Bankers turned increasingly to fishing activities. Like their pattern of establishing domestic locations to the west, so too their industrial and commercial activities moved westward towards Mullet Pond (and Beaufort, as the area's major port). Spatial movement between Period III and IV, like the trend seen in the domestic mean center movement analysis could show the abandonment of industry on Shackleford Banks due to the NPS takeover.

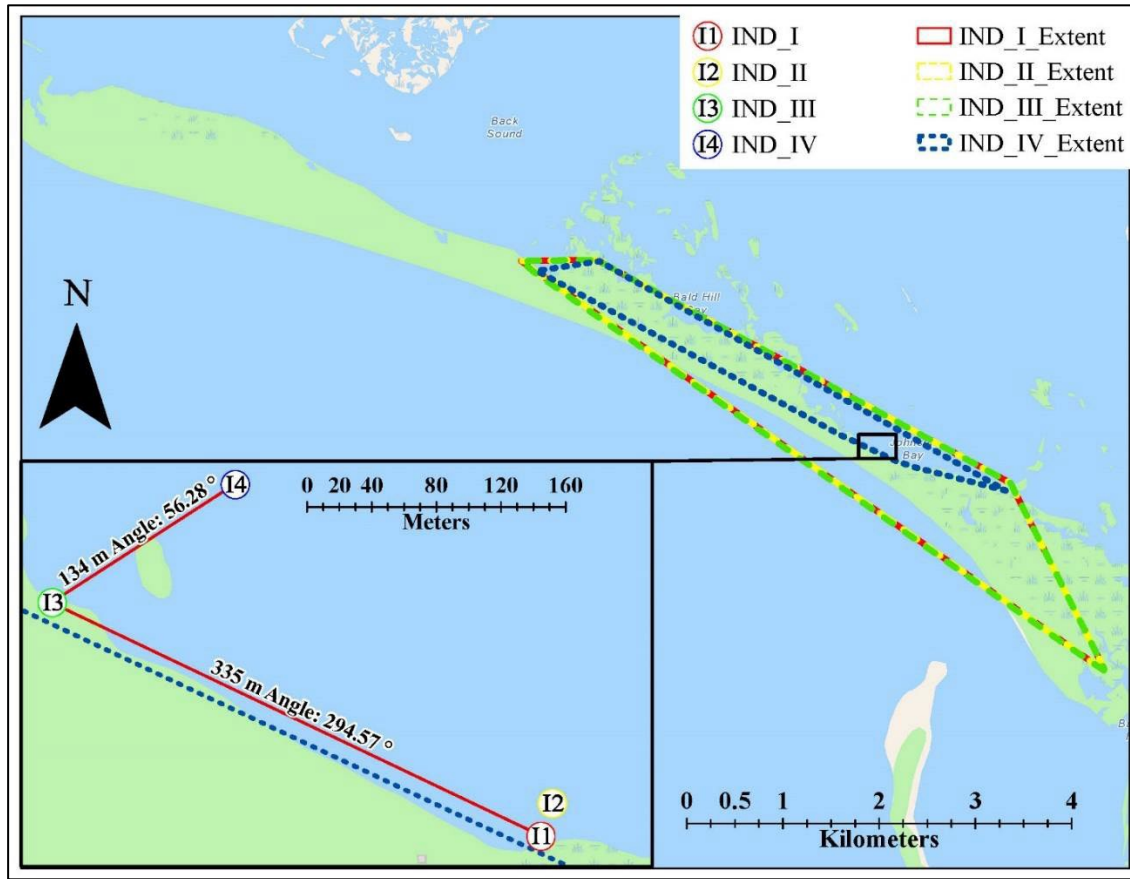


FIGURE 6.15: Map created by author showing the mean center of all industrial artifacts and the movement through each period (Ellis 2023).

There is a contraction of 67% in the spatial distribution of industrial function category artifacts from Period III to Period IV. As stated previously, this may be indicative of industrial practices no longer happening on the island due to Shackleford Banks becoming a part of the National Seashore. The eastern location of the extents of Periods I, II, and III could be interpreted to show that most of the industrial practices took place in this area of the island. This contradicts the historical narrative, as previously discussed (Chapter 2), which suggested that fishing activities were widespread across the entire island, with the western end primarily utilized for fishing and the eastern end dedicated to whaling. However, this study is limited to information that can be concretely proven and more industrial artifacts may be located on the western half. An additional factor is the problem of utilizing surface finds to make these interpretations. Nevertheless, the distribution of industrial function data points in this dataset toward the center and eastern portions of

Shackleford Banks suggests local people preferred to have their industrial sites on these parts of the island.

### *Building Function Mean Center Movement*

To spatially project building function mean center movement, all the surface findings within the building function category were combined for each period of occupation and the mean center was found for Periods I, II, III, and IV. These points were mapped, as shown in Figure 6.16, and the distance between each center was measured to see how far it had moved from its last point. This data shows that between Periods I, II, and III there was no movement while there was a 798-meter distance between the average centers in the transition from Periods III to IV.

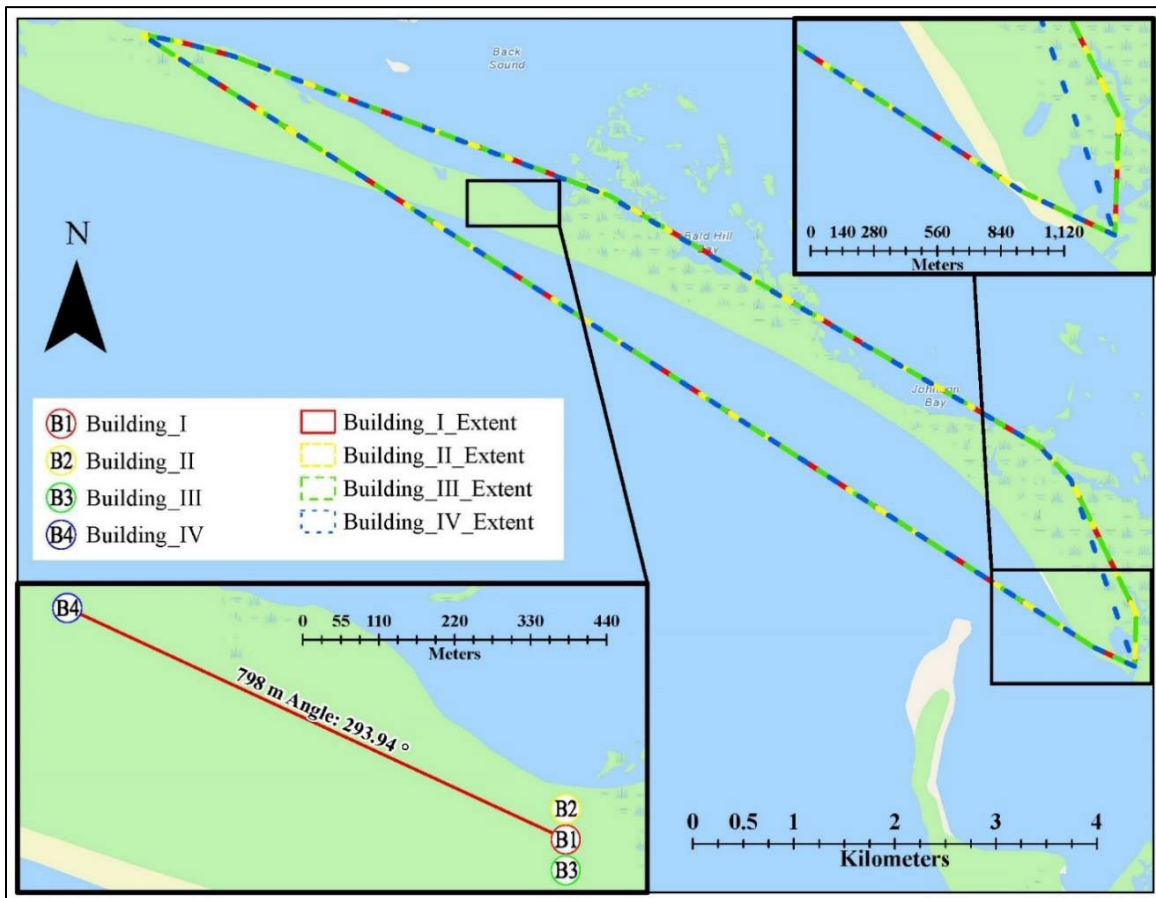


FIGURE 6.16: Map created by author showing the mean center of all building artifacts and the movement through each period (Ellis 2023).

The lack of change between Periods I to III is due to the inability to properly date the artifacts to a specific period. Most of the artifacts found consisted of wood and absolute dating technique (e.g., dendrochronological dating) was not possible within the scope of the project. Not being able to determine whether these artifacts have a domestic or industrial use, they are confined to the nondescript category of “building materials.” The only movement able to be analyzed is from Period III to Period IV. This could be interpreted to mean that no buildings were constructed between these periods, which would be consistent with the takeover of Shackleford Banks by the NPS, and the extent of building demolition in the latter period. This could be further corroborated by the 1.93% contraction of artifact distribution area. As stated before, the centralized area of all the mean centers could suggest that buildings appeared all over the island. Whether they were used for industrial or domestic purposes is undetermined.

#### Distance Between Living and Working Spaces

Each period of occupation had the mean center for the domestic, industrial, and building functions during a single period and each function’s extent of artifact findings was overlapped to show where more activity took place. During Period I, 2,231 meters can be plotted between the mean center of the domestic and industrial function artifacts (Figure 6.17). During Period II, a 2,355-meter distance separates the mean center of the domestic and industrial functions (Figure 6.18). So too, within Period III and Period IV, distances of 2,511 meters and 2,248 meters can be plotted between domestic and industrial mean centers (see Figures 6.19 and 6.20). These measurements do not depict the actual locations and distances between work and living spaces, but they may represent trends in the extent, distribution, and separation of living and working spaces in association with one another in each period, and between periods. Spatial disparities could be interpreted as indicating that during all periods, these communities kept a similar distance between working and living spaces whether they were forced to move due to environmental or economic changes.



