# Report on the Survey of the Historic Wreck

# Located Near the St. Marks Lighthouse

Underwater Archaeology Research Report Number 3

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## Abstract

Florida State University's (FSU) BSC 4933 - *Applications of Diving to Research* class requires each student to plan, implement and run a small-scale research project or pilot study. This report is the result of such a project, approved under the auspices of a State of Florida 1A-32 Archaeological Research permit. Using students from the FSU Academic Diving Program (ADP) as well as BSC 4933 class members, a four-day mapping exercise on a local historic shipwreck was planned as a student project. The 20th century wreck of a supposed World War I subchaser was chosen for this survey. This vessel was later owned by the State of Florida, after its use during World War I, and is presently located near the St. Marks lighthouse in the St. Marks River channel The purpose of the research project was a preliminary assessment of the wreck, including mapping and photographic documentation. The shallow depth of the wreck, at a maximum of thirteen feet, allowed access from the support vessel anchored nearby. The wreck, with its relatively intact hull, was chosen as the site of investigation in order to conduct this small-scale archaeological survey.

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## Acknowledgements

The author would like to thank the FSU students and ADP staff that volunteered two weekends of diving activities in early November 1998 in very cold waters. The data collected was of great value and allowed the successful completion of the student project portion of the BSC 4933 - *Applications of Diving to Research* class. The ADP staff included John Kilgo, Teaching Assistant for the BSC 4933 class, Paul Threatt, and Gregg Stanton, Class Instructor, who graciously offered the use of the S/V *Olapa* as well as much information and suggestions. The FSU students include Jeff Bauer, who produced the digital images of the site, Mark Butler, Patrick Gensler, Sarah Kelly and Thadra Palmer. Chuck Meide was of great value in helping the author produce the site map as well as providing suggestions and advice.

Equal gratitude is expressed to the Bureau of Archaeological Research for providing the author with the 1A-32 Archaeological Research permit thereby allowing the survey to be conducted. Mr. Alton Gresham of Tallahassee, Florida provided the author with much information pertaining to the background of the vessel as well as how and when it wrecked. This research, as well as the report, would not have been possible without the enthusiastic assistance of the above individuals and the Bureau of Archaeological Research.

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## Description of the Project

### Previous Research

The St. Marks River contains several shipwrecks in its waters. In 1998, the Florida State University Program in Underwater Archaeology (PUA) implemented its summer field school with a project dedicated to the investigation of the late 19th - early 20th century San Marcos shipwreck (8WA501) and other sites in the St. Marks River. Other shipwrecks include a relatively intact 20th century wreck (8WA655) and the possible remains of the Confederate gunboat *Spray* (8WA654) (Meide 2000, Kilgo 1999). Historic and prehistoric artifact scatters along the river channel (8WA46) and around Fort San Marcos have been documented as well (Baker 1996, Browning 1989, Dunbar and Dasovich 1991, Jones 1974, Prokopetz 1974, Kilgo 1999). The mouth of the river itself, as well as the gulf itself, has not been archaeologically investigated to the extent that upriver areas have been.

FSU conducted this research to instruct students in employing the numerous aspects of underwater archaeology, such as mapping and excavation, while investigating Florida's prehistory and history. The maritime aspect of Florida's past is an intriguing subject to investigate and can illuminate Florida's contributions to the growth and development of the nation. Recent historical events are also represented among Florida's valuable shipwreck resources even though 20th century shipwrecks are often ignored within the archaeological realm. An example of this apparent lack of archaeological interest is the wreck located near the St. Marks lighthouse.

### Project Location

The wreck (8WA683) is located northwest of the St. Marks lighthouse and southeast of channel marker #12 in the St. Marks River at a depth of ten to thirteen feet (Figure 1). The vessel lies with its bow toward the St. Marks lighthouse at a bearing of 98° at a position of 30° 04' 80" North, 84° 11' 40" West. At low tide, the wreck is often exposed and is apparently a common attraction for local fishermen and water sport enthusiasts.


**Figure 1. Location of St. Marks lighthouse wreck on nautical chart.**

## Purpose of the Project

This research was conducted as a student-implemented, four-day survey and mapping exercise of a local historic shipwreck on November 7-8 and 14-15, 1998. The purpose of this research was to determine the function, nationality and age of this shipwreck. The fieldwork and associated historical research conducted for this project have tentatively identified this wreck as a privately owned vessel donated to the U.S. Navy during World War I.

