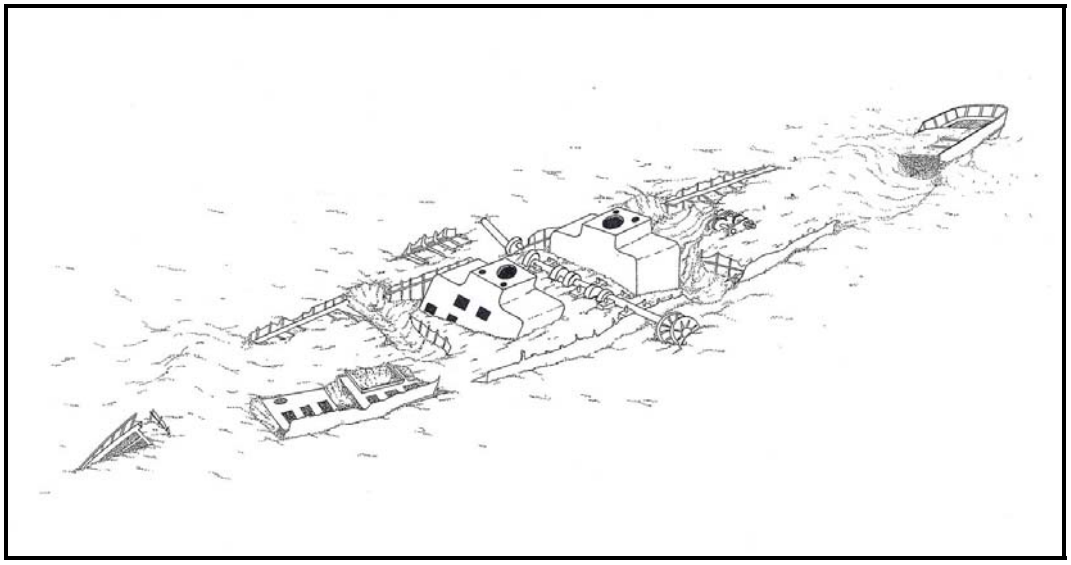
APPENDIX C

CULTURAL RESOURCE INVESTIGATION: LOCATION OF THE REMAINS OF THE *WILD DAYRELL* IN RICH INLET

Location of the Remains of the Wild Dayrell
in Rich Inlet
Pender County, North Carolina



Submitted to:

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29 September 2006

Introduction

Coastal Planning and Engineering, Inc. (CPE) is currently working with the Figure Eight Beach Homeowners Association on a beach nourishment project for Figure Eight Island. The source material for this nourishment will be a borrow area in Rich Inlet (Figure 1). In order to avoid impacts to the Civil War blockade-runner *Wild Dayrell*, CPE contracted with Tidewater Atlantic Research, Inc., (TAR) of Washington, North Carolina to carry out a remote sensing survey to determine the exact position of the wreck site. The remote sensing investigation was carried out by TAR personnel Gordon Watts and Ray Tubby on 3 September 2006.

Wreck of the *Wild Dayrell*

The remains of the Anglo-Confederate Trading Company's steamer *Wild Dayrell,* lie in Rich Inlet approximately twenty miles north of Fort Fisher. That vessel was built by the firm of Jones, Quiggin and Company in Liverpool along with an identical sistership, the *Lucy*. *Lucy* and *Wild Dayrell* were constructed of iron, each measuring 215 feet in length, 20 feet in beam and 10 foot 3 inch depth of hold. The vessels' oscillating steam cylinder engines were built by Fawcett, Preston and Company in Liverpool and measured 52 inches in diameter with a 48-inch stroke. The *Wild Dayrell* was also equipped with feathering paddle wheel floats and a forecastle hood. Two raked pole masts and two raked retractable funnels were all that protruded above the level of the steamer's paddle boxes.

Figure 1. Rich Inlet beach renourishment project location.

The *Wild Dayrell* was launched on 17 September 1863. Although the steam trials of the *Wild Dayrell* were not reported in the press, its sistership *Lucy* proved to be capable of 15 ½ knots against a strong wind and tide during her trials in October 1863. On 12 November the vessel's registered owners, Edward Lawrence and Company, entered the vessel at Liverpool Customs for loading for Nassau. The fully loaded *Wild Dayrell* cleared for sea two days later. In December, the steamer made Nassau and, after being painted a lead color, took on a cargo for Wilmington. After two successful round trips the *Wild Dayrell* was run ashore on 1 February 1864.

The wreck of the *Wild Dayrell* was never lost. It lies in the shallow water of Rich Inlet south of Figure Eight Island and has been a popular site for fishing. However, because of strong currents in the inlet, the *Wild Dayrell* has never been a popular dive site though sport divers have recovered portholes from the hull during the early 1980s. In spite of the environment, the wreck was mapped by the staff and students of the Program in Maritime History and Underwater Archaeology in 1985. Although the dimensions of the hull was impossible to precisely establish because of deterioration of the structure, the overall length of the wreck corresponds closely with the 215-foot length of the *Wild Dayrell* recorded on that vessel's CBR. The 20-foot beam and 50-foot length of the engine room recorded at the wreck site also correspond precisely with those recorded on the CBR (Figure 2). The *Wild Dayrell*'s CBR and historical data associated with the vessel confirm that the ship was powered by two oscillating engines, or steam cylinders and that number of oscillating cylinders were identified at the wreck site.

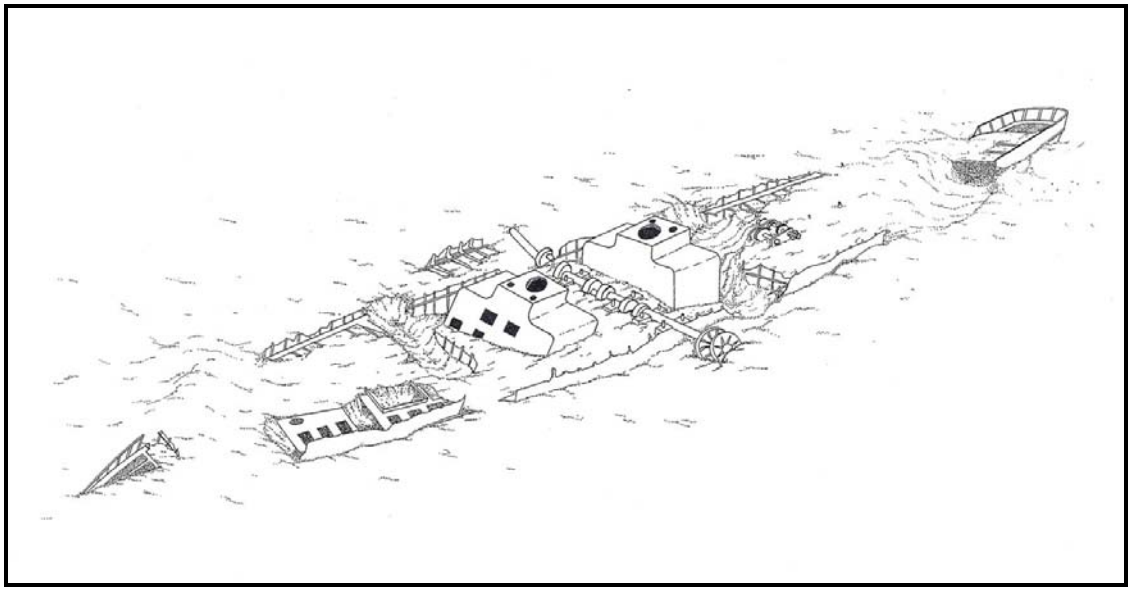

Figure 2. Perspective drawing of the remains of the *Wild Dayrell*.

Field Research Methodology and Equipment

To locate the remains of *Wild Dayrell*, TAR personnel used a 24-foot shallow-draft vessel for conducting the remote sensing survey (Figure 3). The wreck site was identified using an EG&G GEOMETRICS 881 cesium vapor magnetometer (Figure 4). Once the position of the wreck was established, a series of survey lanes were created in HYPACK®MAX to refine the magnetic signature. Because the wreck is now completely buried in the shoal on the south side of the Rich Inlet channel, breaking surf and shallow water made sonar imaging impossible. Data collection during the survey was controlled using a TRIMBLE differential global positioning system assuring reliable geographical location of the remains of *Wild Dayrell*.

An EG&G Geometrics G-881 marine cesium magnetometer capable of plus or minus 0.001 gamma resolution was employed to collect magnetic data in the survey area (Figure 4). To produce the most comprehensive magnetic record, data was collected at 10 samples per second. Due to shoal water and the possibility of snags in the project area, the magnetometer sensor was towed just below the water surface at a speed of approximately 3 knots. Magnetic data were recorded as a data file associated with the computer navigation system. Data from the survey were

contour plotted using QUICKSURF® computer software to facilitate anomaly location and definition of target signature characteristics. A 600 kHz MARINE SONICS high-resolution side scan sonar was to be employed to collect acoustic data in the survey area. However, due to shoal water and breaking surf in the inlet the side scan sonar could not be effectively utilized.

A TRIMBLE AgGPS was used to control navigation and data collection in the survey area. That system has an accuracy of plus or minus three feet, and can be used to generate highly accurate coordinates for the computer navigation system. The DGPS was employed in conjunction with an on-board Compaq 2.4 GHz laptop computer loaded with a Coastal Oceanographics HYPACK®MAX navigation and data collection software program. Positioning data generated by the navigation system were tied to magnetometer records by regular annotations to facilitate target location and anomaly analysis. All data is related to the North Carolina State Plane Coordinate System, NAD 83.

Data Analysis

Using QUICKSURF® contouring software, magnetic data generated during the survey were contour plotted at 10-gamma intervals (Figure 5). The contoured data was used to accurately identify the geographical location and distribution of the structural remains of the *Wild Dayrell*. Due to the fact that the wreck is entirely covered by a shoal, side scan sonar contributed nothing to analysis of the wreck site.

Figure 3. **Photograph of the 25-foot survey vessel *Atlantic Surveyor* employed during the Rich Inlet survey.**

Figure 4. **Photograph of magnet ometer sensor being low ered into the ocean.**

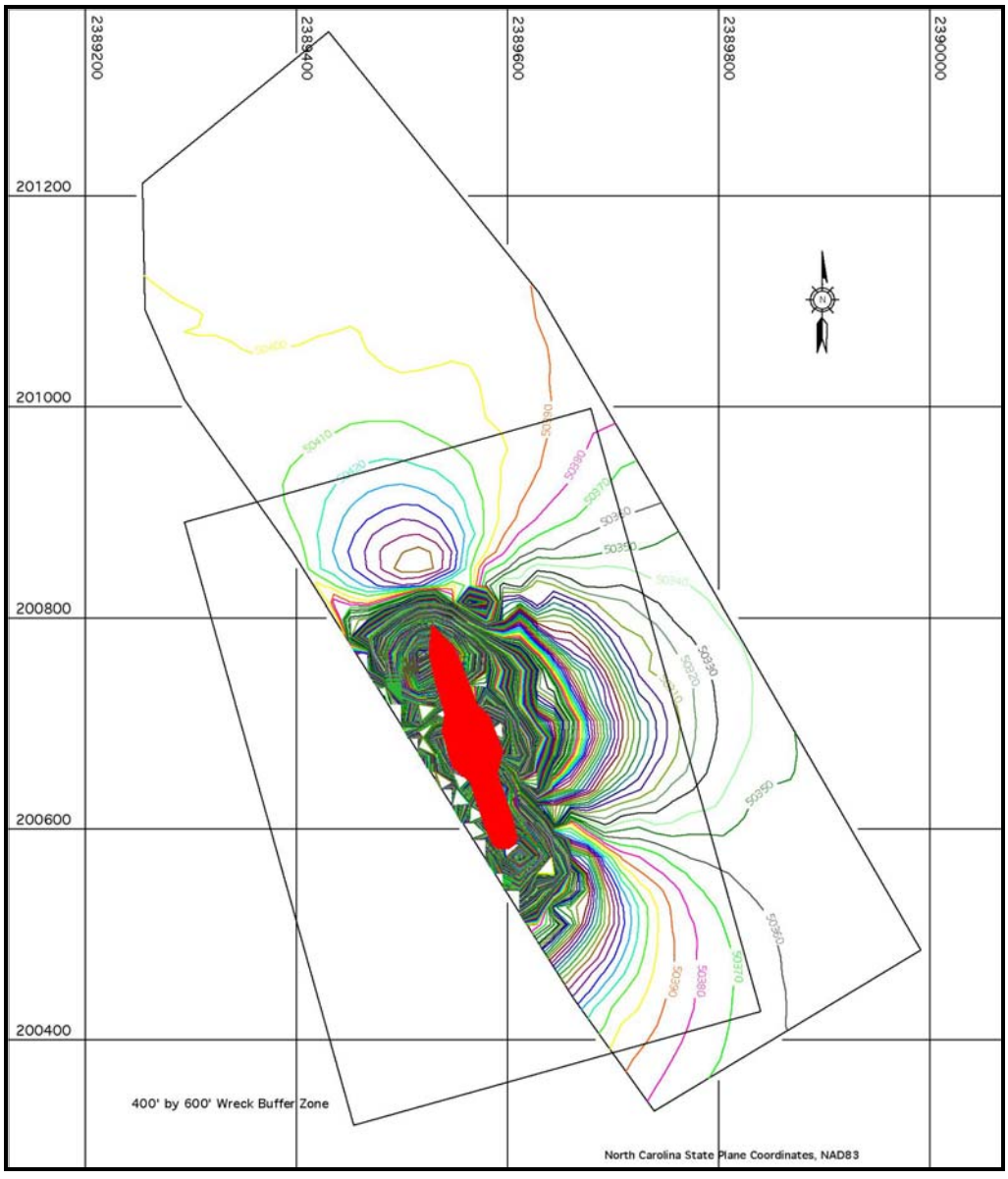

Figure 5. Magnetic contour map of the *Wild Dayrell* wreck site with proposed buffer zone.