The overlapping extent shown in all four periods shows an interactive relationship between the industrial and domestic function, which may suggest that living and working spaces coexisted near each other (Figures 6.17-6.20). The building function is included due to the variability of whether the artifacts have domestic or industrial use. Therefore, although difficult to determine, it is theorized that there could be larger shifts between the overlap and compounding distance between living and working spaces.

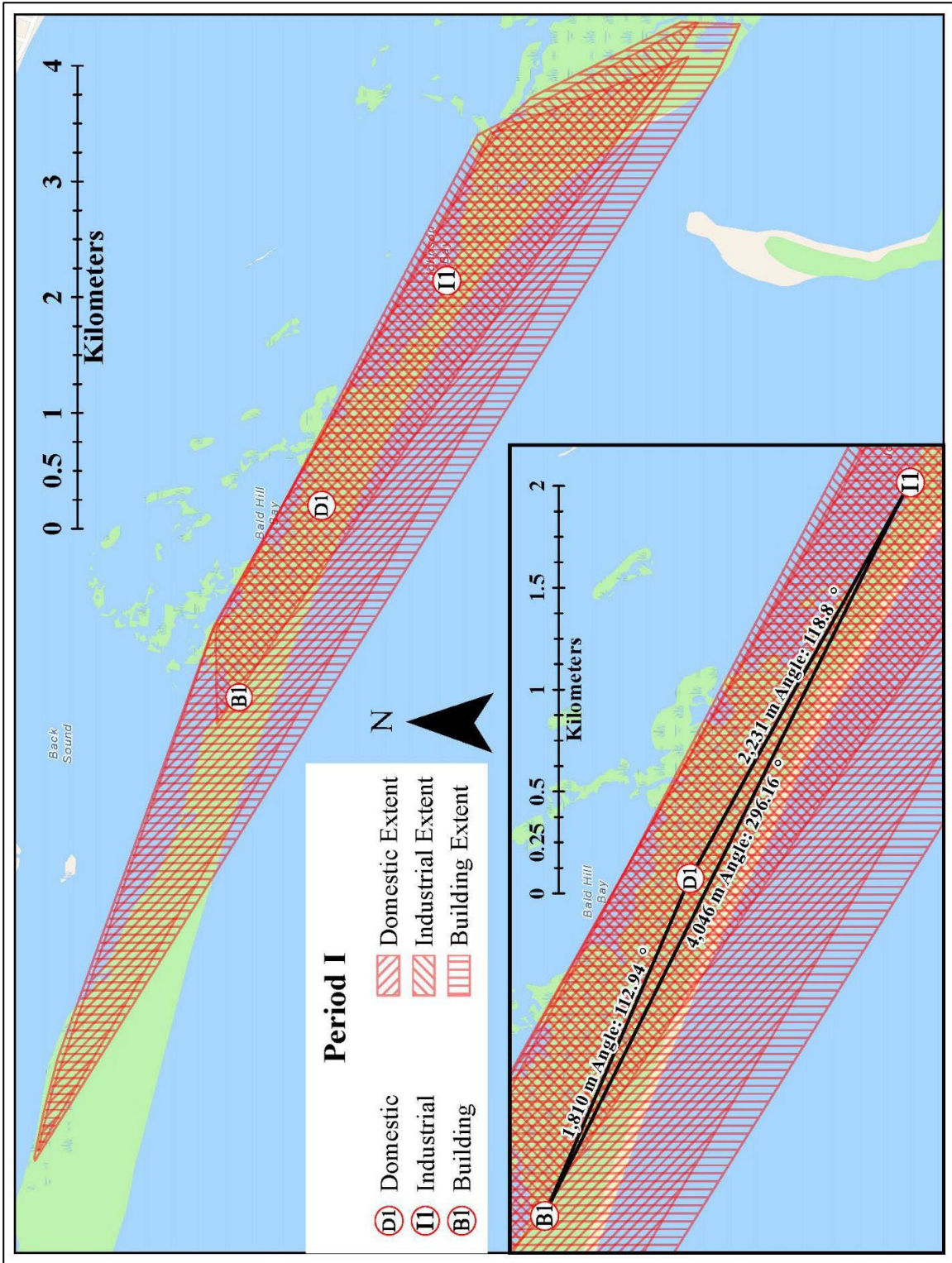


FIGURE 6.17: Map showing the distance between each function's mean centers in Period I with the overlapping extent of each function (Ellis 2023).

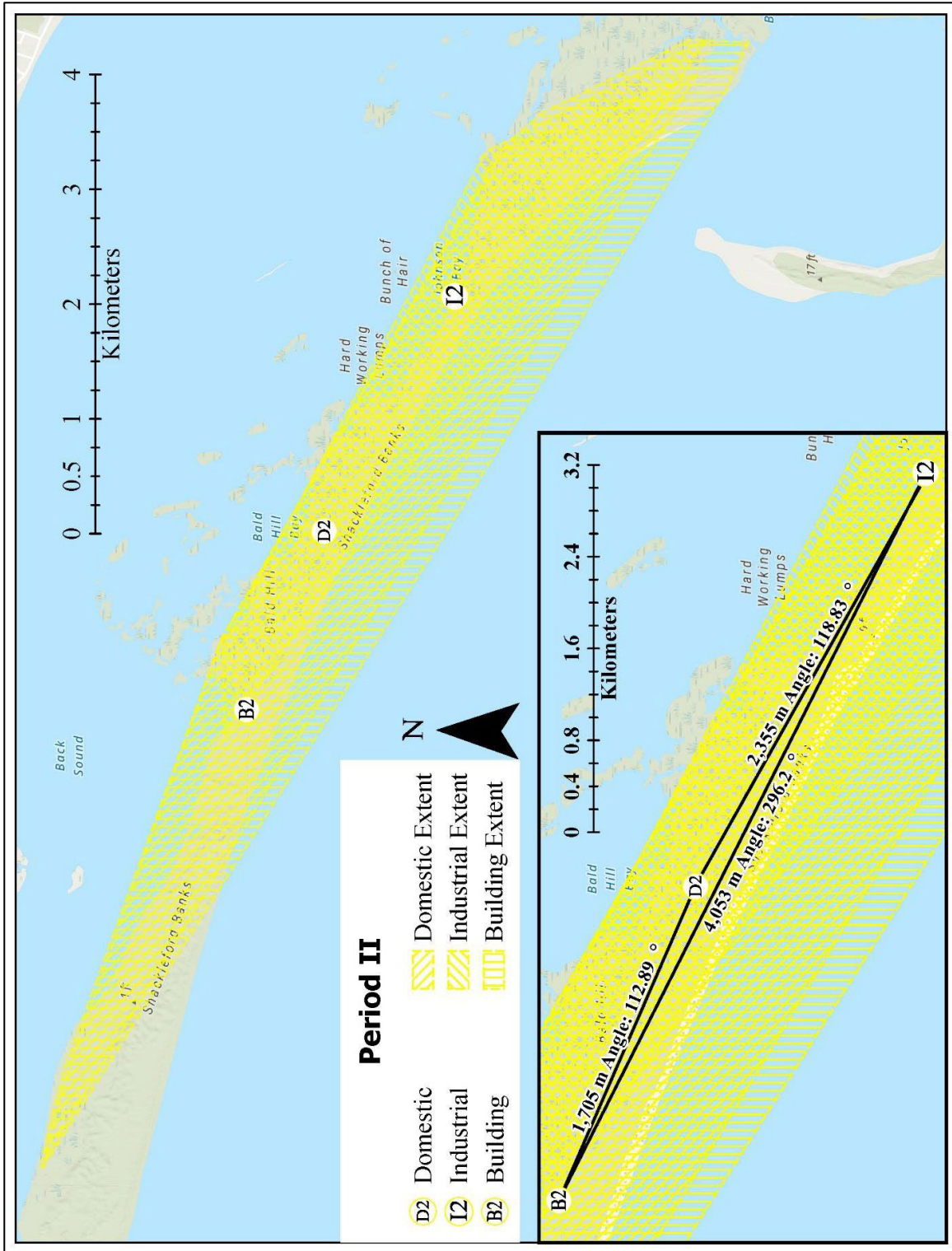


FIGURE 6.18: Map showing the distance between each function's mean centers in Period II with the overlapping extent of each function (Ellis 2023).