Conclusions and Recommendations

The remote sensing survey conducted by TAR was successful in identifying the remains of the *Wild Dayrell* and generating an accurate geographical position for the wreck site. The bow lies to the northwest and the stern lies to the southeast. Coordinates for the longitudinal axis of the hull structure are:

NW 2389528.56, 200793.67
SE 2389600.84, 200581.71

On the recommendation of Richard Lawrence, head of the Underwater Archaeology Branch of the Department of Cultural Resources, a 400-foot by 600-foot buffer zone was established around the wreck site (Figure 5). Coordinates for the buffer zone are:

NW	2389293,85, 200890.38
NE	2389678.94, 200998.57
SE	2389839.48, 200427.20
SW	2389454.39, 200391.00

Proposed plans for dredging in Rich Inlet should be designed to avoid that buffer zone.

APPENDIX 5

Cultural Resource Investigation: Terrestrial and Submerged Cultural Resource Survey Rich Inlet, Figure Eight Island, North Carolina

DRAFT

Terrestrial and Submerged Cultural Resource Survey Rich Inlet, Figure Eight Island, North Carolina

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Abstract

Coastal Planning & Engineering of North Carolina, Inc. (CPE-NC) is the project engineer representing the Figure Eight Island Beach Homeowners Association in its efforts to obtain permits for the Figure Eight Island Inlet and Shoreline Management Project. In order to determine the proposed dredging effects on potentially significant submerged cultural resources, CPE-NC contracted with Tidewater Atlantic Research, Inc. of Washington, North Carolina to conduct a magnetometer and sidescan sonar survey of the proposed channel alternatives being considered. In addition the corridor in which a terminal groin is being proposed under Alternative 5a was also surveyed using terrestrial and marine survey protocol. Field research for the project was carried out on 10 December 2009, 8 and 9 March 2010, and 1 April 2010. Analysis of the remote-sensing data generated during the Rich Inlet survey identified a total of 116 magnetic targets and 6 sonar targets. Five anomalies, composed of 13 individual magnetic targets and 3 associated sonar targets, contain signature characteristics suggestive of potentially significant cultural material. Those five anomaly clusters are recommended for avoidance or additional investigation in the event that avoidance is not possible. The remaining 103 magnetic targets and three associated sonar targets are indicative of modern debris such as traps, anchors, pipe, rebar, and small cable and dredging related debris. No avoidance or additional investigation of the 103 individual magnetic targets is recommended in conjunction with the proposed project.

Table of Contents

List of Figures

Introduction

Coastal Planning and Engineering of North Carolina, Inc. (CPE-NC) of Wilmington, North Carolina is currently working with the Figure Eight Island Beach Homeowners Association to obtain permits for the Figure Eight Island Inlet and Shoreline Management Project. As part of the permitting process CPE-NC has been tasked with evaluating several channel alternatives in and around Rich Inlet. In order to determine the project's impact on potentially significant submerged cultural resources, CPE-NC contracted with Tidewater Atlantic Research, Inc. (TAR) of Washington, North Carolina to conduct a systematic magnetometer and side-scan sonar survey of an area that encompasses the proposed channel alternatives as well as the corridor in which a terminal groin is proposed for Alternative 5a.

The remote-sensing investigation conducted by TAR archaeologists was designed to provide accurate and reliable identification, assessment and documentation of submerged cultural resources in the study area. Survey methodology was developed to comply with guidelines for submerged cultural resource surveys in North Carolina created by the North Carolina Department of Cultural Resources. Those guidelines follow the criteria established by the National Historic Preservation Act of 1966 (Public Law 89-665), the National Environmental Policy Act of 1969 (Public Law 11-190), Executive Order 11593, the Advisory Council on Historic Preservation Procedures for the protection of historic and cultural properties (36 CFR Part 800) and the updated guidelines described in 36 CFR 64 and 36 CFR 66. The results of the investigation will furnish CPE-NC with the archaeological data required for complying with both state and federal submerged cultural resource legislation and regulations.

The terrestrial portion of the survey was conducted on 10 December 2009, 9 March and 1 April 2010, and the submerged portion on 8 March and 1 April 2010. Analysis of the remote-sensing data generated during the Rich Inlet survey identified a total of 116 magnetic anomalies and 6 sonar targets. Five anomaly clusters, composed of 13 individual magnetic anomalies and 3 associated sonar targets, contain signature characteristics suggestive of potentially significant cultural material. These five anomaly clusters are recommended for avoidance or additional investigation. The remaining 103 and three associated sonar targets are indicative of modern debris such as traps, anchors, pipe, rebar, and small cable. No avoidance or additional investigation of these 103 individual magnetic targets is recommended in conjunction with the proposed project.

Project survey personnel consisted of Gordon P. Watts, Jr., principal investigator and Joshua A. Daniel, remote-sensing operator. Dr. Watts and Mr. Daniel conducted both the terrestrial and marine portions of the survey. Robin Arnold and Dr. Watts carried out the historical and literature research. Dr. Watts and Mr. Daniel analyzed the remote-sensing data. Ms. Arnold, Mr. Daniel and Dr. Watts prepared this report document.

Project Location

The remote-sensing project area is situated at Rich Inlet which is located off the north end of Figure Eight Island at the confluence of Nixon Channel to the west and Green Channel to the north. The area surveyed is polygonal in shape, measuring approximately 5,000 feet long and 4,400 feet wide at its extreme points and covers an area of 193.8 acres (Figure 1). To ensure sufficient data would be available to locate any potentially significant targets in the project area, underwater remote-sensing data were collected along lanes spaced on 50-foot intervals; the terrestrial portion along transects spaced on 100-foot intervals.

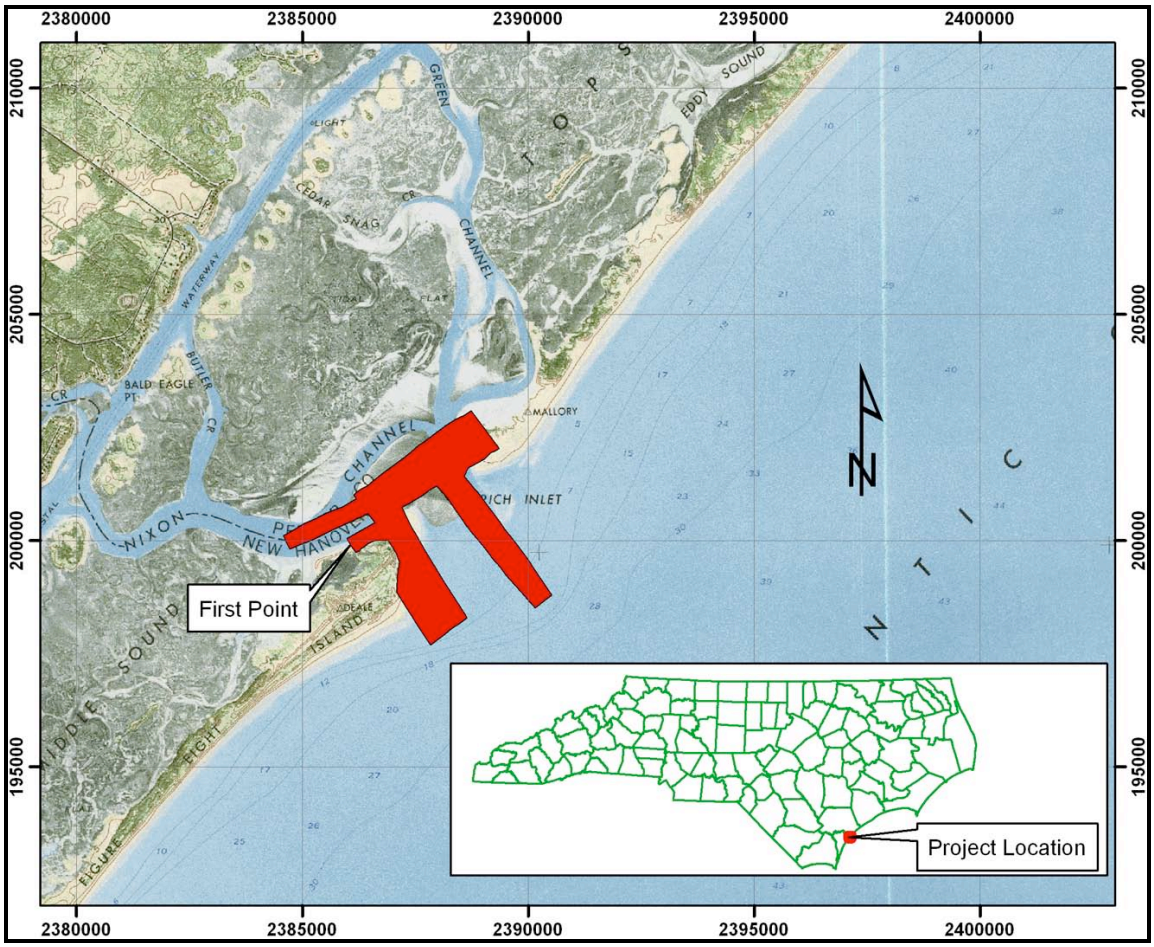

Figure 1. Project area location (USGS. "Hampstead quadrangle, North Carolina" 1:24,000).

The survey boundaries defined in North Carolina State Plane Coordinates, NAD 83, U.S. Survey Foot, beginning at "First Point" in Figure 1 and continuing clockwise are as follows:

Easting	Northing
2386077.7	199887.4
2385988.1	200055.7
2386606.4	200407.5
2386454.7	200599.2
2386124.7	200451.5
2385765.9	200289.7
2385540.6	200177.2
2385401.4	200108.3
2385234.4	200025.7
2385065.7	199963.0
2384990.3	199938.7
2384720.0	199815.6
2384575.6	200114.1
2384887.7	200287.6
2385007.4	200364.7
2385300.6	200501.8
2385475.2	200586.6
2385676.9	200667.9
2385868.6	200747.0
2385931.8	200776.7
2386109.5	200878.8
2386188.6	200932.7
2386132.0	201006.9
2386250.6	201118.7
2386425.5	201213.4
2386745.8	201468.5
2387045.1	201694.7
2387267.5	201859.5
2387482.9	202034.4
2387580.3	202112.4
2387735.9	202220.3
2387917.5	202356.9
2388001.8	202418.0
2388216.5	202575.6
2388417.1	202691.6
2388573.7	202762.3
2388737.1	202877.3
2389351.0	202039.1
2389262.1	201985.6
2389168.6	201944.7
2389021.7	201806.6
2388666.7	201612.5
2388586.9	201417.2
2388657.8	201330.0
2388715.0	201270.7

Easting	Northing
2388757.4	201214.4
2388806.9	201150.4
2388833.0	201119.6
2388908.9	201032.2
2388967.7	200953.0
2389104.0	200761.5
2389348.8	200434.1
2389511.1	200211.8
2389629.1	200060.8
2389891.2	199727.8
2390018.1	199551.5
2390094.9	199426.9
2390307.9	199108.3
2390509.2	198807.5
2390508.9	198800.1
2390147.8	198516.9
2390036.5	198647.8
2389813.5	198902.3
2389554.6	199190.5
2389497.6	199252.4
2389401.0	199380.3
2389356.5	199446.5
2389242.3	199570.2
2389192.6	199629.2
2389058.3	199805.8
2388907.0	199992.9
2388760.4	200172.4
2388687.1	200262.2
2388621.0	200346.7
2388531.7	200471.8
2388416.9	200640.1
2388358.3	200724.3
2388329.9	200760.2
2388259.7	200864.7
2388189.2	200964.3
2388163.4	201000.0
2388072.9	201095.4
2387968.2	201206.3
2387821.2	201127.8
2387777.8	201097.3
2387714.0	201052.7
2387632.3	200994.0
2387294.2	200789.2
2387198.2	200745.9
2387406.5	200310.9

Easting	Northing
2387499.4	200153.4
2387720.5	199787.3
2387974.0	199365.4
2388136.8	199095.9
2388365.5	198734.5
2388603.9	198367.8
2388640.6	198294.4
2388495.0	198188.6
2388306.1	198057.2
2388147.5	197937.0
2387835.6	197703.9
2387601.6	198055.6
2387424.2	198335.6
2387344.9	198460.3
2387181.4	198714.9
2387083.3	198867.7
2387086.9	198956.8
2387089.4	199080.8
2387091.9	199204.7
2387102.4	199281.2
2387118.2	199367.4
2387149.4	199527.4
2387122.5	199597.9
2387082.4	199713.6
2387029.1	199805.1
2386996.3	199853.5
2386898.2	200006.3
2386781.8	200010.9
2386662.5	200005.8
2386597.8	200000.9
2386514.9	199974.5
2386423.3	199918.6
2386356.8	199866.7
2386292.9	199819.6
2386259.4	199788.7
2386185.8	199747.0
2386077.7	199887.4
2385949.6	200602.4

Research Methodology

Literature and Historical Research

Due to the number of previous investigations conducted in the project vicinity, TAR personnel have carried out extensive literature searches in both primary and secondary source material. To assess the potential for finding significant historic and/or cultural resources within the proposed borrow areas TAR personnel reviewed previously collected literature, examined historical maps and charts and examined inventories of shipwrecks in the Rich Inlet area. The historical background in this document is built upon and refined from previous historical background assessments of the region developed by TAR.

Preliminary wreck-specific information was collected from primary and secondary sources that include: *A Guide to Sunken Ships in American Waters* (Lonsdale and Kaplan 1964); *Encyclopedia of American Shipwrecks* (Berman 1972); *Shipwrecks of the Civil War: The Encyclopedia of Union and Confederate Naval Losses* (Shomette 1973); *Merchant Steam Vessels of the United States 1790-1868* (Lytle and Holdcamper 1975); *Shipwrecks in the Americas* (Marx 1983); *Shipwreck Encyclopedia of The Civil War: North Carolina, 1861-1865* (Spence 1991); *Shipwrecks of North Carolina* (Gentile 1992); *Naval Documents of the American Revolution* (U.S. Navy [10 vols. published between 1964-1996]); *The Naval War of 1812: A Documentary History* (Dudley [two vols.] 1985); *Graveyard of the Atlantic* (Stick 1952); *Official Records of the Union and Confederate Navies in the War of the Rebellion* (The National Historical Society [31 vols.] 1987), *North Carolina Shipwreck Accounts: 1709 to 1950* (Charles 2004), and other published materials. A survey of select newspapers generated additional information.

Personnel at the North Carolina Office of Archives and History's Underwater Archaeology Branch (UAB) at Kure Beach, North Carolina were also contacted for shipwreck data associated with the Rich Inlet area (Richard W. Lawrence 2010, pers. comm.).

Remote-Sensing Survey

In order to reliably identify submerged cultural resources, TAR archaeologists conducted a systematic remote-sensing survey of the proposed borrow site. Underwater survey activities were conducted on 8 March 2010 from the 24-foot survey vessel *Atlantic Surveyor*. On 1 April 2010, they were conducted from a 20-foot Privateer. A pedestrian survey collected data on the beach and shoals. In order to fulfill the requirements for survey activities in North Carolina, magnetic and acoustic remote-sensing equipment were employed. This combination of remote-sensing represents the state of the art in submerged cultural resource location technology and it offers the most reliable and cost effective method to locate and identify potentially significant targets. Data collection was controlled using a differential global positioning system (DGPS). DGPS produces the highly accurate coordinates necessary to support a sophisticated navigation program and assures reliable target location.

An EG&G GEOMETRICS G-881 marine cesium magnetometer, capable of plus or minus 0.01 gamma resolution, was employed to collect magnetic data for the submerged portion of the survey area (Figure 2). To produce the most comprehensive magnetic record, data was collected at 10 samples per second. On 8 March 2010, the magnetometer sensor was towed just below the water surface at a speed of approximately three to four knots due to shoal water within the project area. On 1 April 2010, the magnetometer sensor was mounted to the bow of the vessel. Magnetic data were recorded as a data file associated with the computer navigation system. Data from the survey were contour plotted using QUICKSURF® computer software to facilitate anomaly location and definition of target signature characteristics. All magnetic data were correlated with the acoustic remote-sensing records.

A 445/900 kHz KLEIN SYSTEM 3900 digital sidescan sonar (interfaced with SONARPRO SONAR PROCESSING SYSTEM) was employed to collect acoustic data in the submerged portions of the survey area (Figure 3). Due to shoal water within the project area, the sidescan sonar transducer was deployed and maintained between 3 and 5 feet below the water surface. Acoustic data were collected using a range scale of 30 and 50 meters to provide a minimum of 200% coverage and high target signature definition. Acoustic data were recorded as a digital file with SONARPRO and tied to the magnetic and positioning data by the computer navigation system.

Figure 2. Launching the EG&G GEOMETRICS G-881 cesium vapor magnetometer.

Figure 3. Launching the KLEIN SYSTEM 3900 digital sidescan sonar.

A TRIMBLE AgGPS was used to control navigation and data collection in the survey area. That system has an accuracy of plus or minus three feet, and can be used to generate highly accurate coordinates for the computer navigation system on the survey vessel. The DGPS was employed in conjunction with an onboard COMPAQ 2.4 GHz laptop loaded with HYPACK navigation and data collection software (Figure 4). Positioning data generated by the navigation system were tied to magnetometer records by regular annotations to facilitate target location and anomaly analysis. All data is related to the North Carolina State Plane Coordinate System, NAD 83.

The terrestrial portion of the survey area was investigated on foot. Magnetic data was collected using a LITTLEMORE 7702 proton precession (Figure 5). Positioning and data recording was accomplished by a handheld TRIMBLE GEOEXPLORER SERIES GPS interfaced with HYPACK. A visual survey of the area exposed at low tide also took place during this portion of the survey.

Data Analysis

To ensure reliable target identification and assessment, analysis of the magnetic and acoustic data was carried out as it was generated. Using QUICKSURF® contouring software, magnetic data generated during the survey were contour plotted at 5-gamma intervals for analysis and accurate location of magnetic anomalies. The

magnetic data was examined for anomalies, which were then isolated and analyzed in accordance with intensity, duration, areal extent and signature characteristics. Sonar records were analyzed to identify targets on the basis of configuration, areal extent, target intensity and contrast with background, elevation and shadow image, and were also reviewed for possible association with identified magnetic anomalies.

Figure 4. Computer navigation system located at the research vessel helm.

Data generated by the remote-sensing equipment were developed to support an assessment of each magnetic and acoustic signature. Analysis of each target signature included consideration of magnetic and sonar signature characteristics previously demonstrated to be reliable indicators of historically significant submerged cultural resources. Assessment of each target includes avoidance options and possible adjustments to avoid potential cultural resources. Where avoidance is not possible the assessment includes recommendations for additional investigation to determine the exact nature of the cultural material generating the signature and its potential National Register of Historic Places (NRHP) significance. Historical evidence was developed into a background context and an inventory of shipwreck sites that identified possible correlations with magnetic targets (Appendix A). A magnetic contour map of the survey area was produced to aid in the analysis of each target.

Figure 5. Terrestrial survey using the LITTLEMORE magnetometer.

Historical Background for Rich Inlet Vicinity

The North Carolina coast exceeds 300 miles in extent, and "for the greater part of this distance barrier-reefs, or a cordon of long, low, narrow sandy islands, varying from one-fourth of a mile to nearly 4 miles in width, resist the assaults of the Atlantic, and appear for centuries to have maintained the same position in which we now find them" (U.S. War Department 1876:378).

Europeans surveyed the barrier reefs and coastline of contemporary Pender and New Hanover counties during the first quarter of the sixteenth century as reported by Giovanni da Verrazano and other explorers. Some 60 years later, according to Ralph Lane's chronicles of Sir Richard Grenville's expedition and John White's map [1585], Englishmen with the support of an unpopular Portuguese pilot fished in the region on their way to establish a colony on Roanoke Island. The Grenville party tolerated Simon Ferdinando as the former pirate was recognized as the "only skilled navigator alive with previous experience in negotiating the treacherous Carolina coastline" (Glasgow 1966:120-121).

Before John White arrived at Roanoke Island in 1587 to search for what today is known as the Lost Colony, his vessels presumably anchored in the vicinity of contemporary Figure Eight and Topsail islands. White's maps indicate that he was "aware of Cape Fear", and this fact would suggest that his vessel sailed closely up the coast to Roanoke Island. The White expeditions also contributed to the Molyneaux globe produced circa 1592, which clearly identified the "Cape of Feare" (Schoenbaum 1992:223).

Samuel Mace's 1602/1603 expedition, sponsored by Sir Walter Ralegh, enjoyed a month long sojourn in the vicinity of Rich Inlet where the English collected sassafras from aborigines (Noël Hume 1994:101,103). From the date of Mace's visit to the North Carolina coast to ostensibly search for the Raleigh colony to the beginning of the eighteenth century Europeans may have settled on the mainland although they left no physical evidence. In the interim, explorers continued to conduct superficial shoreline surveys and to ascend briefly into local waterways.

During mid-October 1663, Captain William Hilton reconnoitered Cape Fear Roads for a second time and on this occasion navigated up the North-East Cape Fear River. Aboard the *Adventure* the Massachusetts Bay mariner observed landmarks that he named "Turkey Quarter, Rocky Point and Stag Park." Of those, the latter two place names survive (Bloodworth 1947:30; Pender County 2008). Despite Hilton's positive reports on the beautiful terrain, the region remained in a "dormant state" due to a temporary moratorium enacted by the Lords Proprietors to prohibit colonization (Bloodworth 1947:30).

John Brickell surveyed North Carolina's barrier islands in 1729 and commented on the nature of inlets subsequently identified by the 1738 James Wimble chart. Brickell mentioned *Rich* Inlet, which is shown as "Reach" on Wimble's chart. In *The Natural History of North Carolina*, the Irish physician wrote: "Between these Islands and Sand Banks, are Inlets of several depths of Water, some admitting only of Sloops, Schooners, Brigantines, and Vessels of small Burthen … many of these being only Navigable for Periaugers and small Crofts, by reason of their many Shoals which are continually shifting by the violence of Storms" (Brickell 1968:2).

Brickell noted that early-eighteenth-century Carolina planters:

> [F]or the most part live by the Water side, few or none living in the In-land parts of the country at present, though the lands are as good and fertile as any that are yet inhabited, but not so commodious for Carriage as by the Water, for most part of the Plantations run but a Mile backward into the Woods, so that betwixt every River you shall see vast Tracts of Land lying waste, or inhabited only by wild beasts: What is worthy of Observation is, That almost every Planter may have a convenient Dock upon his plantation, and a sufficient Quantity of good Timber to build Ships and Boats withal" (Brickell 1968:14).

James Moore acquired the five-mile long, 1,300-acre sandbank south of Rich Inlet circa 1762. The island was later sold to Cornelius Harnett. After Harnett's death, planter James Foy purchased the tract [1795] that became part of his large Poplar Grove estate. The prosperous Foy family would retain ownership of "Woods Beach" [or Foy Island] until the 1950s, with the exception of a small tract [southern extremity] sold to the Hutaff family (Nadeau 1998:15; Barefoot 2005:170-171).

Maritime activities conducted near Rich Inlet were not greatly impacted by the American Revolution. However, some local residents exhibited ardent patriotism during the conflict and many prominent landowners and merchants were involved in the political events leading to the war and subsequent military actions. One such event occurred when American forces led by Colonel James Moore succeeded to repulse British soldiers and North Carolina Loyalists at the decisive battle at Moore's Creek Bridge in February 1776. In retribution for their owners' defiance, some Colonial plantations and salt works were plundered and destroyed in New Hanover County [and future Pender County] (Rankin 1975:15-20).

Despite the region's promising economic opportunities that were presented after American Independence, an out migration occurred during the early nineteenth century. This "Great Exodus" resulted in the loss of some of the largest and wealthiest landowners in southeastern North Carolina. This trend was driven by five factors: land grants for military service in the Revolution and War of 1812, availability of cheap land in the west, better cotton land in the west and south, higher prices elsewhere for hiring slaves and a decline in the productivity of the area's heavily farmed sandy soils (Louis Berger Group 2002:9).

During the antebellum period, international and packet maritime commerce did increase along the North Carolina coast. In September 1857, several vessels were lost off southeastern North Carolina in the midst of a severe hurricane. One casualty was reported in the vicinity of modern Figure Eight Island. On 17 September, *The New York Times* reported that the "Schooner *Abdel Kader*, Captain CORNELIUS, hence for New-York, with a cargo of naval stores, went ashore about Rich Inlet, 25 or 30 miles north [of] New Inlet, and will prove a total loss" (*The New York Times* 1857). Prior marine intelligence from the newspaper indicated that Captain Cornelius was familiar with the coast. On 6 June 1856, Cornelius cleared the port of New York aboard the *Abdel Kader* prior to his voyage to Savannah (*The New York Times* 1856).

The American Civil War disrupted commercial development and maritime trade near Rich Inlet. After Confederate forces in South Carolina attacked the U.S. garrison at Fort Sumter, President Abraham Lincoln declared a state of open rebellion and called for volunteers to preserve the Union. On 19 April 1861, Lincoln issued a proclamation to establish a blockade of Confederate ports in South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Texas. Eight days later, the blockade was extended to include ports in Virginia and North Carolina. Until the fall of Fort Fisher in January 1865 and the Union occupation of the Cape Fear, Wilmington remained as the Confederacy's major port for vessels running the blockade. As a consequence, the remains of numerous blockade runners lie along the coastline north and west of Cape Fear.

The remains of the Anglo-Confederate Trading Company's steamer *Wild Dayrell,* lie in Rich Inlet approximately 20 miles north of Fort Fisher. That vessel was built by the firm of Jones, Quiggin and Company in Liverpool along with an identical sistership, *Lucy*. *Lucy* and *Wild Dayrell* were constructed of iron, each measuring 215 feet in length, 20 feet in beam and 10 foot 3 inch depth of hold. The vessels' oscillating steam cylinder engines were built by Fawcett, Preston and Company in Liverpool and measured 52 inches in diameter with a 48-inch stroke. The *Wild Dayrell* was also equipped with feathering paddle wheel floats and a forecastle hood. Two raked pole masts and two raked retractable funnels were all that protruded above the level of the steamer's paddle boxes.