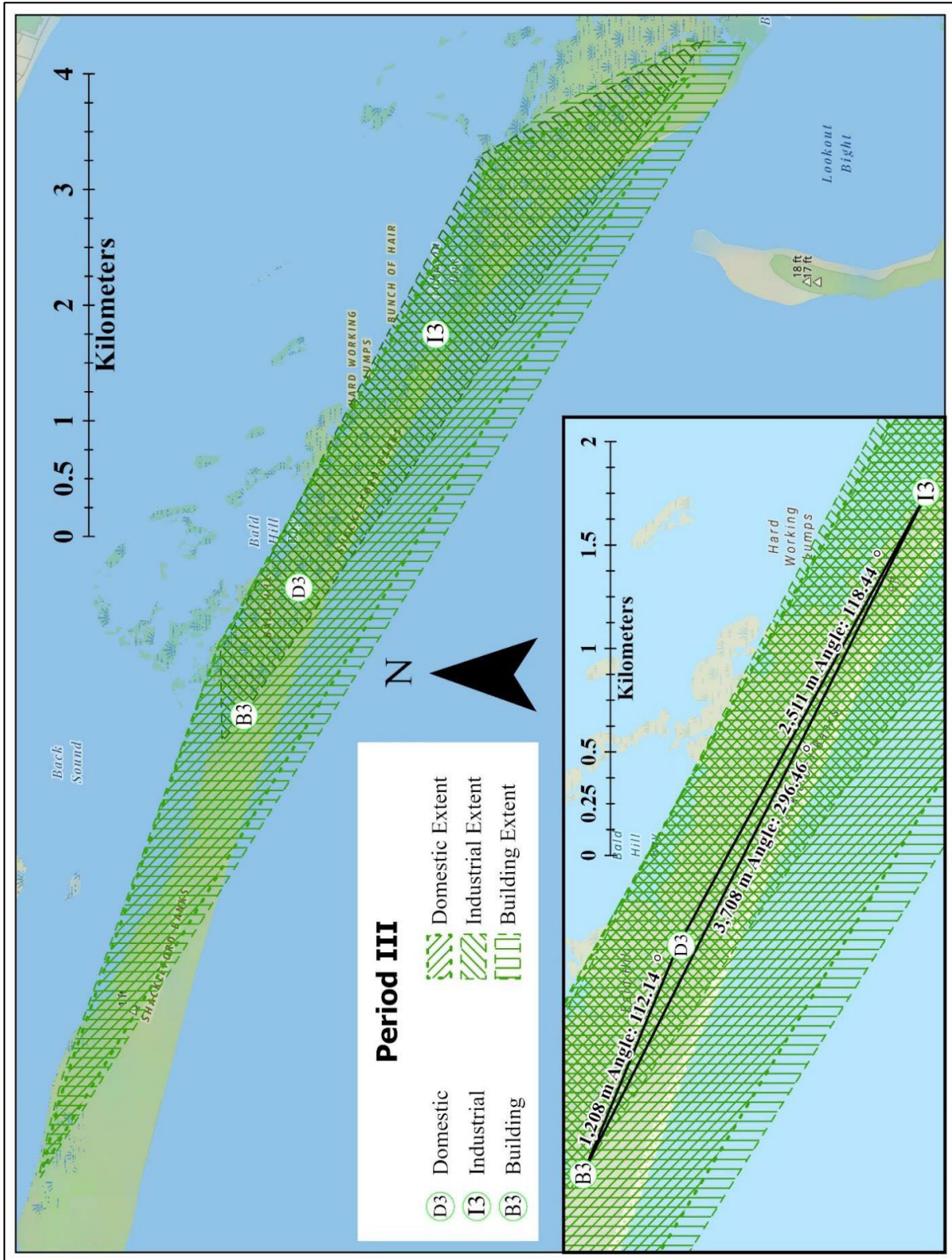


FIGURE 6.19: Map showing the distance between each function's mean centers in Period III with the overlapping extent of each function (Ellis 2023).

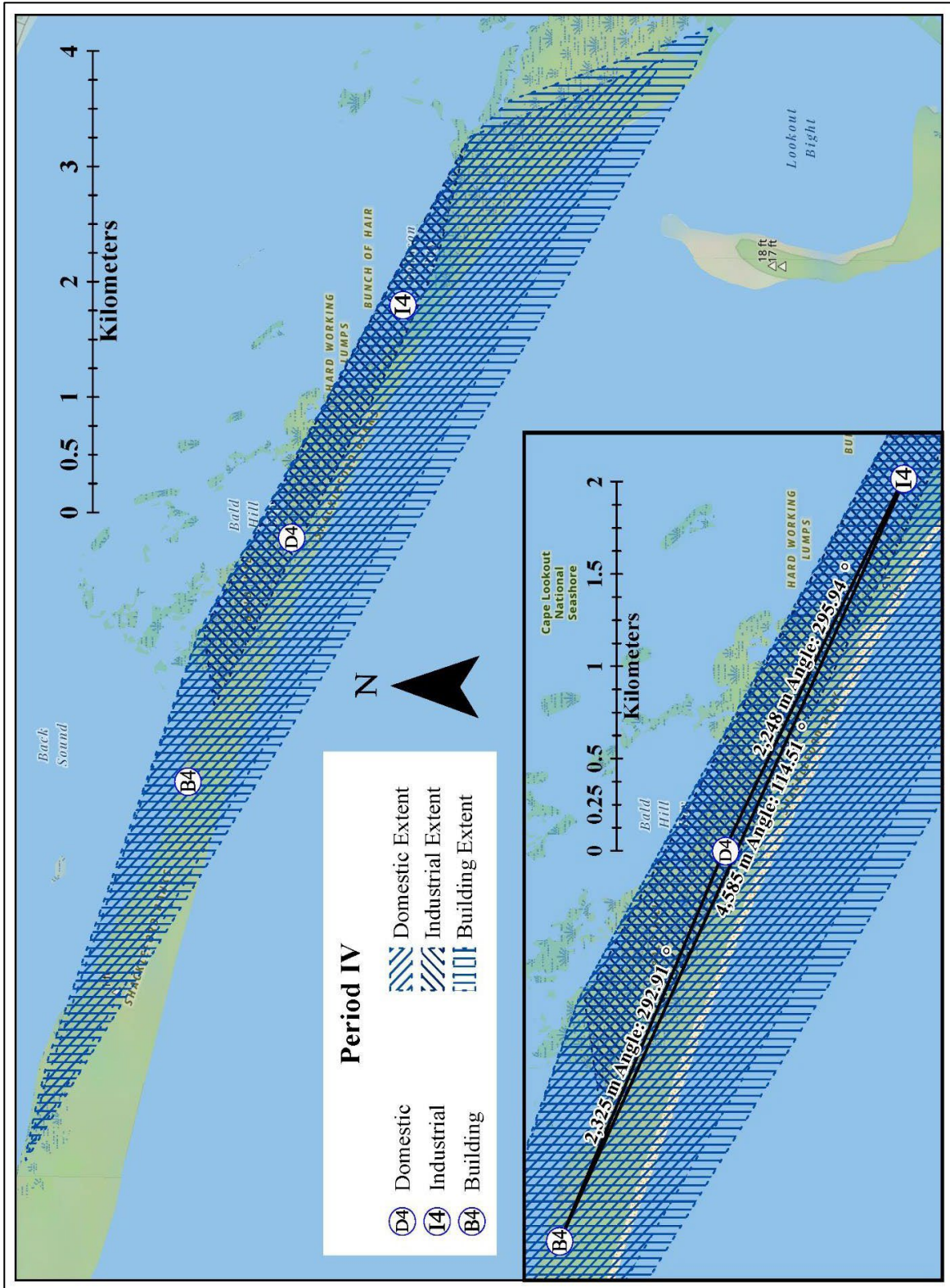


FIGURE 6.20: Map showing the distance between each function’s mean centers in Period IV with the overlapping extent of each function (Ellis 2023).

## Conclusion

This chapter explored Shackleford Banks' coastal communities, focusing on their establishment, development, and eventual abandonment using historical and cartographic evidence while discussing the results from the 2021 fieldwork. Using geospatial methods, the evidence was scrutinized to see if distribution and density patterns of archaeological surface finds provide insight into the lives of the communities that once inhabited the island.

Analyzed according to the three functional categories, the 2021 surface find assemblage was assessed to gain a better understanding of where the evidence of the habitation and work associated within these communities has left its impression on the Shackleford Banks landscape. The evidence was then analyzed temporally by examining the distribution extent of each functional category during each period of occupation. Many of the artifacts identified through surface finds were unable to be properly temporally analyzed due to uncertain historical provenance or exceedingly long potential spans between manufacture and use dates.

Cameron and Tomka (1993:16). explain that typically, the higher the percentage of broken artifacts reflects the longer the period of abandonment. There were also multiple intact artifacts found, such as glass bottles, which have the potential explanation that they were deposited via *de facto refuse* deposition processes (Schiffer 1987:89-91). Are intact artifacts lying in situ today because some areas of occupation were abandoned in a hurry? Such evidence could also demonstrate that abandonment actions during Period III (i.e., National Park Service takeover) left its signature behind. However, most of these items were found in the marshes and preserved by the environment. Another challenge with this idea is that the effects of *n-transforms* (e.g., sediment movement, storm activities) and *c-transforms* (souvenir hunting or beach cleanup activities) at sites have left a distorted impression of settlement, use, and abandonment behaviors on Shackleford

Banks. Objects that were left just a few days before these surveys took place could have been broken or altered, affecting the understanding of abandonment patterns.

Nevertheless, each period, once examined via geospatial analysis methods seems to suggest Shackleford Banks experienced multiple shifts in where the people of these different communities lived and worked. The epicenter of activity during each period for each function, represented by the mean center, provided a spatial focal point for understanding the dynamics of Shackleford Banks's industrial and domestic livelihoods. The movement of these epicenters of activity could show the relationship of development and abandonment, but do not answer the question of why in a definitive way, or in any way that demonstrates a deviation from the historical record. Shackleford Banks shows a multifaceted narrative and while difficult to definitively determine the reasoning behind the transforms on the island, evidence can be interpreted that there is no single answer to the behaviors according to extant historical records or the archaeological data collected during the summer of 2021.

## **Chapter 7: Conclusion**

The primary goal of this thesis was to investigate the establishment, development, and ultimate abandonment of communities on Shackleford Banks in Carteret County, North Carolina. To achieve this, an approach combining historical, archaeological, and geospatial methods was employed. This research drew from various sources, including historical documents, maps, and oral histories, and was complemented by terrestrial field surveys. Beginning with establishing the historical narrative, Chapter 2 laid out how Shackleford Banks was transformed from the time it was inhabited by the Coree to the time it became a part of Cape Lookout National Seashore. It also discussed previous archaeological research conducted for Emily Jateff's 2007 thesis, as well as research reports published for the NPS. Chapter 3 discussed the theoretical approach of site formation processes and behavioral archaeology adopted for this thesis by explaining the behaviors behind site abandonment and the changing coastal processes through *n-transforms* and *c-transforms*. This was expanded by considering how disasters appear in the archaeological record and discussing how the elements could have affected any *de facto refuse* and curate behaviors.

Chapter 4 followed a chronological timeline of the methodologies behind how the information for this thesis was collected and utilized. Initial historical research along with georectification of historic cartographic materials created context for the subsequent fieldwork conducted by ECU students during their 2021 field school. The chapter then followed the four days of surface surveys that specifically focused on searching for evidence on the sound side of Shackleford Banks, whether relevant or not, that could be utilized to further understand how these communities flourished. It then followed understand how these findings were utilized towards the results and analysis for this thesis.