The *Wild Dayrell* was launched on 17 September 1863. Although the steam trials of the *Wild Dayrell* were not reported in the press, its sistership *Lucy* proved to be capable of 15 ½ knots against a strong wind and tide during her trials in October 1863. On 12 November the vessel's registered owners, Edward Lawrence and Company, entered the vessel at Liverpool Customs for loading for Nassau. The fully loaded *Wild Dayrell* cleared for sea two days later. In December, the steamer made Nassau and, after being painted a lead color, took on a cargo for Wilmington. After two successful round trips the *Wild Dayrell* was run ashore on 1 February 1864.

The wreck of the *Wild Dayrell* was never lost. It lies in the shallow water of Rich Inlet south of Figure Eight Island and has been a popular site for fishing (Figure 6). However, because of strong currents in the inlet, the *Wild Dayrell* has never been a popular dive site though sport divers have recovered portholes from the hull during the early 1980s. In spite of the environment, the wreck was mapped by the staff and students of the East Carolina University (ECU) Program in Maritime History and Underwater Archaeology in 1985 (Figure 7).

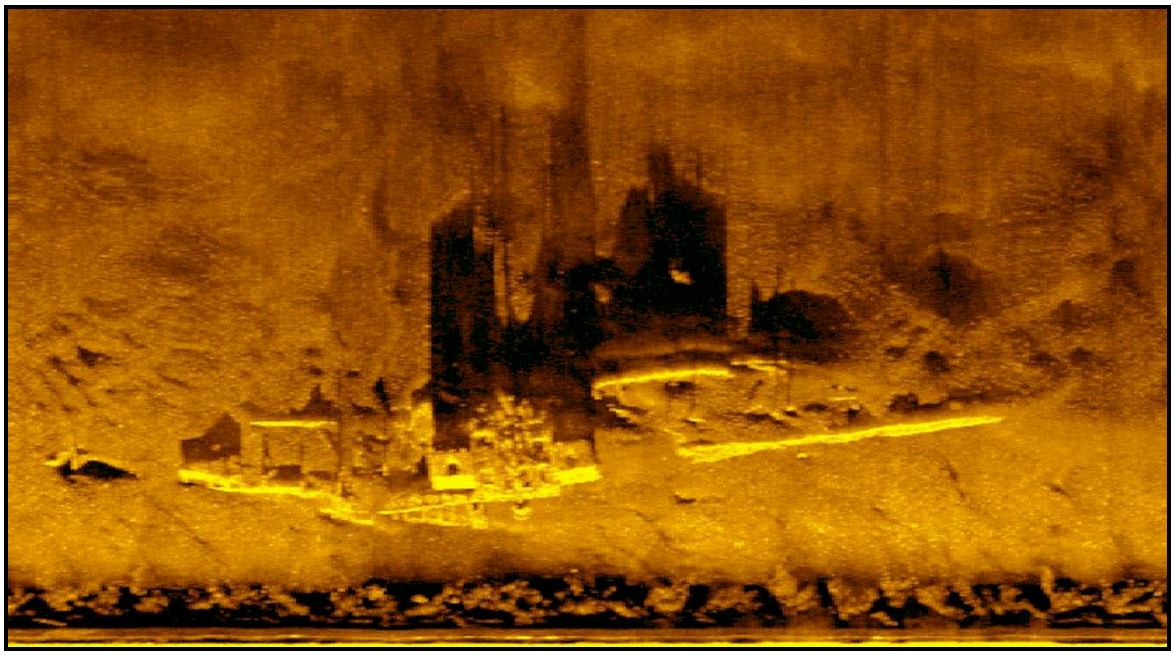

Figure 6. Sonar image of the *Wild Dayrell*.

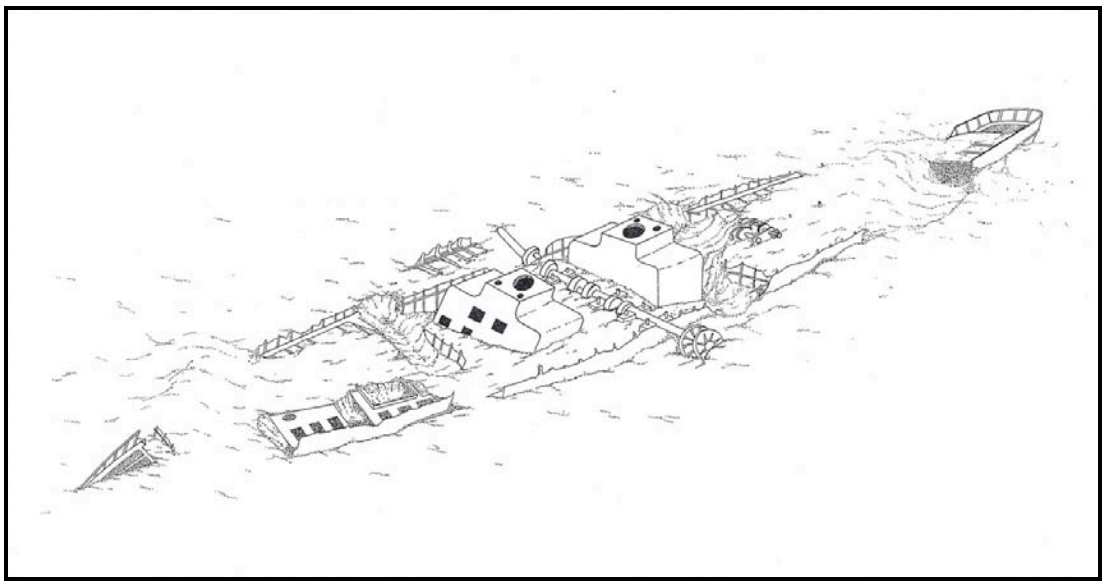

Figure 7. Perspective drawing of the remains of the *Wild Dayrell*.

Although the dimensions of the hull was impossible to precisely establish because of deterioration of the structure, the overall length of the wreck corresponds closely with the 215-foot length of the *Wild Dayrell* recorded on that vessel's *Certificate of British Registry* (CBR). The 20-foot beam and 50-foot length of the engine room recorded at the wreck site also correspond precisely with those recorded on the CBR. The *Wild Dayrell*'s CBR and historical data associated with the vessel confirm that the ship was powered by two oscillating engines, or steam cylinders and that number of oscillating cylinders were identified at the wreck site.

According to postwar records, the region's once prosperous plantation system disappeared during the Reconstruction Era. Some 4,000 native males had served the Confederacy and survivors faced a dismal future upon their return. The war's aftermath of economic and social upheaval also created a climate for political change. Historians related that carpetbaggers had seized control of nearby Wilmington and their stranglehold resulted in corruption at all levels of government. In 1873, landowners organized at Long Creek Village (former Lillington) to discuss plans to separate from New Hanover County's control. During February 1875, the future constituents of Pender County voted to form their own county and succeeded by popular vote. The name Pender was selected to honor native son General William D. Pender. The City of South Washington (now Watha) was designated as the first government center but was replaced by the present county seat of Burgaw in 1879 (Bloodworth 1947:1,3).

The lack of navigable channels also hindered postwar recovery. In 1875/1876, a Federal civil engineer reported about impediments to navigation in southeastern North Carolina that included Rich Inlet. S. T. Albert noted that the depth of Rich Inlet was only 2.5 feet (U.S. War Department 1876:384). He also remarked that:

> Between Bogue Sound and Wilmington are five shallow sounds, with an occasional inlet, where coasters may find a haven. These sounds … are for the most part occupied by an intricate network of channels through which a canoe cannot pass. The storms sweep into the sounds a large amount of sand which the feeble backwater is unable to remove, and large deltas have been formed by the ocean inside the inlets (U.S. War Department 1876:388).

Rich Inlet's shallow, meandering channel possibly contributed to a mid-April 1877 shipwreck. According to *The Deseret News*, a "schooner, loaded with lumber, is ashore near Rich Inlet. The vessel is broken in two, and with her cargo is a total loss. It is feared that the crew are all lost" (*Deseret News* 1877). A contemporary Connecticut paper published a similar story (*Hartford Daily Courant* 1877). Within two years, a coastwise vessel bound for Charleston stranded in Rich Inlet, according to *The New York Times.* Following its departure from New York, the steam yacht *Elizabeth* "took fire" in the inlet during March 1879 and "was totally destroyed". The newspaper related that the yacht's crew was safely ashore (*The New York Times* 1879). In 1898, the U.S. Life-Saving Service compiled its annual report and advised Congress that over the course of a ten-year-period (1888-1897) there was one confirmed vessel stranding at Rich Inlet (U.S. Life-Saving Service 1898:453).

Navigational improvements made during the twentieth century prompted some changes along Pender and New Hanover counties. During the 1920s, construction began on the Intracoastal Waterway (ICW), a protected waterway traversing the entire eastern seaboard of the United States. It was hoped that the waterway would facilitate coastal trade and open areas of the coast that had little access to transportation outlets. Prior to 1930, Beaufort remained the southern terminus of the ICW. To the south of that North Carolina port, the waterway resumed at Winyah Bay, South Carolina. Federal legislation enacted during the late 1920s approved construction of a 93-mile long waterway between the port cities of Beaufort and Wilmington. The projected waterway was expected to increase shipments of "large quantities of lumber, seafood, fertilizer, petroleum products, and general merchandise through the intervening sounds" (Angley 1984:8).

Those changes, however, had no impact on vessel traffic navigating through Rich Inlet. In 1922, the U.S. Coast and Geodetic Survey reported on the status of all North Carolina inlets remarking that: "Rich and Queens Inlets are 5 miles and 8½ miles, respectively, westward of New Topsail Inlet, and have channel depths over their bars of 2 to 4 feet at low tide. They are used to some extent as anchorages by small local craft but are not recommended to strangers" (U.S. Department of Commerce 1922:58-59).

The lack of vessel traffic in Rich Inlet did not deter local fishing craft, and apparently encouraged bootleg whisky enterprises on the northern end of Figure Eight Island. According to some accounts "there were quite a few illegal stills" producing illicit liquors during Prohibition (1919-1933). In particular, a still operated by "Rod Rogers" located at Big Oak Landing produced some five gallons of whiskey per

week. Situated at the base of a high bank along the creek, and backed by heavy foliage and large oaks, Roger's distillery was only accessible by high tide (Nadeau 1998:18-19; Zepke 2004:187).

During World War II, at least 12 American tankers and freighters were sunk in Onslow Bay after being torpedoed by German U-boats. The majority of those commercial vessels were lost during March and April 1942. Conversely, the 218-foot *U-352* was destroyed in the bay after being depth-charged by the USCG cutter *Icarus* (Gentile 1992:193-209; Survivor Topsail 2005).

In response to U-boat activity north of Figure Eight Island, coast guard auxiliary vessels were stationed at Rich and Mason inlets to watch for enemy submarines. A Porter's Neck resident who served in the inlet patrol later reported that two U.S. Army airplanes crashed at Figure Eight Island. J. Knight Davis recalled that one crashed into the ocean, and a possible Thunderbolt "cracked up on the dunes". In respect to the latter incident, the pilot survived and walked away. Davis maintained that the plane wreckage was visible for several years. The former coast guard observer also suggested that a "wrecked dredge" washed up on the island's south end (Nadeau 1998:20).

A Rich Inlet fisherman named Eugene Casteen provided information that P-47 and P-39 pilots used the beaches of Figure Eight as a strafing range in World War II. Flying out of their training base at Bluethenthal Field (ILM Airport), the five to six planes would fire at beach targets laid out by Casteen and others. Primitive barracks were constructed on the island to accommodate U.S. Army soldiers and USCG personnel, who served in mounted beach patrol units. A small pier was also constructed on the shoreline of the sound. After the global conflict ended, the federal government apparently abandoned the barracks. In the postwar period, fishermen and squatters occupied the shacks (Nadeau 1998:20-21; Zepke 2004:187-188).

Modern Development on Figure Eight Island

In 1955, two New Hanover County businessmen sought to purchase the 1,300-acre barrier island from descendents of the Foy and Hutaff families. After protracted negotiations, brothers Dan and Bruce Cameron purchased the island for approximately $100,000. Due to the extensive damage caused by Hurricane Hazel in 1954, the oceanfront property was probably seen as a liability to the previous owners (Nadeau 1998:15-16).

In April 1967, the U.S. Department of Defense released details regarding "Exercise Kitty Hawk", in which 70,000 air and ground troops would train during late summer along the North Carolina coast. Rich Inlet was designated as the southernmost staging area for "the biggest U.S. war games since the Vietnam buildup". According to the U.S. Strike Command, one phase of the military exercise

would include an amphibious Marine landing to coordinate with U.S. Army, U.S. Air Force, and U.S. Navy training maneuvers. The joint operation was scheduled to commence in late August 1967 (*The Dispatch* 1967).

During October 1977, New Hanover County filed a Superior Court petition to resolve a longstanding dispute between the county and Pender County. The legal action involved a 147-acre tract at the north end of Figure Eight Island, "over which both counties claim[ed] jurisdiction". Specifically, the disputed tract was "bounded on the west by Nixon Channel, on the north by Rich Inlet, and on the east by the Atlantic Ocean" (*Morning Star* 1977; Meyer 1978:7-C). Jurisdiction of Figure Eight Island was eventually awarded to New Hanover County, and the official county boundaries are located within Rich Inlet (Fennell 1982:2B).

By early 1982, Figure Eight Island was still largely undeveloped and its natural character was preserved to a great degree. Access to the island was prohibited by "invitation only" and was facilitated by a private bridge (Schoenbaum 1992:234). Fishing enthusiasts continued to enjoy superb catches near the island, and benefited from the state's artificial reef program. Beginning in 1973, the N.C Division of Marine Fisheries (NCDMF) also deposited discarded tires on fishing reefs including sites off Rich's Inlet, and nearby Topsail Beach to enhance commercial and recreational fishing (*Morning Star* 1975).

Seventy mph winds created by Hurricane Diana in September 1984 prompted a brief, voluntary evacuation of Figure Eight Island. A modern houseboat sank at the yacht club marina during the storm, and some residents later reported seeing "the shell of a wooden ship washed up on the beach" [near Dan Cameron home]. Witnesses observed "creosoted heart of pine wood" and "solid copper, hand cast nail spikes." Islanders noted that the wreck disappeared into the surf within days of the initial sighting (Nadeau 1991:89; 1998:90-92).

On 4 December 1984, N.C. underwater archaeologists Richard Lawrence and Leslie Bright visited Figure Eight Island to examine a wreck reported by Mr. Bob Maready. Mr. Lawrence and Mr. Bright conducted a visual inspection "from the point where the mainland access road intersects the beach, south to Rich Inlet" but were unable to relocate any vessel remains. In his previous telephone report, Mr. Maready described "cypress or oak" wooden remains with brass spikes and pins, and suggested that the overall dimensions of the wreck measured some 36 feet by 10 feet (Lawrence 1985:1).

During the 4 December visit, Mr. Lawrence and Mr. Bright also conducted a brief survey of the remains (Site 0001-FEB) of another wooden vessel that was situated "across the street and just south of the house at 524 Beach Drive in a wooded thicket" (Lawrence 1985:1). According to Nadeau (1998:54), the remains were near the north end of the island on a lot at 521 Beach Road North and were discovered by Robert Pollock in the early 1980s. Mr. Lawrence reported that Site 0001-FEB was "at the base of a dune system and was apparently deposited at a time when the inlet was situated south of its present location or during a time of extreme overwash". (Lawrence 1985:1-2). Historical records indicate that at least two inlets now closed

once existed on the northern end of Figure Eight Island. By 1991, "the fragmented spine of the ship" was still visible with its attached "rusted spikes and bolts" (Nadeau 1998:54-56).

In March 1985, the NCDMF cautioned mariners approaching Rich Inlet to avoid the sunken hulk of the *Wild Dayrell* as strong currents had swept away markers placed at the site in 1983. A local marina operator reported that at least six boats struck the wreck during 1984, and sustained damage. At this time, numerous vessels were navigating through Rich Inlet on "a typical summer day" (Headrick 1985).

A Wilmington newspaper published in 1986 informed readers about local fishing tournaments, and specifically advised king mackerel anglers to motor some six miles off Rich Inlet to Dallas Rock where large, sharp ledges attracted the popular finfish. In addition to the presence of king mackerel, sportsmen were able to catch abundant bluefish, dolphin, grouper, marlin, and wahoo aboard charter or private vessels off Rich Inlet (Cooney 1986).

During the 1990s, several hurricanes caused significant damage to coastal Pender and New Hanover counties, and resulted in the evacuation of thousands of residents and tourists. In November 1994, the area was subjected to the prolonged and erratic path of tropical storm Gordon, which whipped up 11-foot waves in some locations to cause serious beach erosion. Although Hurricane Bertha made landfall near Surf City in mid-July 1996 with sustained winds of 110 mph, the storm's greatest impact was the loss of revenue when tourists and residents were forced to leave barrier island accommodations. In early September 1996, Hurricane Fran came ashore within miles of Bertha's landfall site with maximum winds of 115 mph (122 mph per NOAA). Both 1996 tropical systems generated severe gales, floodwaters, and near-record storm surges (*The Charlotte Observer* 1994; Geroux 1996; Sack 1996; Torriero 1996).

A Figure Eight Island homeowner commented that every structure on the barrier island was damaged during Hurricane Fran, and that all docks and beach steps were lost. Sand was re-deposited to a depth of three feet on all roads (Nadeau 1998:9). In late August 1998, Hurricane Bonnie struck the same coastline with maximum winds of 115 knots and near-record rainfall totals. Hurricane Dennis skirted the coastline in late August 1999, which prompted officials to issue mandatory evacuation of low lying areas and some barrier island communities. In September 1999, epic flooding caused by Hurricane Floyd devastated Pender and New Hanover in addition to numerous other North Carolina counties (*Atlanta Journal-Constitution* 1998; Pressley 1999; *The Charlotte Observer* 1999).

Hurricane Isabel struck the North Carolina coast in mid-September 2003, and the effects of the storm may have dislodged a wreck that appeared in the vicinity of Rich Inlet several weeks later. On 14 November 2003, wreckage was found on the southern bank of the newly aligned Mason Inlet [between Figure Eight Island and Wrightsville Beach]. A local fisherman observed the vessel frame that was located "several hundred feet inland from the mouth of the inlet", and reported the site to

the N.C. UAB at Fort Fisher. Archaeologists were not able to view the wreckage but suggested that the remains might be related to those described in the 6 March 1985 *Memorandum*, which were identified as the Maready Site (Henry 2003:1).

Currently, Figure Eight Island is advertised as one of the most pristine privately owned beach properties in North Carolina. Development on the island is strictly managed to maintain its picturesque and tranquil character. Amenities include a luxurious yacht club that features a restaurant, marina, and tennis courts. Due to its exclusivity and seclusion, celebrities and politicians favor the island. Over 400 "aesthetically pleasing" homes are situated amid the island's maritime forests and high, rolling dunes (Barefoot 2005:170).

Previous Investigations

In 1984, the wreck of the *Wild Dayrell* (0001RII) was examined by the UAB staff and subsequently mapped in 1989 by students of the ECU Program in Maritime History and Underwater Archaeology. Although the dimensions of the hull were impossible to precisely establish because of deterioration of the structure, the overall length of the wreck corresponded closely with the 215-foot length of the *Wild Dayrell* recorded on that vessel's CBR. The 20-foot beam and 50-foot length of the engine room recorded at the wreck site also correspond precisely with those recorded on the CBR. The *Wild Dayrell*'s CBR and historical data associated with the vessel confirm that the ship was powered by two oscillating engines, or steam cylinders; the same number of oscillating cylinders were identified at the wreck site. With these data, it was determined that this wreck represents the probable remains of the *Wild Dayrell*.

On 31 May 2002, the UAB conducted an inspection dive on the *Wild Dayrell*, prompted by reports that the wreck had been exposed. A secondary goal of this inspection was to record accurate coordinates for the wreck site with the UAB's DGPS. Diving took place at high tide with the upper portions of the boilers four feet from the water surface. Along with obtaining coordinates, it was determined that the shipwreck appeared to be in the same condition as when it was examined by the UAB and ECU field school (Lawrence 2002).

On 3 September 2006, Tidewater Atlantic Research, Inc. (TAR) of Washington, North Carolina carried out a remote-sensing survey to determine the exact position of the wreck site of the Civil War blockade-runner *Wild Dayrell*. That remote-sensing survey was conducted for CPE-NC, working with the Figure Eight Island Beach Homeowners Association on the inlet and shoreline management project. As one of the project alternatives involved the repositioning of the Rich Inlet channel, the investigation carried out by TAR personnel relocated the *Wild Dayrell* and accurately established the location of the wreck using differential global positioning. On the recommendation of Richard Lawrence, head of the North Carolina UAB, a 400-foot by 600-foot protective buffer zone was established around the wreck site.

Description of Findings

An analysis of the remote-sensing data identified a total of 116 individual magnetic anomalies and 6 sonar targets within the area surveyed (Figure 8, Appendix B and Figure 9). Five clusters, composed of 13 individual anomalies, contained signature characteristics suggestive of potentially significant cultural material. Cluster RI-1 is composed of two associated magnetic signatures and a sonar image suggestive of possible ballast (Figure 8, Appendix B and Appendix C). As these signatures are suggestive of potentially significant cultural material, avoidance of these targets is recommended by the creation of a 150-foot radius buffer. Cluster RI-2 is composed of three magnetic anomalies (Figure 8 and Appendix B). Their proximity to each other along with their signature characteristics are suggestive of potentially significant cultural material. Avoidance of cluster RI-2 is recommended by the creation of a 100-foot radius buffer. Cluster RI-3 is composed of five magnetic anomalies (Figure 8 and Appendix B). Their proximity to each other along with their signature characteristics are suggestive of potentially significant cultural material. Avoidance of cluster RI-3 is recommended by the creation of a 150-foot radius buffer. Anomaly RI-4 is composed of a single magnetic anomaly (Figure 8 and Appendix B). Sonar identified possible structural debris at the site (Appendix C). Due to this anomaly's proximity to the *Wild Dayrell*, it could be disarticulated structure associated with that wreck. Avoidance of RI-4 is recommended by the creation of a 100-foot radius buffer. Cluster RI-5 is composed of two magnetic anomalies and a sonar image suggestive of possible structural debris (Figure 8, Appendix B and Appendix C). As these signatures are suggestive of potentially significant cultural material avoidance is recommended by the creation of a 100-foot radius buffer. Should avoidance prove impossible, additional investigation designed to fully assess each anomaly's historical and archaeological significance in terms of NRHP eligibility is recommended.

The remaining 103 magnetic targets in the survey area contained signature characteristics suggestive of modern material such as traps, anchors, pipe, rebar, small cable, moorings, and moored vessels (Figure 8 and Appendix B). Three targets, 81, 94, and 95, had associated sonar images illustrating a crab trap, scattered modern debris, and a tire, respectively (Appendix C). As the sensor was within several feet of the bottom, even small ferrous objects will generate a significant magnetic target. The cesium vapor magnetometer will also identify targets well in advance of their position and continue to record the associated magnetic disturbance well after crossing material generating the signature. This assessment is verified by modern material recorded by the sonar (Figure 9 and Appendix C). As their signature characteristics are suggestive of modern material, those 103 individual magnetic anomalies are not recommended for avoidance or additional investigation in conjunction with the proposed project.

Within the proposed survey area two locations proved to be inaccessible. One area was located in the surf zone off the north end of Figure Eight. The second was on a shoal west of the location of the *Wild Dayrell*. Breaking water in both areas proved to be too rough and shallow for safe vessel operations and too rough and deep for terrestrial survey means.

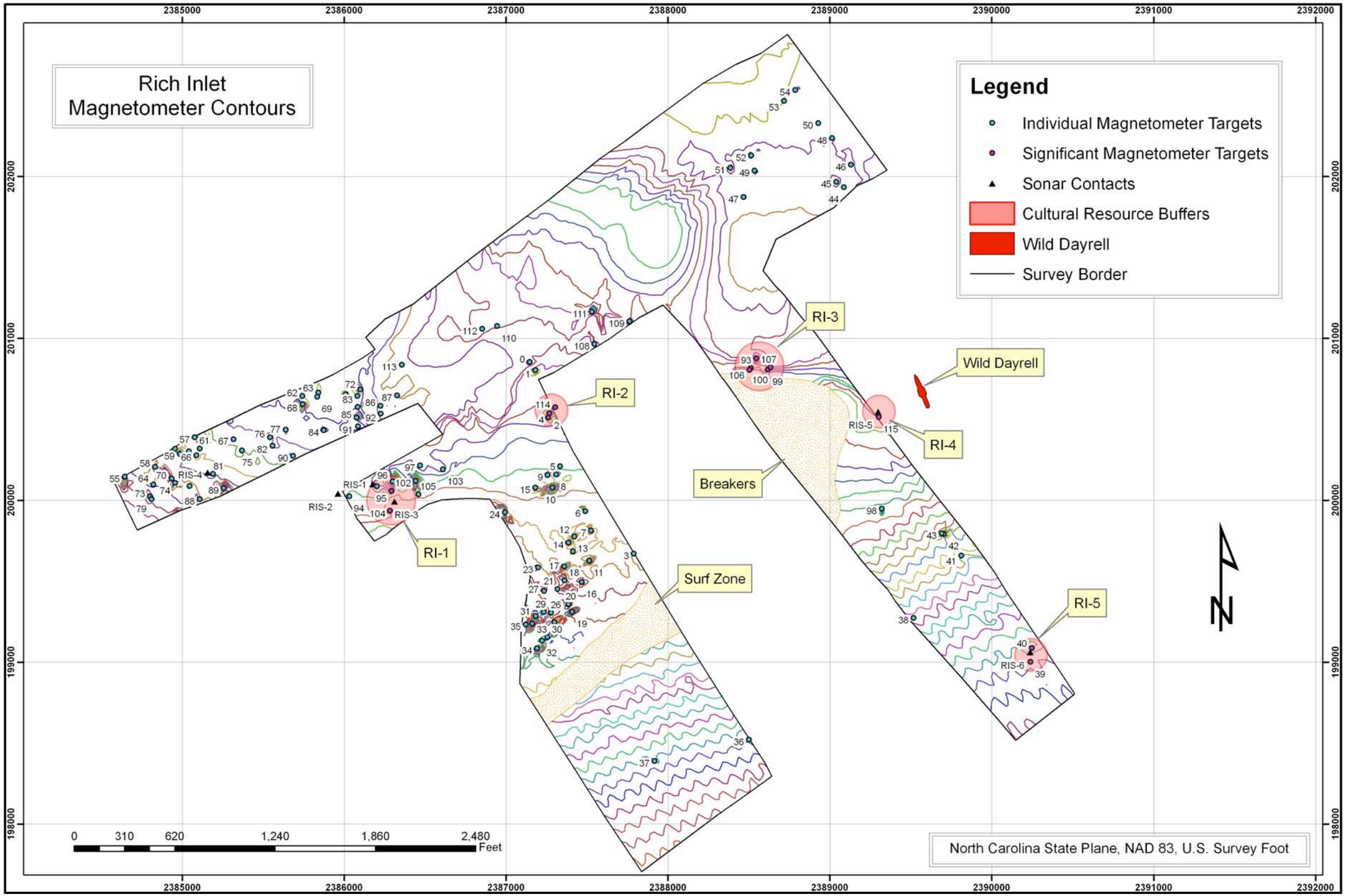

Figure 8. Magnetic contour map.