Chapter 5 covered the results gathered from the information obtained during the summer



2021 fieldwork. It described how each of the surface findings were categorized by their perceived function, then broken down further into the type of materials that made up these artifacts. Chapter 5 also attempted to describe the available specific dating findings of certain artifacts that had markings, making determining their TAQ and TPQ more definitive. Chapter 6 took these results and applied geospatial means by determining which areas had denser artifact findings to determine whether that information could be used to estimate where people had settled regardless of functionality. These artifacts were then broken down into categorical functions and their densities to determine which locations were more likely to be utilized towards domestic or industrial purposes, along with including artifacts that were eventually deemed irrelevant to answering the questions posed in this thesis. The sixth chapter also analyzed how these artifacts by function existed temporally to show of the establishment, development, and abandonment of Shackleford Banks through time.

At the commencement of this manuscript a series of research questions were posed to explore the potential interplay between coastal climatic processes and events and the abandonment of sites, due to economic decline, and this conclusion seeks to answer them. These questions were:

1. What caused the establishment, development, and decline of the Shackleford Banks communities and industries?
  - a. Where did people live, and what were their living conditions?
  - b. Where did people work, what were their industries of employment, and what were their working conditions?
  - c. What was the geospatial relationship between living and working conditions and how did they overlap?
  - d. Was the abandonment of living and working spaces due to environmental, economic

factors, or both?

2. What archaeological evidence is there to show the existence of communities that lived on Shackleford Banks?
  - a. Is there any evidence to suggest economic or environmental reasoning for abandonment?

Question 1: What caused the establishment, development, and decline of the Shackleford Banks communities and industries?

Evidence regarding the establishment of settlements on Shackleford Banks cannot be answered via the evidence represented in the 2021 surface find assemblage. Evidence from land deeds, wills, and historic maps show an establishment of whaling camps on the eastern end of Shackleford Banks near the bight of Cape Lookout continue to provide the best insight (Lobb 1764; An Unknown Traveler 1921 Stick 1958:32-33; Angley 1982:3-4). It is likely that as the fishery industry grew and the port of Beaufort was nearby, people moved from building temporary camps to more permanent homes. Reminiscences contend, some inhabitants considered they had always occupied Shackleford Banks (e.g., Bailey 1999:12).

So too, it is still historical records that supply the best estimated time for the first major structures being built in the area, namely the construction of Fort Hancock during the Revolutionary War (North Carolina General Assembly 1778:15; Stanford 2014:31; Whisnant and Whisnant 2015:161). Though the remains of the fort are long gone, there is other historical evidence of people having settled and basing residential and work activities on Shackleford Banks (Simpson and Simpson 1988:21; Jateff 2007:32; Bradley 2015:22). The evidence of development on the island is further reinforced through maps by the increasing number of symbols that can be attributed to structures (NOAA 1866; NOAA 1883; NOAA 1899; NOAA 1910). The causes of settlement

abandonment can also be answered through historical means.

The traditional narrative of erosion being the cause of the exodus from Shackleford Banks during the periods of occupation from the mid-1800s to the early 1900s has previously been determined to be the major reasoning. Historical narratives communicate that even though people eventually moved their houses off Shackleford Banks, they continued to whale and fish in the area (Jateff 2006:19; Guthrie 2010; Whisnant and Whisnant 2015:78-84; Lewis 2016). The reasoning behind the second abandonment during the Period III occupation can be attributed to economic and political reasons due to the takeover by the National Park Service (Jateff 2006:77; Morris 2009; Guthrie 2010, 2016; Stanford 2014:100). The archaeological datasets in this thesis may provide compelling evidence of people moving across the landscape and offer valuable insights into the causes of settlement, use, and abandonment. Density mapping analysis indicates the existence of areas along the northern shores where sites described in historical sources, shown on maps and charts, correlate with overall artifact densities. Moreover, these areas can be identified as sites of industrial/commercial activity and locations of domestic/residential sites. There are patterns of historical and archaeological correlation that can be derived from fieldwork data.

It may be arguable if artifact densities provide definitive proof of where people lived and worked, but these data do appear to support the narratives derived from historical sources. For example, oral histories compiled by descendants, and estimations of where the communities of Shackleford Banks were located via hand-drawn maps seem to correlate with artifact density maps (Mason 1987; Hancock 1988; Tursi 2014a). These historical sources remain the best evidence of the type of conditions residents of Shackleford Banks in which they lived and worked. Their lives have been described as hard; building simple homes and repairing them from materials that were scavenged from shipwreck supplies that washed ashore and adding the difficulty that followed the whaling industry of long days chasing down, killing, and towing back their catch to try out for oil

(Brimley 1894:1-8; Barfield 1995:31-32, 58-59; Jateff 2006:12-13; Lewis 2011). Their industries of employment can be identified through the means of the 1850 census records and onwards. The 1850 federal census was the first instance for which occupation was a category to be listed (Simpson and Taylor 1972:206-214). These occupations were: mariner, fisherman, ship carpenter, keeper of the light house, boatman, carpenter, and keeping house (for the wives only). While the prospects for sub-surface archaeological sites still remain (the existence of which may be suggested by the density data presented in this manuscript), it is also likely that much of the archaeological evidence of these activities has been deeply distorted, or perhaps destroyed through various archaeological site formation processes including storm effects and erosion, but also including other anthropogenic factors such as souvenir collecting, vandalism, and the process of turning the island into a National Park.

The geospatial relationship between living and working spaces can only be hinted at if relying upon archaeological datasets collected from surveys for surface finds. The data mapped in the summer of 2021 is limited in what it was able to show. It is tempting to say that the nature of domestic and industrial spaces was remarkably close to each other in every period of habitation. These surface surveys did not yield enough definitive proof to be able to properly answer if there is a close geospatial relationship between where people lived and where they worked. Part of the reason for this has already been discussed in that sizable portions of the dataset was not significantly diagnostic and were particularly problematic because of the large potential dates of potential manufacture years.

Question 2: What archaeological evidence is there to show the existence of communities that lived on Shackleford Banks?

The field surveys conducted in the summer of 2021 yielded an extensively dispersed artifact scatter

spanning most of the island's breadth and biased toward the sound (northern shore) portions. These artifacts included ceramics, glass, wooden objects, iron objects, bricks, stones, unidentifiable metal, tabby, concrete, and the remains of many vehicles. These findings, especially those of wooden structural remains of posts in the ground, show that there was habitation on and use of Shackleford Banks from 300 AD on. Without proper absolute dating techniques to show when these structures were built, there is no way to determine whether these remains were a part of the first period of occupation (Period II) or the second (Period III). It is likely these structures belong to Period III as evidence from burning in the wood and in the materials surrounding it.

Other evidence providing insight into land use including glass bottles and ceramic sherds that could be definitively dated due to the presence of maker's marks. Some of the sherds did date to Period II, however, with archaeological site formation processes in mind, potentially these items were brought to the island at some point after abandonment through cultural processes or human interaction. Evidence of ceramic pieces of toilet tanks that were dated to being manufactured in the 1950s, could be indicative of housing in that area during Period III. Some of the discovered glass bottles could be dated and were identified as belonging to Period III. These bottles may represent *de facto refuse* behavior, which occurred as residents hurriedly departed the island as the NPS took over the island. This is due to the area in which some of these bottles were found being remote and in a marshy area contributing to the protection of the item.

Evidence suggesting that Shackleford Banks was abandoned through environmental means was gleaned from the archaeological data collected during 2021 field surveys. These surveys did show how some structures were affected by years of environmental processes (e.g., abrasion, corrosion, and deterioration) but could only give insight into the types of environmental conditions to which these communities could have been subjected. There is no archaeological evidence from

these surveys that can definitively answer whether the abandonment of Shackleford Banks was environmental or economical in nature.

### Summary and Future Research

This thesis utilized notions derived from archaeology site formation theory and behavioral archaeology to interrogate the cycles of human occupation that occurred on Shackleford Banks. Utilizing these theories sought to determine whether the traditionally accepted narrative of Shackleford Banks being abandoned due to environmental forces was the only reason. An examination of historical and cartographic records, and their translation geospatial dataset through GIS sought to estimate the extent and concentration community residential and work locations. Archaeological data collection, added to geospatial projection of historical information was successful in showing the concentration of living and working spaces in the Shackleford Bank's landscape, and provided some clues as to the changing relationships between living and working spaces through time. This reinforces the established timeline of Shackleford Banks' periods of occupation, which has already communicated how these communities established their homes and industries, developed them, and why they eventually abandoned them whether willingly or not. Shackleford Banks began as a prominent industrial area where people made their homes.

It is now a tourist area and wildlife habitat. This island is constantly affected by *n-transforms* that occur due to the constant crashing waves and rising tides as well as the violent weather that happens during tropical storms and hurricanes. It has also always been affected by *c-transforms*, from the time that community members "progged" for supplies to the present day (where tourists collect artifacts of interest). It is likely that many of the smaller surface finds have been covered by the sand once more or have since been moved to other locations (by people or pounding surf).

Analysis of the data gathered in the field could not concretely prove where the locations of

houses and workplaces existed on the island during each period of occupation, but it could suggest where likely sites of domestic and industrial activity may lie in situ. The limitations of the project were ingrained in the methodologies employed and the logistical limits of the fieldwork. Due to State and Federal permitting regulations, the didactic goals of the associated field school, and budgetary factors, the survey was limited to surface finds only. No artifacts or samples were taken for subsequent analysis. All archaeological data was recorded in situ. Areas of artifact density outlined in this manuscript could point to the location of substantial sites, and if excavated could illuminate more about the lives of the people living on Shackelford Banks. This information would provide a more nuanced understanding of site functions and would invariably assist in establishing tighter temporal provenience.

While many of the conclusions of this research are not definitive, they do contribute to the previously existing body of work about the establishment, development, and abandonment of Shackelford Banks. Further studies could reveal vital information on the native population that first inhabited the island, as evidenced by Emily Jateff's thesis (2007) work with discovering multiple shell middens and native era ceramics. Information could also be gleaned from the discovery of any structures, whether temporary or more permanent, to gain a better understanding of how many people could have lived in those houses and how it is suspected that Diamond City once had a population of five hundred. Excavations could disclose more about the prominent industries that took place on the island that would corroborate the historical record and concretely expose how these businesses fluctuated during periods of economic prosperity and decline.