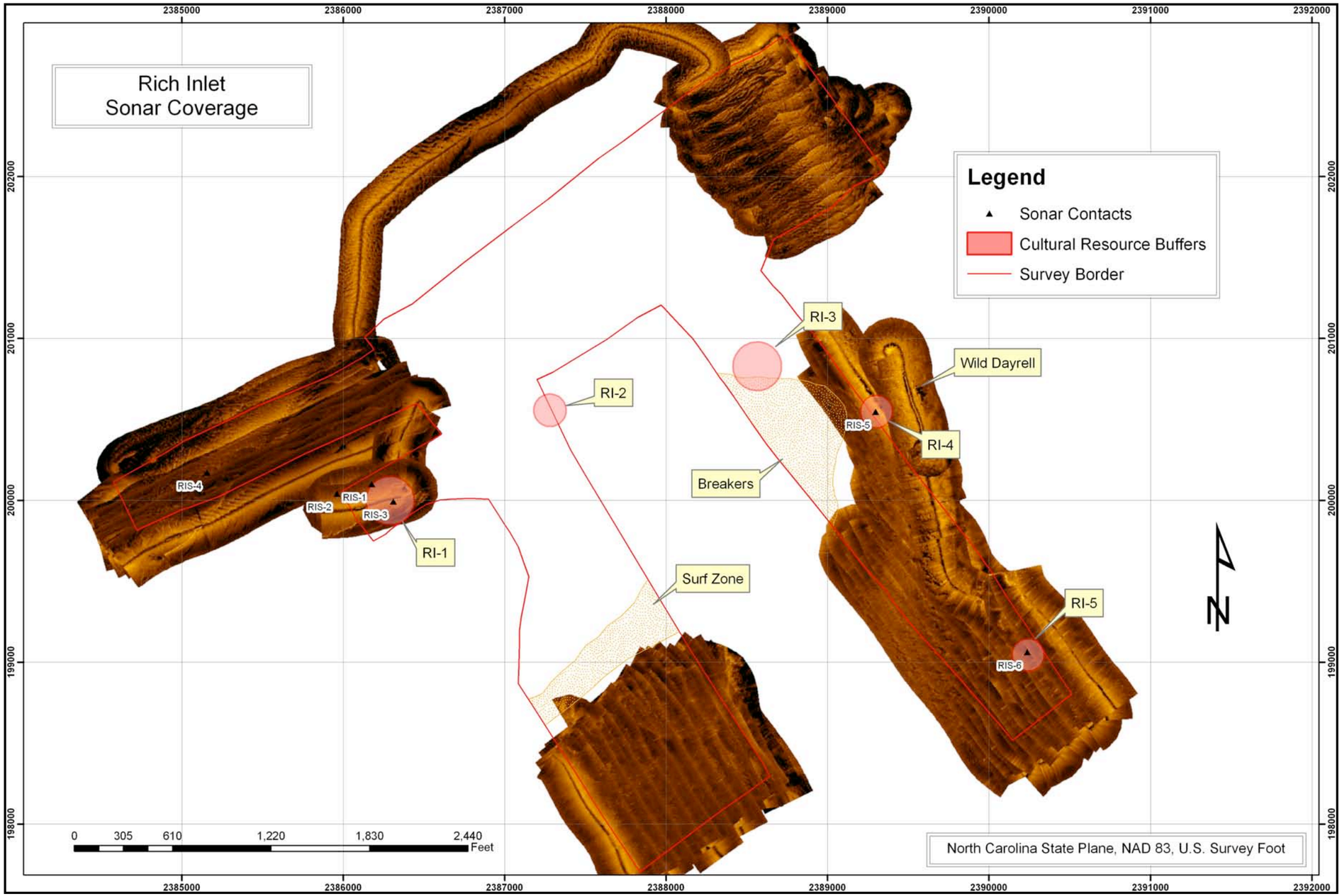

Figure 9. Sonar coverage map.

Conclusions and Recommendations

Development in the immediate vicinity of Rich Inlet is relatively modern and closely associated with Figure Eight Island. Because channels associated with Rich Inlet were limited in terms of both depth and access to habitable areas on the adjacent coast, navigation in the inlet has historically been limited. With the exception of very small craft, larger vessel traffic has been almost entirely associated with the consequences of mechanical disaster, war and weather. Documented wrecks in Rich Inlet or in the immediate vicinity have all been a result of one or more of those factors. While there are at least 5 documented wrecks in the vicinity of the proposed borrow area only one, *Wild Dayrell*, has been identified to date. The anomaly concentrations identified for avoidance or additional investigation could be associated with other documented wrecks.

The remote-sensing survey identified a total of 116 individual magnetic targets and 6 sonar targets (Appendix B and C). Five anomalies, composed of 13 individual magnetic targets and 3 associated sonar targets, contain signature characteristics suggestive of potentially significant cultural material. These five anomalies are recommended for avoidance. Should avoidance prove impossible, additional investigation designed to fully assess each anomaly's historical and archaeological significance in terms of NRHP eligibility is recommended. The remaining 103 and three associated sonar targets are indicative of modern debris such as traps, anchors, pipe, rebar, and small cable. No avoidance or additional investigation of these 103 individual magnetic targets is recommended in conjunction with the proposed project.

As there are no data for the two inaccessible areas, dredging operations in both locations should be carefully monitored for contact with submerged cultural resources. In the event that historic vessel material is identified, dredging should be shifted away from the material until an assessment of its NRHP eligibility can be made by archaeologists under contract to CPE-NC and personnel from the UAB at Fort Fisher.

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Appendix A

Known wrecks in the vicinity of Rich Inlet, North Carolina

Vessel	Type	Use	Date of Loss	Location	Disposition
Abdel Kader	schooner	coast trade-naval stores	September 1857	25/30 miles N of New Inlet	
Wild Dayrell	paddle steamer	blockade runner	February 1864	South of Figure Eight Island	
Unknown	schooner	lumber	April 1877	Near Rich Inlet	total loss
Elizabeth	steam yacht		March 1879	Rich Inlet	caught fire/total loss
Unknown	aircraft	U.S. Army	WWII	Ocean off Figure Eight Island	crashed & sunk
Unknown	Thunderbolt ? aircraft	U.S. Army	WWII	Dunes on Figure Eight Island	wreckage visible for several years
Unknown	dredge			South end of Figure Eight Island	
Unknown	wooden			South of Rich Inlet-521 Beach Rd N	remains of keel
Unknown	wooden			Near Don Cameron home	washed ashore during 1984 hurricane
Unknown	houseboat	pleasure	September 1984	Figure Eight Island marina	sank during hurricane
Unknown	Wooden			southern bank of Mason Inlet	appeared after hurricane

Wreck Citations:

Hartford Daily Courant
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Lawrence, Richard W.
1985 Maready Site and Erwin Site (0001-FEB), Figure 8 Island. Memorandum. N.C. Underwater Archaeology Unit, Kure Beach.

Nadeau, Nola
1991 *An Island Called Figure Eight*. The Wallace Enterprise, Wallace, NC.

1998 *Figure Eight Revisited*. Wilmington Printing, Wilmington, NC.

The Deseret News
1877 Schooners Wrecked: WILMINGTON, N.C. *The Deseret News* 17 April:2. Salt Lake City, Utah Territory.

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1857 HEAVY STORM AT THE SOUTH: VESSELS ASHORE: PARTICULARS OF THE STORM. *The New York Times* 17 September. New York, NY.

1879 VESSELS DAMAGED OR LOST: WILMINGTON, N.C. *The New York Times* 18 March. New York, NY.

Appendix B

Magnetic Target List
(All coordinates North Carolina State Plane, NAD 83, U.S. Survey Foot)

Anomaly	Map Designation	Characteristics	X	Y	Sonar	Recommendations
RI-1	101	3-1-mc12g167f	2386290.7	200057.5	RIS-3	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Sonar image suggestive of possible ballast. Avoidance by the creation of a 150-foot radius buffer is recommended.
	104	4-1-mc39g123f	2386282.2	199935.2	RIS-3	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Sonar image suggestive of possible ballast. Avoidance by the creation of a 150-foot radius buffer is recommended.
RI-2	2	27-1-nm51g149f	2387266.3	200536.7	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 100-foot radius buffer is recommended.
	4	26-1-mc67g114f	2387260.5	200510.0	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 100-foot radius buffer is recommended.
	114	28-3-nm98g147f	2387302.6	200575.0	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 100-foot radius buffer is recommended.
RI-3	93	1-1-pm24g67f	2388545.7	200876.5	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 150-foot radius buffer is recommended.

RI-3, cont'd	99	2-2-nm5g33f	2388617.3	200807.1	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 150-foot radius buffer is recommended.
	100	2-3-nm8g68f	2388512.3	200817.0	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 150-foot radius buffer is recommended.
	106	9-1-mc5g134f	2388502.2	200805.3	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 150-foot radius buffer is recommended.
	107	9-2-nm5g40f	2388633.0	200821.1	No	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Avoidance by the creation of a 150-foot radius buffer is recommended.
RI-4	115	14-1-pm4g24f	2389302.0	200513.9	RIS-5	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Sonar image suggestive of possible disarticulated structure from the *Wild Dayrell*. Avoidance by the creation of a 100-foot radius buffer is recommended.
RI-5	39	11-1-dp4g89f	2390239.3	199000.4	RIS-6	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Sonar image suggestive of possible disarticulated structure. Avoidance by the creation of a 100-foot radius buffer is recommended.
	40	12-1-dp10g75f	2390248.4	199086.1	RIS-6	Magnetic signature characteristics, intensity, and duration suggest that material generating the anomaly could be associated with the remains of a vessel or potentially significant cultural resource. Sonar image suggestive of possible disarticulated structure. Avoidance by the creation of a 100-foot radius buffer is recommended.

Individual Magnetic Targets

Map Designation	Name	X	Y	Sonar	Recommendations
0	28-1-nm24g62f	2387145.7	200853.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
1	28-2-nm16g58f	2387179.8	200803.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
3	27-2-dp9g34f	2387787.4	199670.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
5	25-1-mc28g52f	2387332.4	200208.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
6	25-2-mc124g127f	2387488.9	199931.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
7	24-1-mc26g72f	2387523.1	199811.6	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
8	24-2-pm18g55f	2387307.7	200158.6	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
9	23-1-dp51g26f	2387256.1	200155.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
10	23-2-dp425g22f	2387286.4	200076.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
11	22-1-mc101g61f	2387513.8	199626.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
12	22-2-dp38g27f	2387421.0	199775.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
13	21-1-mc111g30f	2387413.2	199684.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
14	21-2-mc122g44f	2387384.3	199737.5	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
15	21-3-mc52g62f	2387179.4	200076.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
16	20-1-mc85g49f	2387467.0	199494.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
17	19-1-nm67g67f	2387359.4	199589.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
18	18-1-mc31g203f	2387360.5	199504.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.

19	17-1-pm69g23f	2387408.1	199310.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
20	17-2-dp41g41f	2387384.8	199357.5	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
21	17-3-nm23g19f	2387317.8	199451.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
22	16-1-pm23g36f	2387331.1	199368.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
23	16-2-dp23g32f	2387197.7	199584.5	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
24	16-3-mc101g288f	2386991.5	199924.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
25	15-1-mc72g50f	2387297.1	199245.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
26	15-2-mc24g23f	2387277.7	199305.3	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
27	15-3-mc19g41f	2387233.0	199438.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
28	14-1-mc84g28f	2387301.9	199179.3	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
29	14-2-mc60g98f	2387231.6	199308.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
30	13-3-mc56g53f	2387254.2	199153.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
31	13-2-mc35g99f	2387182.3	199283.8	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
32	12-1-mc78g30f	2387222.0	199131.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
33	12-2-dp177g36f	2387160.0	199237.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
34	11-1-mc178g40f	2387190.2	199084.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
35	11-2-pm75g17f	2387120.6	199232.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
36	28-1-mc4g67f	2388499.6	198520.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
37	16-1-dp3g45f	2387916.5	198388.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.

38	3-1-dp3g41f	2389517.0	199272.3	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
41	12-2-pm5g26f	2389812.6	199656.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
42	12-3-dp61g109f	2389703.7	199790.8	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
43	16-1-pm8g66f	2389689.9	199795.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
44	29-1-pm4g138f	2389085.5	201933.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
45	28-1-nm8g83f	2389040.1	201966.3	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
46	27-1-pm3g74f	2389129.1	202072.5	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
47	24-1-pm5g29f	2388466.2	201872.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
48	23-1-pm4g41f	2389013.9	202237.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
49	22-1-nm8g31f	2388534.0	202035.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
50	21-1-nm4g59f	2388927.5	202329.6	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
51	20-1-nm14g50f	2388385.6	202053.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
52	20-2-mc8g64f	2388514.1	202129.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
53	16-1-dp4g111f	2388717.0	202466.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
54	15-1-dp6g107f	2388785.2	202534.8	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
55	2-1-pm22g45f	2384643.0	200144.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
56	2-3-pm3g58f	2384954.3	200316.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
57	2-4-pm9g26f	2385076.3	200387.8	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
58	3-1-mc14g55+f	2384830.5	200205.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.

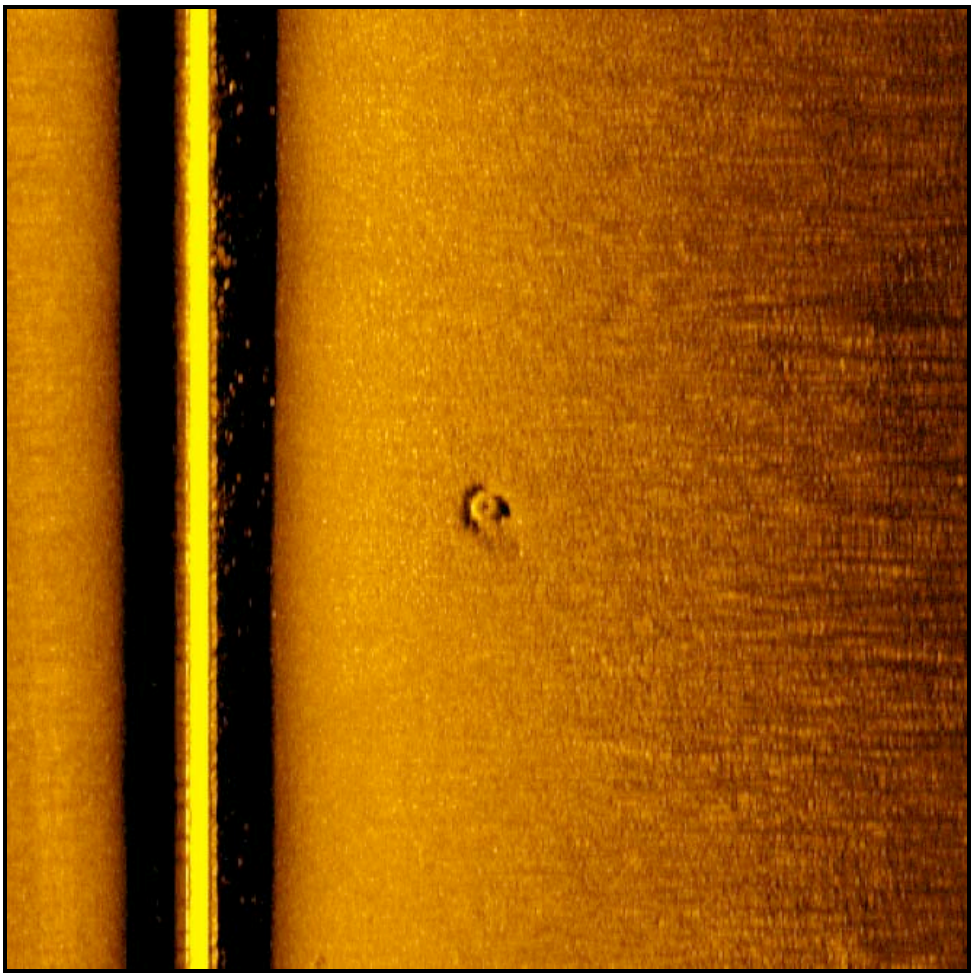
59	3-2-dp47g97f	2384982.9	200286.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
60	3-3-pm3g21f	2385039.9	200301.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
61	3-4-pm3g41f	2385106.8	200319.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
62	3-5-pm7g34f	2385741.0	200644.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
63	3-6-dp13g79f	2385839.1	200664.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
64	4-1-pm5g25f	2384820.4	200096.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
65	4-2-dp49g79f	2384892.6	200167.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
66	4-3-pm4g31f	2385086.1	200277.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
67	4-4-pm4g78f	2385315.4	200377.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
68	4-5-dp92g134f	2385741.7	200592.8	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
69	4-6-nm4g45f	2385832.7	200638.3	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
70	5-1-dp11g72f	2384932.4	200134.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
71	5-2-pm6g47f	2386007.3	200653.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
72	5-3-dp20g107f	2386098.8	200684.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
73	6-1-pm14g68f	2384799.1	200021.6	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
74	6-2-mc12g100f	2384954.1	200107.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
75	6-3-mc3g138f	2385366.5	200306.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
76	6-4-dp8g81f	2385540.2	200388.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
77	6-5-nm3g74f	2385637.5	200435.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.

78	6-6-mc2g113f	2386080.6	200642.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
79	7-1-pm6g78f	2384808.6	200005.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
80	7-2-dp5g58f	2385044.6	200087.5	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
81	7-3-pm4g60f	2385187.9	200162.7	RIS-4	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. Sonar confirms the presence of a crab trap. No additional investigation is recommended.
82	7-4-dp9g119f	2385555.9	200336.5	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
83	7-5-mc6g173f	2386082.7	200575.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
84	8-2-pm5g45f	2385873.0	200432.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
85	8-3-dp48g88f	2386075.9	200509.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
86	8-4-pm4g52f	2386223.7	200583.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
87	8-5-dp8g67f	2386326.2	200646.5	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
88	9-1-dp23g70f	2385107.5	200007.0	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
89	9-2-dp125g148f	2385254.7	200074.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
90	9-3-dp5g43f	2385683.3	200273.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
91	9-4-dp4g60f	2386084.8	200456.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
92	9-5-pm3g30f	2386225.3	200534.6	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
94	2-1-nm5g61f	2386029.6	200023.4	RIS-2	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. Sonar confirms the presence of modern debris. No additional investigation is recommended.
95	2-2-pm5g65f	2386200.1	200085.5	RIS-1	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. Sonar confirms the presence of a tire. No additional investigation is recommended.
96	2-3-dp70g159f	2386297.9	200116.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.

97	2-4-pm8g68f	2386468.3	200215.3	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
98	2-1-pm13g34f	2389320.5	199946.7	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
102	3-2-dp251g127f	2386440.6	200119.6	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
103	3-3-pm9g166f	2386609.1	200190.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
105	4-2-pm5g42f	2386458.3	200036.8	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
108	11-1-dp13g68f	2387544.5	200964.4	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
109	13-1-nm23g110f	2387761.4	201106.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
110	16-1-pm4g58f	2386943.8	201075.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
111	16-1-nm25g43f	2387529.4	201164.2	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
112	17-1-pm4g73f	2386852.5	201058.1	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.
113	18-1-dp3g87f	2386354.5	200835.9	No	Signature suggestive of small diameter pipe, trap, anchor or other small modern debris. No additional investigation is recommended.

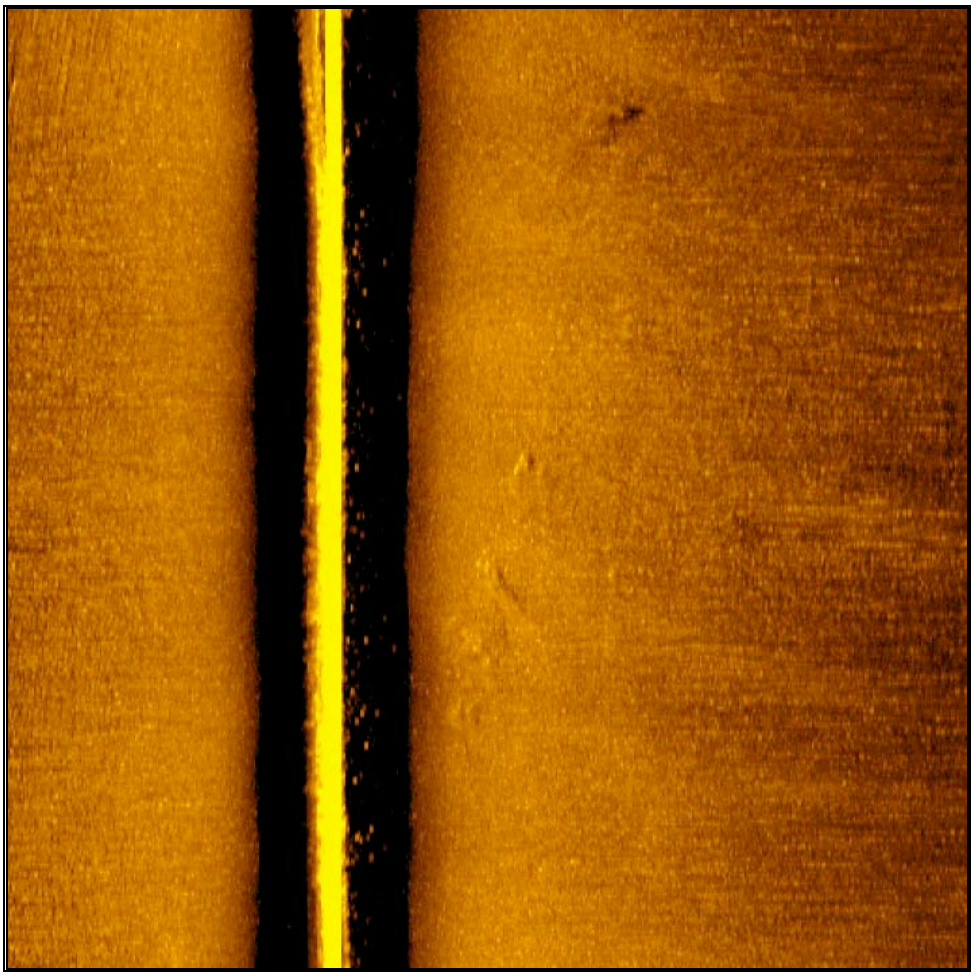
Appendix C
Sonar Targets

RIS-1



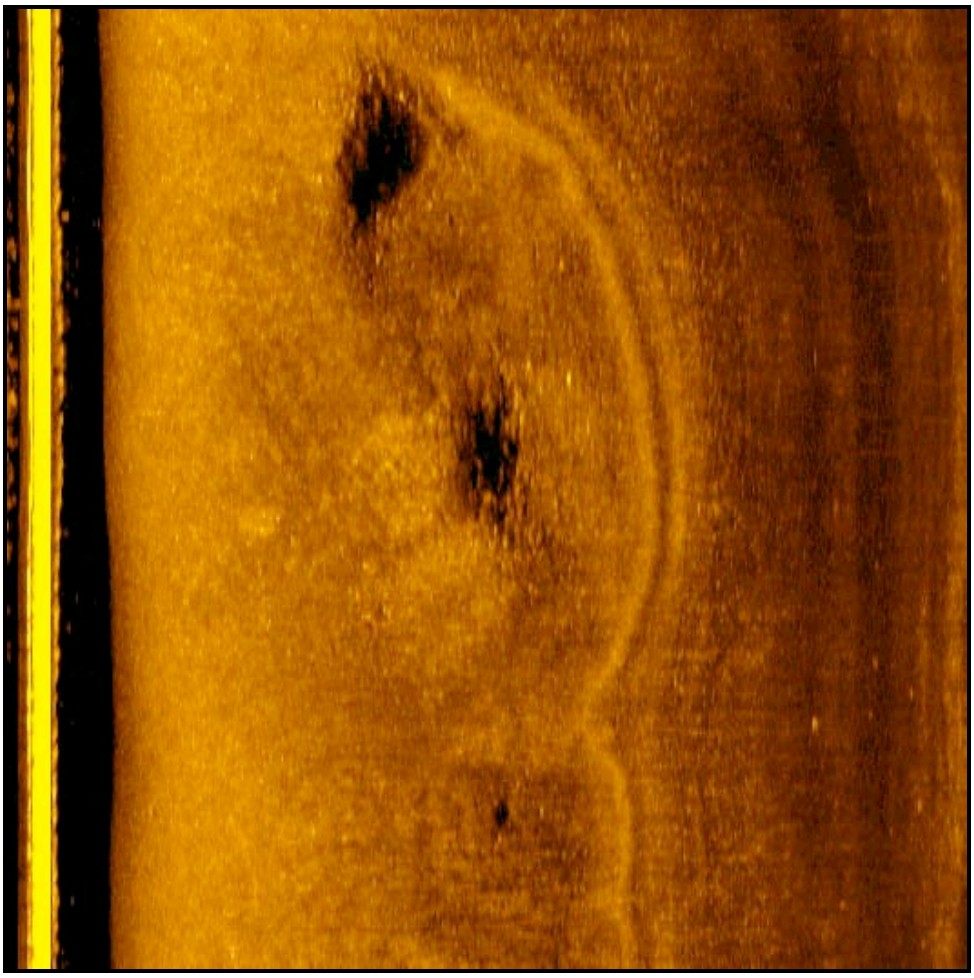
Contact Info: RIS-1	User Entered Info
• Sonar Time at Target: 03/08/2010 21:08:19 • Click Position (Projected Coordinates) (X) 2386175.50 (Y) 200099.91 • Map Proj: NAD83 North Carolina State Planes, US Foot • Acoustic Source File: RI10_L12-4_100308160900.xtf • Ping Number: 238760 • Range to Target: 14.84 US Feet • Fish Height: 3.71 US Feet • Line Name: RI10_L12-4_100308160900	Target Height: 0.5 US Feet Target Length: 5.0 US Feet Target Shadow: 2.0 US Feet Target Width: 5.0 US Feet Mag Anomaly: 95 Avoidance: No Description: Tire