It is essential to recognize that while Shackelford Banks has now become a popular tourist destination, it holds significant historical value for Native American populations and the descendants of the small communities that once thrived here. Communities such as those on Harkers Island take

pride in preserving the legacy of their ancestors who lived through the challenges of island life and worked in demanding industries. Potential important historic material may be lost due to the hands of those who take home treasures they find on the beach. Another issue is the rising waters due to increasing global temperatures. As shown by the separation of Shackleford Banks from Cape Lookout by the natural transformation of the Barden Inlet, this island is constantly being reshaped, and the evidence of human habitation could be lost beneath the waves.



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Appendix A: Artifact Database

ID	Function	Easting	Northing	Elevation	Object Category	Site Type	Description	TPQ	TAQ
1	Building	352453.924	3838197.337	-3.499009	Brick	Cluster	Burned brick cluster	1764	2021
2	Unknown	352474.768	3838188.346	-4.086843	Iron	Cluster	Iron cluster	1764	2021
3	Building	352486.563	3838180.951	-3.620308	Brick	Object	Burned iron brick	1764	2021
4	Building	352486.563	3838180.951	-3.620308	Iron	Object	Burned iron brick	1764	2021
5	Unknown	352628.106	3838120.221	-6.326209	Iron	Object	Iron	1764	2021
6	Building	352643.642	3838105.997	-5.150542	Wood	Structure	Burned post	1764	1985
7	Unknown	352661.095	3838108.378	-1.408934	Iron	Object	UID metal	1764	2021
8	Unknown	352684.698	3838100.013	-5.980973	Iron	Object	Concretion	1764	2021
9	Building	352698.717	3838094.247	-6.06495	Iron	Object	Galvanized	1764	2021
10	Unknown	358633.918	3834438.742	1.046788	Iron	Object	Unidentified Iron	1764	2021
11	Building	352731.346	3838082.968	-6.503492	Wood	Structure	Post stump	1764	2021
12	Building	352818.263	3838027.334	-5.878336	Wood	Structure	Many posts	1764	1985
13	Building	352815.599	3838061.651	-10.525021	Wood	Structure	Post 1	1764	1985
14	Unknown	358138.572	3835023.617	1.476645	Wood	Cluster	Wood debris field	1764	2021
15	Building	352859.495	3838049.746	-7.865773	Wood	Structure	Post 2	1764	1985
16	Building	358737.377	3835286.219	-0.354216	Wood	Structure	Pilings	1764	1985
18	Building	358740.816	3835283.497	-0.352176	Wood	Structure	Pilings	1764	1985
19	Unknown	352947.367	3838077.635	1.078125	Wood	Object	Timber	1764	2021
20	Building	358741.707	3835281.494	-0.350832	Wood	Structure	Pilings	1764	1985
21	Unknown	352907.766	3838019.249	-5.598415	Wood	Object	Timber	1764	2021
22	Building	358737.188	3835279.899	-0.348161	Wood	Structure	Pilings	1764	2021
24	Building	352992.289	3838009.579	-8.565575	Wood	Structure	Dock?	1764	1985
25	Building	353041.829	3837983.498	-8.854827	Brick	Cluster	Many bricks	1764	2021
26	Building	359035.999	3834958.846	-0.605786	Concrete	Cluster	Debris field (picture shows cinderblocks and wooden posts)	1764	2021
27	Building	359035.999	3834958.846	-0.605786	Wood	Cluster	Debris field (picture shows cinderblocks and wooden posts)	1764	1985
28	Unknown	359134.352	3834927.842	0.423038	Site	Cluster	Debris field	1764	2021
29	Building	353101.67	3837977.664	-10.161123	Brick	Object	Iron, brick, and native ceramic	1764	2021
30	Building	353101.67	3837977.664	-10.161123	Iron	Object	Iron and brick	1764	2021
31	Domestic	353200.524	3837940.7	-9.899864	Ceramic	Object	Terra cotta sherd	1900	1975
32	Domestic	357893.597	3835570.392	0.583045	UID Metal	Object	Filled in pot or bowl	1764	2021
33	Industrial	357886.975	3835569.052	1.59875	Barrel	Object	Barrel	1764	2021
34	Building	353315.69	3837903.814	-6.111603	Wood	Structure	Post	1764	1985

35	Domestic	357868.409	3835571.886	3.32547	Site	Cluster	Debris scatter, ceramic, brick, and iron	1764	2021
36	Building	353391.687	3837853.018	-8.416284	Wood	Structure	Dock timber	1764	1985
37	Building	353475.976	3837793.657	-7.800458	Brick	Cluster	Lots of bricks, and tabby	1764	2021
39	Building	357804.45	3835579.305	4.683478	Iron	Cluster	Artifact Scatter, and debris; iron brick	1764	2021
40	Building	357804.45	3835579.305	4.683478	Brick	Cluster	Artifact Scatter, and debris; iron brick	1764	2021
41	Building	353616.555	3837758.147	-12.232537	Brick	Cluster	10m brick glass frag	1764	2021
42	Building	353616.555	3837758.147	-12.232537	Glass	Cluster	10m brick glass frag	1764	2021
43	Industrial	357801.47	3835582.457	4.281387	Iron	Object	Iron pipe	1764	2021
44	Industrial	357741.261	3835595.37	5.19349	Glass	Object	Intact bottle and barrel slats	1764	2021
45	Industrial	357741.261	3835595.37	5.19349	Barrel	Object	Intact bottle and barrel slats	1764	2021
46	Industrial	353622.878	3837746.628	-10.608996	Wood	Structure	Fence post	1764	1985
47	Industrial	357528.534	3835663.318	4.850299	Barrel	Object	Barrel and pen/fencing	1764	2021
48	Industrial	357528.534	3835663.318	4.850299	Wood	Structure	Barrel and pen/fencing	1764	1985
49	Unknown	353594.908	3837716.564	-3.806922	Wood	Object	Wood	1764	2021
50	Building	353575.495	3837712.214	-5.561092	Wood	Structure	Post	1764	1985
51	Domestic	357723.452	3835605.509	1.493086	Wood	Object	Scraper handle	1898	2021
52	Building	353589.596	3837670.826	-7.054003	Brick	Object	Brick	1764	2021
53	Domestic	357481.755	3835691.107	3.28776	Ceramic	Object	Ceramic	1764	2021
54	Industrial	353949.303	3837599.897	-8.043056	Wood	Object	Telephone pole	1949	1985
55	Building	357474.465	3835693.666	3.222087	Wood	Structure	Wood pilings	1764	1985
56	Unknown	354069.81	3837563.716	-7.137979	Wood	Object	Fenced square	1764	2021
57	Building	357294.692	3835770.204	2.194424	Wood	Structure	First corner, burned structure	1764	1985
58	Building	354247.156	3837656.76	-7.212625	Brick	Object	Brick	1764	2021
59	Building	357288.704	3835774.519	2.751704	Wood	Structure	Second corner, burned structure	1764	1985
60	Building	354336.26	3837768.169	-7.82845	Wood	Structure	Center of posts	1764	1985
61	Building	357092.742	3835841.001	2.99506	Wood	Structure	Burned pilings, open area	1764	1985
62	Building	354344.338	3837780.575	-7.231286	Brick	Object	Brick	1764	2021
63	Industrial	356883.032	3836061.231	2.452073	Wood	Structure	House inside pen or fence	1764	1985
64	Building	354370.792	3837801.795	-7.501876	Wood	Object	Post next to whale creek	1764	1985

65	Industrial	356873.57	3836054.06	3.241491	Wood	Structure	End of pen or fence	1764	1985
66	Industrial	356940.08	3835939.21	3.128567	Site	Cluster	Iron, burnt wood, remains of pony pen	1764	2021
67	Building	354384.129	3837804.801	-7.427231	Wood	Structure	Piling	1764	1985
68	Building	354415.577	3837788.108	-6.792744	Wood	Object	Timber/piling	1764	1985
69	Building	354431.35	3837782.866	-6.792744	Brick	Cluster	Twenty pieces of broken brick	1764	2021
70	Domestic	354437.18	3837775.009	-7.091326	Glass	Object	Big glass bottle, orange juice?	1764	2021
71	Building	354473.661	3837769.106	-7.035342	Wood	Structure	Piling	1764	1985
72	Domestic	354451.467	3837751.045	-5.654399	Glass	Object	Glass jar	1764	2021
74	Domestic	354433.622	3837758.421	-4.926605	Ceramic	Cluster	Ceramics	1764	2021
75	Building	352235.059	3838339.507	-3.739506	Iron	Object	Fastener (wrought iron peg)	1764	2021
76	Industrial	354433.67	3837743.887	-6.130264	Wood	Structure	Rectangular fence post with barb wire	1764	2021
77	Building	352254.402	3838322.777	-3.850756	Brick	Object	Burned brick fragment	1764	2021
78	Domestic	354430.924	3837732.503	-4.198812	Glass	Object	Brown glass base	1957	1957
79	Unknown	352285.091	3838293.552	-3.795374	Iron	Object	Piece of iron	1764	2021
80	Industrial	354401.436	3837757.488	-5.085227	Wood	Structure	Fence post, round	1764	1985
81	Domestic	352358.397	3838258.431	-4.761015	Ceramic	Object	Piece of ceramic (pearlware)	1779	2021
82	Industrial	354388.89	3837757.909	-5.113219	Wood	Structure	Fence post, round	1764	1985
83	Building	352389.597	3838232.305	-3.634126	Brick	Object	Brick fragment	1764	2021
84	Domestic	354392.18	3837745.872	-4.842629	Glass	Cluster	Bottles (2)	1958	1974
85	Building	352421.895	3838228.794	-3.854133	Iron	Object	Fastener (Nail)	1764	2021
86	Government	353462.697	3837823.381	-3.172435	Marker	Object	NPS datum point	2002	2003
87	Domestic	352139.372	3838402.057	-1.847477	Car	Object	Car	1930	1985
88	Building	352430.439	3838218.782	-3.485209	Iron	Object	Fastener (Possible tack)	1764	2021
89	Unknown	352430.911	3838219.445	-3.553738	Glass	Object	Melted glass	1800	1930
90	Domestic	352442.829	3838213.926	-3.756002	Clothing	Object	Zipper	1936	2021
91	Unknown	352447.98	3838215.183	-4.013433	Iron	Object	Metal fragment	1764	2021
92	Unknown	349243.326	3839471.103	-1.576887	UID Metal	Object	Rusty cable	1764	2021
93	Building	352457.089	3838211.708	-3.752614	Iron	Object	Fastener (Possible tack)	1764	2021
94	Unknown	349757.666	3839379.95	-1.502241	Wood	Object	Large timber	1764	2021
95	Building	349847.04	3839359.636	-0.80244	Brick	Object	Brick	1764	2021

96	Domestic	352467.15	3838210.654	-4.108924	Ceramic	Object	Ceramic sherd (stoneware)	1764	2021
97	Building	349873.936	3839345.325	-1.278305	Brick	Object	Brick	1764	2021
98	Domestic	352471.998	3838209.693	-3.785461	Car	Object	Two pieces of car rim	1930	1985
99	Building	352476.504	3838205.186	-4.062119	Iron	Object	Fastener (Nail)	1764	2021
100	Building	349878.731	3839353.011	-1.278305	Wood	Structure	Post	1764	1985
101	Building	352499.02	3838186.071	-3.155586	Brick	Object	Brick corner fragment	1764	2021
102	Domestic	349933.624	3839330.6	-2.314012	Brick	Cluster	2 Bricks and bottle bottom	1764	2021
103	Building	352505.757	3838194.732	-3.27384	Iron	Object	Fastener (Nail)	1764	2021
105	Domestic	352654.623	3838116.356	-2.9033	Ceramic	Object	Whiteware ceramic sherd (pearlware)	1779	2021
107	Building	352655.585	3838119.345	-3.124744	Iron	Object	Fastener (Nail)	1764	2021
108	Unknown	350074.541	3839278.273	-2.304681	Iron	Cluster	Iron scatter	1764	2021
110	Building	352816.139	3838060.87	-3.789953	Wood	Structure	Two posts; are degraded	1764	1985
111	Building	350164.612	3839283.244	-2.304681	Brick	Structure	Brick structure	1764	2021
112	Building	352858.541	3838053.536	-2.771252	Wood	Structure	Two pilings	1764	1985
113	Building	352899.486	3838040.563	-2.742281	Wood	Structure	Two pilings	1764	1985
114	Domestic	350123.706	3839258.84	-3.10712	Brick	Cluster	Ceramic and brick cluster	1764	2021
115	Domestic	350123.706	3839258.84	-3.10712	Ceramic	Cluster	Ceramic and brick cluster	1764	2021
117	Building	352943.718	3838026.998	-3.043605	Wood	Structure	Two pilings	1764	1985
118	Building	350096.934	3839212.791	-1.129014	Wood	Structure	Post	1764	1985
119	Building	352987.343	3838015.424	-3.45236	Wood	Structure	Two pilings	1764	1985
120	Building	350108.985	3839209.936	-1.660863	Wood	Structure	Post	1764	1985
121	Building	350137.164	3839269.267	-1.707517	Brick	Cluster	Brick cluster	1764	2021
122	Building	353001.333	3838018.864	-3.548198	Wood	Structure	Possible site of old dock? Oyster clusters, 20x20m.	1764	1985
123	Building	350158.727	3839282.232	-1.707517	Brick	Cluster	Brick cluster	1764	2021
124	Building	353026.428	3838000.937	-3.880085	Wood	Structure	Wood piece out of ground	1764	2021
125	Building	353032.246	3838003.504	-4.180916	Wood	Structure	Piling	1764	1985
126	Building	350269.728	3839272.442	-1.101022	Wood	Structure	Post	1764	1985
127	Building	353070.908	3837990.911	-3.730775	Wood	Structure	Piling	1764	1985
128	Building	350307.264	3839185.858	1.746094	Wood	Structure	2 posts	1764	1985
129	Building	350307.264	3839185.858	1.746094	Brick	Object	Brick	1764	2021
130	Building	353095.812	3837989.408	-4.420988	Wood	Structure	Nine wooden posts	1764	1985
131	Building	350391.697	3839238.513	-3.293734	Brick	Cluster	Lots of brick	1764	2021

132	Domestic	353101.975	3837979.435	-4.572301	Site	Cluster	Five brick and plate ceramic clusters, multiple clusters of brick, nail, ceramic, and wood pilings	1764	2021
133	Building	353114.847	3837976.347	-4.771015	Site	Cluster	Possible site. Clusters of iron, brick, ceramic, tabby	1764	2021
134	Unknown	350395.073	3839232.135	-3.293734	Wood	Object	Tongue and groove plank	1764	2021
135	Unknown	353128.077	3837966.81	-4.397711	Iron	Cluster	Two iron clusters	1764	2021
137	Building	353219.345	3837943.061	-4.648021	Brick	Object	Brick	1764	2021
138	Unknown	350441.305	3839212.193	-0.54118	Wood	Object	Wood sheet	1764	2021
139	Domestic	353241.248	3837942.713	-4.61254	Brick	Cluster	Five brick fragments and ceramics	1764	2021
140	Domestic	353241.248	3837942.713	-4.61254	Ceramic	Cluster	Five brick fragments and ceramics	1850	2021
141	Domestic	350465.304	3839200.599	0.223937	Brick	Object	Brick and small ceramic	1764	2021
142	Domestic	350465.304	3839200.599	0.223937	Ceramic	Object	Brick and small ceramic	1764	2021
143	Building	353261.988	3837932.953	-4.110882	Brick	Cluster	Brick clusters	1764	2021
144	Building	350686.582	3839164.729	0.242598	Brick	Cluster	Brick scatter	1764	2021
145	Unknown	353295.806	3837921.546	-4.47218	Iron	Object	Iron plate	1764	2021
146	Building	350732.81	3839155.881	0.242598	Brick	Cluster	Brick scatter	1764	2021
147	Domestic	353304.424	3837910.316	-4.173674	Ceramic	Object	Ceramic sherd	1764	2021
148	Building	350746.759	3839134.575	-0.830432	UID Metal	Object	Metal bracket	1764	2021
149	Building	353314.602	3837904.501	-4.168817	Wood	Structure	Pilings	1764	1985
150	Domestic	350854.144	3839076.824	-0.167952	Ceramic	Object	Ceramic	1860	1900
151	Building	353318.262	3837909.985	-4.855067	Iron	Object	Iron piece with fasteners	1764	2021
152	Building	353318.262	3837909.985	-4.855067	UID Metal	Object	Iron piece with fasteners	1764	2021
153	Domestic	351334.067	3838753.243	-0.158622	Glass	Object	Blue bottle	1890	1950
154	Unknown	353346.009	3837902.774	-4.753144	Wood	Cluster	Wooden planking with iron piece and 30m iron scatter east on shoreline	1764	2021
155	Unknown	353346.009	3837902.774	-4.753144	Iron	Cluster	Wooden planking with iron piece and 30m iron scatter east on shoreline	1764	2021
156	Building	351528.714	3838696.52	-0.158622	Brick	Object	Brick	1764	2021



157	Building	353457.073	3837855.754	-3.645983	Wood	Structure	Piling, large brick cluster with tabby	1764	1985
158	Building	353457.073	3837855.754	-3.645983	Brick	Cluster	Piling, large brick cluster with tabby	1764	2021
159	Building	353457.073	3837855.754	-3.645983	Tabby	Cluster	Piling, large brick cluster with tabby	1764	2021
160	Building	351696.828	3838607.619	-0.158622	Brick	Structure	Brick structure fragments	1764	2021
161	Building	353470.983	3837854.64	-3.392545	Wood	Structure	Piling	1764	1985
162	Building	351715.501	3838606.658	-0.298582	Brick	Cluster	Brick scatter	1764	2021
163	Building	353563.695	3837811.456	-2.050288	Iron	Object	Fastener (Nail)	1764	2021
164	Building	353649.837	3837730.328	-1.222342	Wood	Object	Modern piling	1764	1985
165	Building	351866.513	3838536.892	0.223937	Wood	Structure	Post	1764	1985
166	Industrial	353784.863	3837644.884	-0.047548	Barrel	Object	Barrel well remains?	1764	2021
167	Building	353876.981	3837622.122	0.026362	Wood	Structure	Four pilings sticking out of water	1764	1985
168	Industrial	353944.182	3837606.412	1.320976	Wood	Object	Telephone pole	1949	1985
169	Industrial	356330.64	3836496.125	5.841013	Wood	Object	Telephone pole, burnt posts	1949	1985
170	Domestic	354160.27	3837581.366	0.923644	Glass	Object	Glass Clorox bottle	1951	1951
171	Domestic	354243.2	3837649.941	0.282412	Glass	Object	Old bottle	1953	1953
172	Building	354244.739	3837660.34	0.377686	Brick	Object	Brick	1764	2021
173	Building	356398.809	3836476.756	7.380577	Wood	Structure	Pilings 3	1764	1985
174	Unknown	354280.489	3837666.545	0.772467	Wood	Object	Timber	1764	2021
175	Industrial	353760.237	3837629.522	3.945879	Wood	Object	Telephone pole?	1949	1985
176	Building	356413.956	3836466.645	6.214241	Brick	Cluster	Debris field of brick	1764	2021
177	Industrial	353754.41	3837631.716	3.831169	Wood	Object	Telephone pole?	1949	1985
178	Domestic	353689.918	3837645.273	3.605907	Car	Object	Car	1949	1985
179	Unknown	359327.061	3833309.106	2.310956	Iron	Object	Unidentified Iron	1764	2021
180	Building	356482.379	3836427.979	6.391524	Wood	Structure	Burnt pilings	1764	1985
181	Domestic	352141.674	3838408.12	3.74998	Car	Object	Car	1949	1985
183	Building	356452.763	3836392.056	8.285654	Wood	Structure	Three posts, one with hinge	1764	1985
184	Building	356452.763	3836392.056	8.285654	Iron	Structure	Three posts, one with hinge	1764	1985
185	Domestic	352139.784	3838404.709	3.733623	Car	Object	Car	1949	1985
186	Building	356486.064	3836328.97	8.845496	Wood	Structure	Fence posts, burnt piling	1764	1985
187	Industrial	359677.623	3833492.123	0.401137	Wood	Structure	Southeast of fence post.	1764	1985