RIS-2



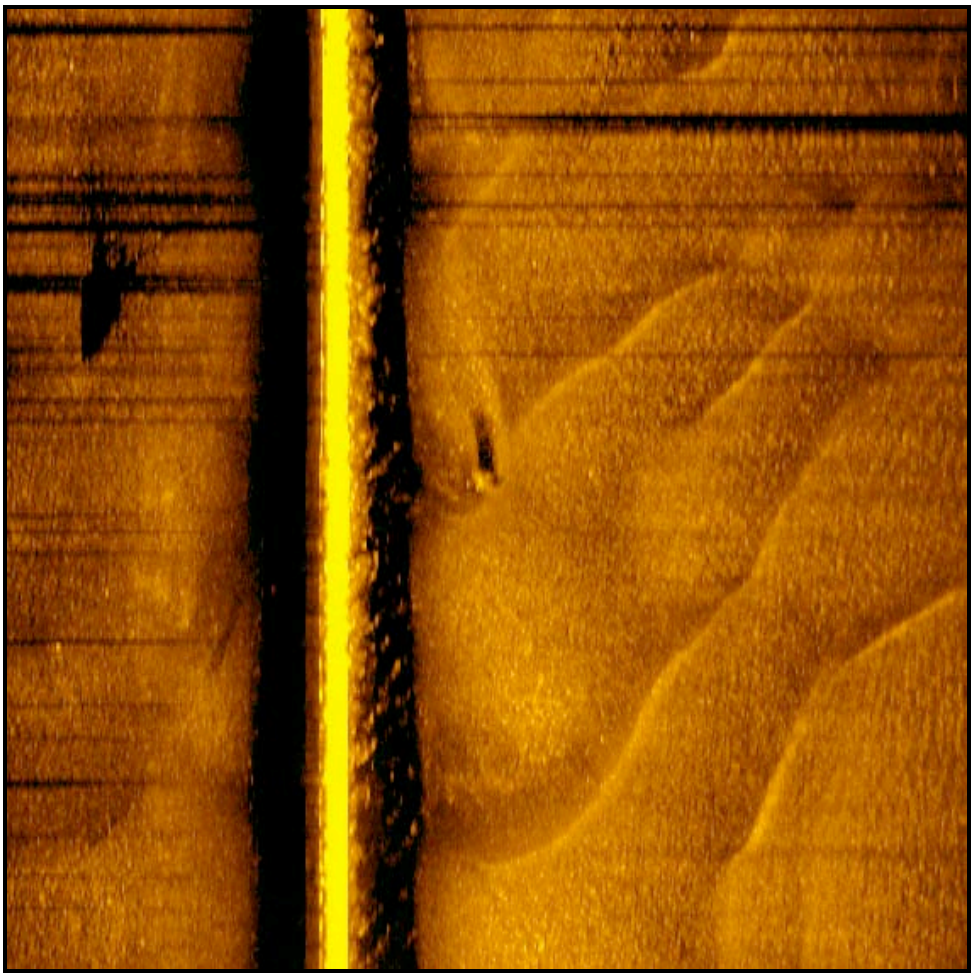
Contact Info: RIS-2	User Entered Info
• Sonar Time at Target: 03/08/2010 21:08:48 • Click Position (Projected Coordinates) (X) 2385961.25 (Y) 200041.34 • Map Proj: NAD83 North Carolina State Planes, US Foot • Acoustic Source File: RI10_L12-4_100308160900.xtf • Ping Number: 239185 • Range to Target: 7.91 US Feet • Fish Height: 3.81 US Feet • Line Name: RI10_L12-4_100308160900	Target Height: N/A Target Length: N/A Target Shadow: N/At Target Width: N/A Mag Anomaly: 94 Avoidance: No Description: Modern Debris

RIS-3



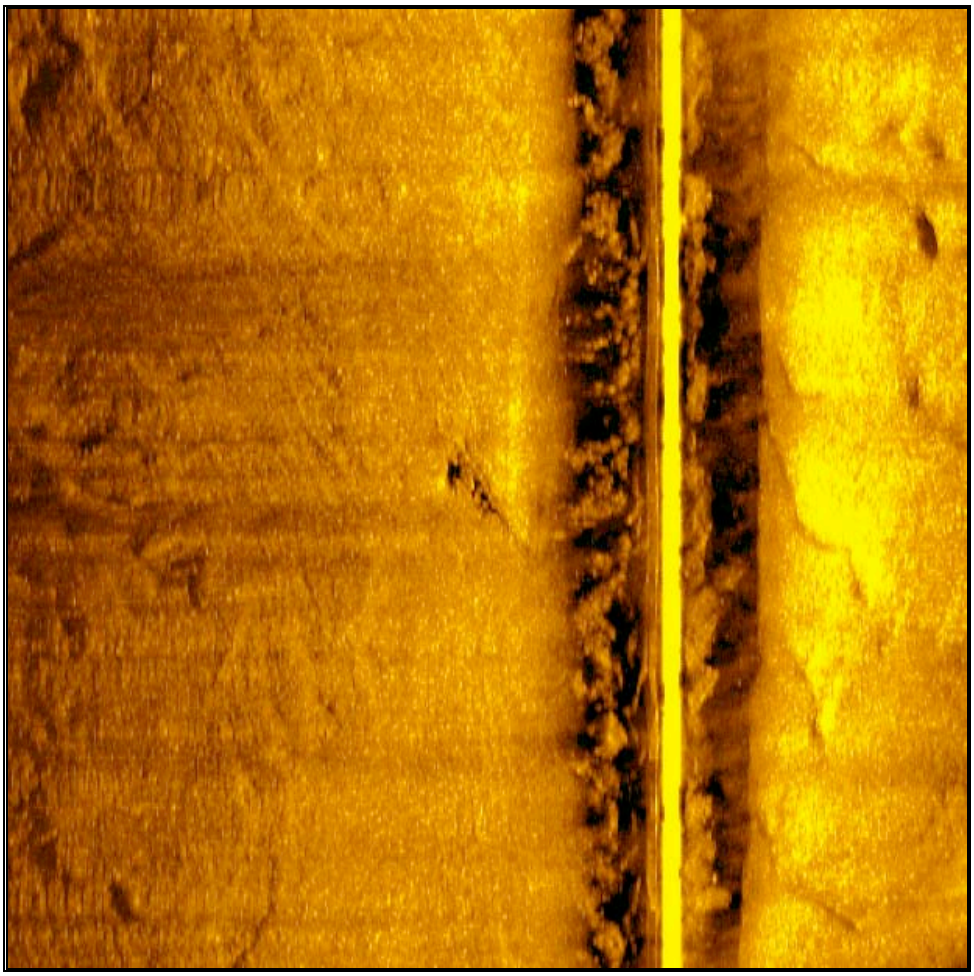
Contact Info: RIS-3	User Entered Info
• Sonar Time at Target: 03/08/2010 21:09:53 • Click Position (Projected Coordinates) (X) 2386309.75 (Y) 199992.81 • Map Proj: NAD83 North Carolina State Planes, US Foot • Acoustic Source File: RI10_L12-4_100308160900.xtf • Ping Number: 240148 • Range to Target: 23.05 US Feet • Fish Height: 3.32 US Feet • Line Name: RI10_L12-4_100308160900	Target Height: 1.9 US Feet Target Length: 69.7 US Feet Target Shadow: 16.2 US Feet Target Width: 23.5 US Feet Mag Anomaly: 101, 104, RI-1 Avoidance: Yes Description: Depression with possible ballast

RIS-4



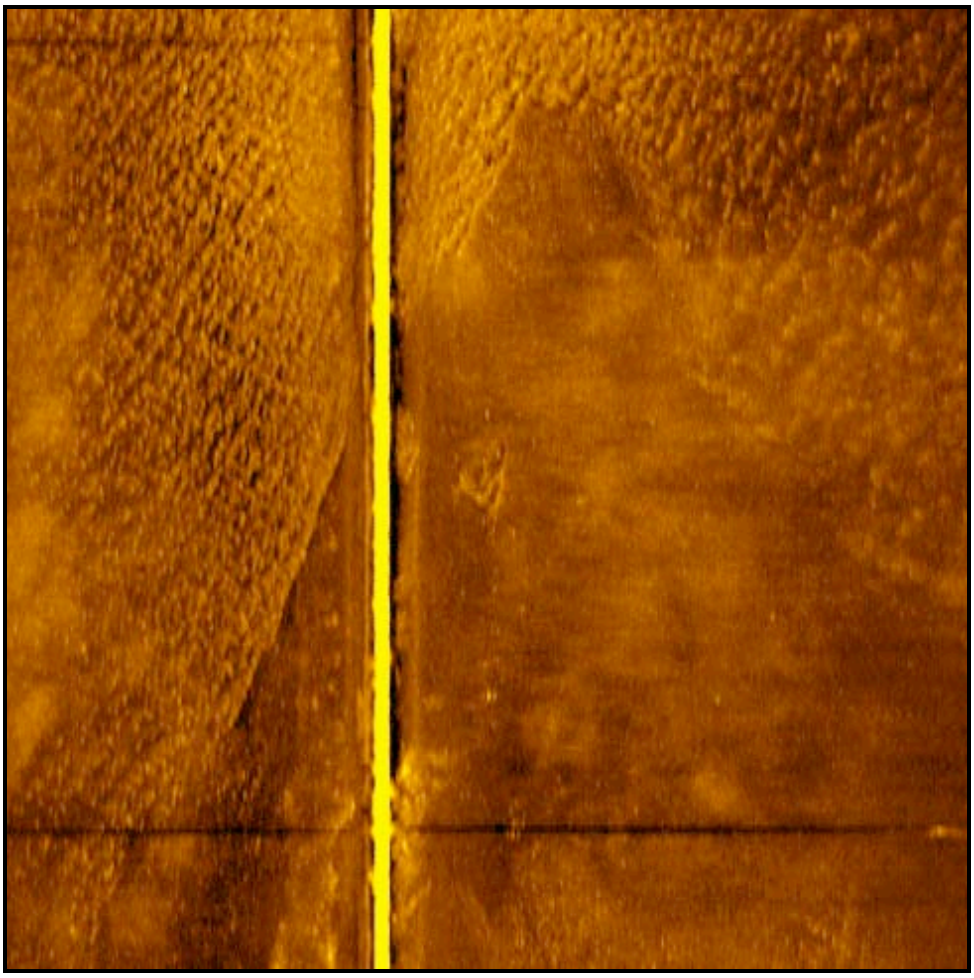
Contact Info: RIS-4	User Entered Info
• Sonar Time at Target: 03/08/2010 20:40:24 • Click Position (Projected Coordinates) (X) 2385155.75 (Y) 200171.19 • Map Proj: NAD83 North Carolina State Planes, US Foot • Acoustic Source File: RI10_L7-4_100308154000.xtf • Ping Number: 213590 • Range to Target: 6.17 US Feet • Fish Height: 3.52 US Feet • Line Name: RI10_L7-4_100308154000	Target Height: 0.0 US Feet Target Length: 1.9 US Feet Target Shadow: 0.0 US Feet Target Width: 1.9 US Feet Mag Anomaly: 81 Avoidance: No Description: Trap

RIS-5



Contact Info: RIS-5	User Entered Info
• Sonar Time at Target: 03/08/2010 18:57:07 • Click Position (Projected Coordinates) (X) 2389298.50 (Y) 200546.31 • Map Proj: NAD83 North Carolina State Planes, US Foot • Acoustic Source File: RI10_L01-2_100308135800.xtf • Ping Number: 104449 • Range to Target: 9.67 US Feet • Fish Height: 4.39 US Feet • Line Name: RI10_L01-2_100308135800	Target Height: 1.3 US Feet Target Length: 22.0 US Feet Target Shadow: 3.2 US Feet Target Width: 6.0 US Feet Mag Anomaly: 115, RI-4 Avoidance: Yes Description: Possible structure associated with the *Wild Dayrell*

RIS-6



Contact Info: RIS-6	User Entered Info
• Sonar Time at Target: 03/08/2010 18:44:35 • Click Position (Projected Coordinates) (X) 2390237.25 (Y) 199061.88 • Map Proj: NAD83 North Carolina State Planes, US Foot • Acoustic Source File: RI10_L01-2_100308134600.xtf • Ping Number: 93346 • Range to Target: 5.47 US Feet • Fish Height: 1.46 US Feet • Line Name: RI10_L01-2_100308134600	Target Height: 0.0 US Feet Target Length: 17.4 US Feet Target Shadow: 0.0 US Feet Target Width: 8.9 US Feet Mag Anomaly: 39, 40, RI-6 Avoidance: Yes Description: Possible structure