188	Domestic	352142.82	3838405.321	3.648462	Car	Object	Car	1949	1985
189	Industrial	359667.694	3833502.26	0.422347	Wood	Structure	Southwest of fence post	1764	1985
190	Domestic	352121.84	3838417.197	3.807317	Car	Object	Car	1930	1985
191	Industrial	359680.6	3833513.046	0.322894	Wood	Structure	Northwest of fence post	1764	1985
192	Domestic	352087.545	3838450.478	3.090098	Car	Object	Car parts	1930	1985
193	Unknown	359694.949	3833503.957	0.157117	Wood	Structure	Northeast of fence post	1764	1985
194	Domestic	359384.013	3833574.905	-2.61103	Glass	Cluster	Three sherds of purple glass	1764	1930
195	Building	349883.462	3839361.925	-2.578365	Brick	Cluster	Brick and iron scatter, about 20m	1764	2021
196	Building	349883.462	3839361.925	-2.578365	Iron	Cluster	Brick and iron scatter, about 20m	1764	2021
197	Domestic	359389.996	3833564.503	-3.168297	Glass	Object	One piece of transparent glass	1910	2021
198	N/A	359178.019	3833655.142	-2.568129	Iron	Object	Old Buoy	1920	2021
199	Building	349968.292	3839337.913	-2.192897	Wood	Structure	Piling	1764	1985
200	Building	350007.893	3839316.077	-2.60548	Wood	Structure	Piling	1764	1985
202	Unknown	359297.58	3833932.307	-2.802457	UID Metal	Object	Wire cable	1764	2021
203	Unknown	359096.353	3834156.24	-4.648796	Wood	Structure	Pilings	1764	2021
204	Building	350052.396	3839308.472	-3.429734	Wood	Structure	Piling	1764	1985
205	Unknown	359091.31	3834156.092	-4.548331	Wood	Structure	Pilings	1764	2021
206	Building	350098.451	3839300.405	-2.84635	Wood	Structure	Piling	1764	1985
207	Domestic	358886.384	3834197.158	-2.902566	Glass	Object	Light bulb	1923	2021
208	Building	350140.135	3839294.288	-2.257241	Wood	Structure	Piling	1764	1985
209	Building	350135.552	3839271.74	-1.600663	Brick	Cluster	Cluster of brick	1764	2021
210	Domestic	358720.31	3834320.273	-2.968308	Car	Object	Tire in proximity to wood and glass	1930	1985
211	Building	350126.886	3839257.012	-1.556161	Brick	Structure	Brick structure	1764	2021
212	Building	358672.595	3834378.028	-3.28552	Glass	Object	Glass and timbers	1764	2021
213	Building	358672.595	3834378.028	-3.28552	Wood	Cluster	Glass and timbers	1764	1985
214	Building	350063.452	3839221.769	-1.612019	Brick	Structure	Brick structure	1764	2021
217	Building	350267.95	3839276.023	1.890381	Wood	Structure	Piling	1764	1985
218	Building	350286.908	3839275.157	1.462269	Glass	Object	Melted glass shard and large iron fragment	1764	2021
219	Building	350286.908	3839275.157	1.462269	Iron	Object	Melted glass shard and large iron fragment	1764	2021
220	Unknown	358451.001	3834796.626	1.25401	Wood	Object	Board walk	1764	2021
221	Building	350310.969	3839267.337	1.935021	Wood	Structure	Two pilings	1764	1985

222	Building	358417.855	3834828.971	0.045509	Wood	Object	Large beam	1764	2021
223	Building	350329.54	3839259.708	1.879685	Brick	Cluster	Brick and iron scatter and hinge	1764	2021
224	Building	350329.54	3839259.708	1.879685	Iron	Cluster	Brick and iron scatter and hinge	1764	2021
225	Industrial	358358.495	3834915.637	-1.352421	Wood	Object	Horizontal telephone pole	1949	1985
226	Building	350390.012	3839236.429	2.194475	Site	Cluster	Large brick cluster, tongue, and groove planking. Bricks go back into shoreline. About seventy-five bricks in the water near possible burned sand.	1764	2021
227	Industrial	358703.21	3835359.73	0.537879	Wood	Structure	Inland jetty end	1764	1985
228	Building	350439.531	3839216.099	3.569278	Wood	Object	Piece of wood with frame and brick next to it	1764	2021
229	Building	350439.531	3839216.099	3.569278	Brick	Object	Piece of wood with frame and brick next to it	1764	2021
230	Industrial	358707.626	3835438.865	-0.463173	Wood	Structure	Jetty end	1764	1985
231	Unknown	350618.376	3839162.95	7.055347	Brick	Cluster	Brick cluster looks like a campfire	1764	2021
232	Domestic	358715.683	3835330.251	-1.942656	Clothing	Object	Shoe heel	1800	1918
233	Building	350691.204	3839166.988	4.493584	Brick	Cluster	Brick scatter	1764	2021
234	Domestic	358723.322	3835314.272	-1.753974	Glass	Object	Sherd of milk glass	1764	2021
235	Domestic	350696.032	3839103.233	6.345132	Site		Wades Shore cemetery	1882	1919
237	Industrial	358658.401	3835360.974	-2.499944	Barrel	Cluster	Possibly two barrels	1764	2021
238	Building	350720.595	3839154.303	3.995196	Brick	Cluster	30m brick scatter	1764	2021
239	Building	350878.087	3839083.978	3.455813	Brick	Cluster	Small brick scatter	1764	2021
240	Domestic	358538.251	3835411.174	-2.614726	Glass	Object	Melted glass and ceramic with brick nearby	1764	2021
241	Domestic	358538.251	3835411.174	-2.614726	Ceramic	Object	Melted glass and ceramic with brick nearby	1764	2021

242	Domestic	358538.251	3835411.174	-2.614726	Brick	Object	Melted glass and ceramic with brick nearby	1764	2021
243	Building	350888.361	3839067.614	3.865277	Brick	Cluster	Brick and iron scatter	1764	2021
244	Building	350888.361	3839067.614	3.865277	Iron	Cluster	Brick and iron scatter	1764	2021
245	Building	358501.587	3835423.386	-2.057905	Glass	Cluster	Glass and Iron debris field	1764	2021
246	Building	358501.587	3835423.386	-2.057905	Iron	Cluster	Glass and Iron debris field	1764	2021
247	Domestic	358296.554	3835449.498	-2.295059	Ceramic	Object	Ceramic with makers mark, possibly a plate	1892	1894
248	Building	351709.301	3838619.953	8.909267	Brick	Object	Brick and cinder block concretion	1764	2021
249	Building	351709.301	3838619.953	8.909267	Concrete	Object	Brick and cinder block concretion	1764	2021
250	Domestic	351721.707	3838582.262	9.217537	Glass	Object	Glass shard	1764	1900
251	Building	358279.628	3835457.52	-0.843435	UID Metal	Object	Pipe	1764	2021
252	Building	358278.397	3835454.982	-1.698128	Wood	Structure	Post, one structure	1764	1985
253	Building	358269.809	3835457.113	-2.750296	Wood	Structure	Burnt post	1764	1985
254	Domestic	358269.924	3835458.554	-2.871082	Wood	Structure	Post with ceramic nearby	1764	1985
255	Domestic	358269.924	3835458.554	-2.871082	Ceramic	Object	Post with ceramic nearby	1764	2021
256	Building	358272.435	3835460.514	-1.41833	Wood	Structure	Post with glass	1764	1985
257	Building	358272.435	3835460.514	-1.41833	Glass	Object	Post with glass	1764	2021
258	Building	358273.158	3835460.056	-1.35456	Wood	Structure	Post with brick	1764	1985
259	Building	358273.158	3835460.056	-1.35456	Brick	Cluster	Post with brick	1764	2021
260	Industrial	358275.609	3835458.577	0.375362	Wood	Structure	Post with possible sink fragments nearby	1764	1985
261	Building	358276.258	3835458.79	0.425429	Wood	Structure	Post with iron nearby	1764	1985
262	Building	358276.258	3835458.79	0.425429	Iron	Object	Post with iron nearby	1764	2021
263	Building	358205.329	3835454.775	-0.069176	Wood	Structure	Post in a line	1764	1985
264	Building	358201.794	3835457.275	-1.395156	Wood	Structure	Post in a line	1764	1985
265	Domestic	358192.033	3835460.084	-0.93019	Wood	Structure	Post in a line with ceramic nearby	1764	1985
266	Domestic	358192.033	3835460.084	-0.93019	Ceramic	Object	Post in a line with ceramic nearby	1764	2021

267	Industrial	358178.788	3835475.155	-0.074521	Wood	Structure	End of possible jetty, 35m end to end	1764	1985
268	Industrial	358159.799	3835504.513	-1.216689	Wood	Structure	End of possible jetty	1764	1985
269	Unknown	358116.096	3835517.606	1.776312	Wood	Structure	Post	1764	1985
270	Unknown	358114.949	3835520.507	1.218663	Wood	Structure	Post	1764	1985
271	Domestic	358103.406	3835515.356	1.949581	Glass	Cluster	Glass and ceramic debris	1858	2021
272	Domestic	358103.406	3835515.356	1.949581	Ceramic	Cluster	Glass and ceramic debris	1837	1900
273	Industrial	358089.318	3835523.123	2.040159	Barrel	Cluster	Two wooden barrels	1764	2021
274	Industrial	358079.002	3835519.84	1.728092	Barrel	Object	Wooden barrel	1764	2021
275	Government	358026.72	3835541.714	0.667733	Marker	Object	Geodetic survey marker	1933	1934
276	Industrial	357962.498	3835538.044	5.476831	Wood	Structure	Large post in line with posts in water	1764	1985
277	Building	357965.721	3835557.296	3.566337	Wood	Structure	Other end of post line	1764	1985
278	Industrial	357957.985	3835554.869	3.792511	Barrel	Object	Possible barrel	1764	2021
279	Industrial	357948.154	3835559.12	3.197968	Barrel	Cluster	Two barrels	1764	2021
280	Industrial	357949.967	3835558.097	3.168421	Barrel	Cluster	Barrels	1764	2021
281	Industrial	357945.251	3835555.287	2.870603	Barrel	Cluster	Barrels	1764	2021
282	Building	357937.917	3835561.499	3.798233	Wood	Structure	Post	1764	1985
283	Industrial	357931.43	3835562.817	3.821719	Barrel	Object	Barrel	1764	2021
284	Industrial	357924.205	3835563.71	2.505498	Barrel	Object	Barrel	1764	2021
285	Industrial	357927.516	3835558.665	2.074846	Barrel	Cluster	Barrels	1764	2021
286	Unknown	357903.774	3835564.685	3.407556	Wood	Structure	Two posts with board	1764	1985
287	Unknown	357900.122	3835565.522	3.062367	Wood	Structure	Two posts with board	1764	2021
288	Domestic	357740.305	3835592.716	6.674226	Glass	Object	Bottle and wood beams	1764	2021
289	Domestic	357740.305	3835592.716	6.674226	Wood	Object	Bottle and wood beams	1764	2021
290	Domestic	357730.793	3835600.19	6.066219	Glass	Object	Melted glass	1764	2021
291	Building	357528.235	3835697.159	6.952444	Wood	Structure	Post	1764	1985
292	Building	357473.177	3835687.911	4.412605	Wood	Structure	Four posts	1764	1985
293	Industrial	357428.799	3835705.017	7.115718	Wood	Structure	Fence post	1764	1985
294	Building	357412.981	3835725.01	4.775814	Wood	Structure	End of dock	1764	1985
295	Building	359257.091	3833308.507	1.178656	Wood	Structure	Dock timbers	1764	2021
296	Building	357426.779	3835752.302	5.228354	Wood	Structure	End of dock	1764	1985
297	Unknown	359532.696	3833144.462	-0.573106	Wood	Structure	Wooden timber	1764	2021
298	Unknown	357387.116	3835724.406	5.323928	Wood	Object	Board	1764	2021
299	Building	359664.958	3833117.161	-1.25665	Brick	Cluster	Fasteners and bricks	1764	2021

301	Industrial	357339.524	3835741.338	7.314463	Wood	Structure	End of fence post line	1764	1985
302	Unknown	359849.521	3833484.531	-0.903285	Wood	Cluster	Burnt wood timbers	1764	2021
303	Building	357330.7	3835745.575	7.120019	Wood	Structure	Three posts	1764	1985
304	Unknown	357285.505	3835774.894	5.717755	Glass	Object	Melted glass and iron	1764	2021
305	Building	359682.719	3833640.358	-2.189638	Wood	Structure	Pilings	1764	1985
306	Unknown	359680.052	3833645.95	-3.30266	Wood	Cluster	Timbers in the water	1764	2021
307	Domestic	357090.879	3835833.266	7.843939	Wood	Structure	Eight burnt posts	1764	1985
308	Domestic	356945.884	3835994.473	6.522196	Glass	Object	Small bottle	1764	2021
309	Unknown	359669.346	3833641.343	-1.434311	Wood	Structure	Possible House Timbers	1764	1985
310	Industrial	356890.408	3836058.234	6.765038	Wood	Object	telephone pole	1949	1985
311	Industrial	359453.575	3833681.675	-1.018681	Wood	Structure	Modern fence posts	1764	1985
312	Industrial	356880.467	3836067.259	5.56424	Wood	Object	telephone pole	1949	1985
313	Unknown	359388.086	3833661.705	-1.327724	Wood	Cluster	Lichen timbers	1764	2021
314	Industrial	359215.7	3833805.428	-1.383188	Wood	Object	Telephone pole	1949	1985
315	Unknown	358687.494	3834392.993	-1.972394	Wood	Cluster	Timbers in the water	1764	2021
316	Industrial	358583.801	3834488.537	2.002171	Wood	Structure	Fence posts	1764	1985
317	Unknown	358456.436	3835013.308	0.303497	Wood	Object	Door like panel in water	1764	2021
318	Domestic	349933.624	3839330.6	-2.314012	Glass	Cluster	Two bricks and glass bottle bottom	1967	1987
319	Unknown	357285.505	3835774.894	5.717755	Iron	Object	Melted glass and iron	1764	2021
320	Domestic	353101.67	3837977.664	-10.161123	Ceramic	Object	Iron and brick and native ceramic	-300	800
326	Domestic	353025.505	3838023.473	-3.69182	Car	Object	Car	1980	1985
327	Domestic	352993.998	3838018.981	-5.537214	Car	Object	Car	1980	1985
328	Building	353484.067	3837714.436	-5.331312	Brick	Cluster	Site with brick, tabby, and coral rock	1764	2021
330	Domestic	354288.771	3837697.703	-4.938892	Glass	Object	Listerine bottle	1930	1994
331	Domestic	354434.431	3837780.483	-5.227453	Brick	Object	brick, ceramic, and glass bottle	1764	2021
332	Domestic	354434.431	3837780.483	-5.227453	Ceramic	Object	brick, ceramic, and glass bottle	1764	2021
333	Domestic	354434.431	3837780.483	-5.227453	Glass	Object	brick, ceramic, and glass bottle	1764	2021

334	Government	354425.188	3837787.175	-5.050624	Marker	Object	USGS Datum Point, point to bull	1962	1963
335	Unknown	354363.328	3837671.56	-6.217266	Wood	Structure	Line of wooden posts in marsh where Alyssa got stuck	1764	1985
336	Domestic	354427.931	3837647.472	-6.942522	Glass	Object	Blue, milk of magnesia bottle	1921	1971
337	Unknown	354456.526	3837641.803	-5.931256	Glass	Cluster	a lot of glass	1764	2021
338	Building	354407.442	3837539.85	-1.405054	Brick	Cluster	brick scatter	1764	2021
339	Unknown	354559.719	3837507.722	-2.812782	Glass	Object	glass	1764	2021
341	Domestic	355214.699	3837019.193	2.865425	Site	Cluster	Wooden posts, thick piles of ceramics and glass. The pilings are burned. (9.5 by 7.5m, 2.5m apart appr. 5x4)	1764	1985
342	Domestic	355254.348	3837010.806	3.457198	Ceramic	Cluster	Porcelain pieces, sink? Too close to be holes for faucet, drain?	1920	1985
343	Domestic	355277.798	3837004.117	3.204806	Site	Cluster	Porcelain pieces, metal pipes, and lots of glass	1764	2021
344	Domestic	355308.297	3837025.601	3.125708	Car	Object	tires with oyster concretions	1930	1985
345	Industrial	355400.047	3836949.943	4.538527	UID Metal	Object	Metal Pipe	1764	2021
346	Domestic	355493.884	3836884.25	5.061358	Brick	Object	Brick, iron, glass, ceramic	1764	2021
347	Domestic	355493.884	3836884.25	5.061358	Iron	Object	Brick, iron, glass, ceramic	1764	2021
348	Domestic	355493.884	3836884.25	5.061358	Glass	Object	Brick, iron, glass, ceramic	1764	2021
349	Domestic	355493.884	3836884.25	5.061358	Ceramic	Object	Brick, iron, glass, ceramic	1764	2021
350	Building	355593.986	3836896.77	4.053639	Wood	Structure	Pilings	1764	1985
351	Domestic	355654.075	3836888.066	3.709808	Site	Cluster	Screw anchors (to put things in ground) Well? Melted glass, ceramic, iron, bricks	1900	2021
352	Domestic	355669.735	3836875.501	3.687934	Site	Cluster	Frying pan, cauldron, iron, ceramic, glass	1764	2021
353	Domestic	355967.304	3836608.391	3.550607	Car	Object	Car	1930	1985

354	Industrial	356295.982	3836525.284	3.784908	Ceramic	Object	American Standard toilet tank #4043 Dec. 1958 Date	1958	1959
355	Industrial	356342.516	3836505.368	3.513909	Site	Cluster	Crab pot, bricks, glass, iron, porcelain	1764	2021
356	Building	356364.316	3836498.706	3.130618	Brick	Object	Burned brick	1764	2021
357	Unknown	356480.549	3836428.342	1.995896	Glass	Object	Melted glass	1764	2021
358	Industrial	356463.923	3836390.878	1.977503	Wood	Structure	Pilings with barn door hinge	1764	2021
359	Building	356490.14	3836331.678	2.780986	Wood	Structure	Fence posts	1764	1985
360	Domestic	356491.07	3836332.667	2.780623	Wood	Structure	Fence posts	1764	1985
361	Domestic	356494.399	3836340.269	2.045727	Wood	Structure	Fence posts	1764	1985
362	Building	356478.302	3836336.744	2.654896	Wood	Structure	Burned structure	1764	1985
363	Domestic	356520.235	3836434.048	0.740461	Car	Object	Car	1930	1985
364	Domestic	356528.535	3836402.082	0.987208	Brick	Cluster	Bricks, glass, ceramics	1764	2021
365	Domestic	356528.535	3836402.082	0.987208	Glass	Cluster	Bricks, glass, ceramics	1764	2021
366	Domestic	356528.535	3836402.082	0.987208	Ceramic	Cluster	Bricks, glass, ceramics	1764	2021
367	Domestic	356545.432	3836368.542	2.552715	Site	Cluster	Burned brick scatter, glass, ceramics, porcelain, nails	1764	2021
368	Domestic	354392.18	3837745.872	-4.842629	Glass	Cluster	Bottles (1)	1964	1989