The purpose of this research was to investigate, survey and identify the remains of this vessel under a 1A-32 Archaeological Research permit. Documentation consisted of measurements and sketches drawn on Mylar waterproof paper. Photo documentation, using digital and standard 35 mm cameras, was implemented in order to create a visual record of the extent of the site as well as the vessel's structural integrity and features. Extremely poor visibility precluded the photography of submerged portions of the wreck. No artifacts were recovered at any time.

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## Archival Research

### Florida Master Site File

No previous archaeological research has been conducted at this site. This vessel had not been added to the Florida Master Site File records before this research was conducted. Appropriate site file forms are included in the Appendix.

### Historical Background

The wreck surveyed under the auspices of this research is known among local residents as the remains of a former World War I subchaser later sold to the State of Florida Shellfish Commission. Before the First World War, this wreck is likely to have been a private yacht that was donated to the government for the war effort (Gresham 1998). In 1916, the Coast Defense Reserve clause of the act of August 29 was passed (Clark 1929). This enacted negotiations with wealthy individuals, such as Vincent Astor, Cleveland Dodge and J.P. Morgan, to donate their private yachts to the U.S. Navy for conversion into subchasers. Feuer reports that these yachts were "fast and well built" and "only needed guns and a few alterations to convert them into efficient sub hunters" (Feuer 1999: 25). The subchasers produced by numerous American shipbuilding companies were built according to government-regulated specifications for construction.

In *The Naval History of the World* War, Frothingham (1971) stated that the mass production of subchasers for service during World War I began in June 1917. One of the most common types of subchaser produced was the 110-foot class. These vessels had a beam on deck of 14' 8 ¾", a draft of 5' 11", displaced 85 tons and had a top speed of 18 knots (Nutting 1920; Feuer 1999) (Figure 2). They were often wooden-hulled due to the limitation of steel for building larger warships but later models were steel-hulled as well. Converted yachts generally retained their original equipment but some were converted from steam power to gas or diesel-powered engines. The propulsion system typically consisted of triple screw propellers, each connected to a six-cylinder engine (Nutting 1920).

Subchasers mainly operated abroad in Europe in order to both protect convoys and hunt and destroy submarines. A sizeable and effective fleet was retained in the United States for protection of coastal areas and harbors. Subchasers were originally armed with two three-inch guns and a few machine guns in order to "provide heavy firepower against…submarines running on the surface" (Feuer 1999: 37). Later, the Y-gun (shaped like a Y) was added to their armament, in place of the aft three-inch gun, in order to launch depth charges at submerged submarines. Two depth charges could be set to

predetermined depths for explosion and launched simultaneously. This gun was the most effective weapon used against submarines and U-boats during the World War I.

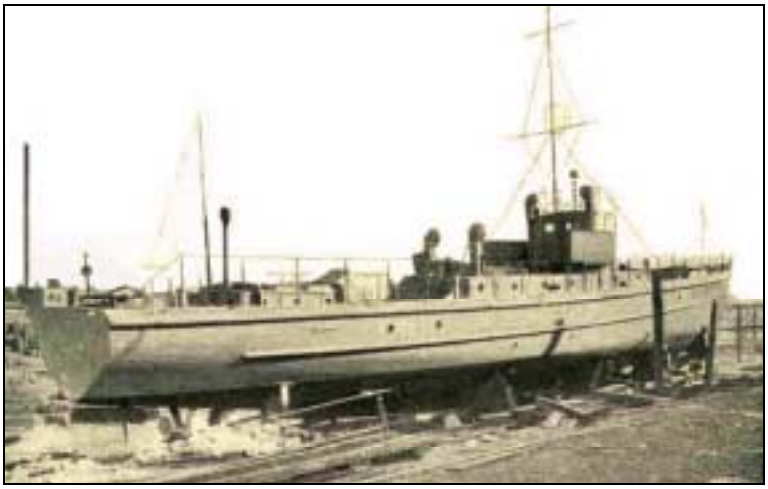

**Figure 2: A subchaser after construction is completed (from Nutting 1920:66).**

The introduction of two key innovations proved to increase the effectiveness of subchasers searching for submerged U-boats. The K-tube was a listening device lowered into the water below the keel. Its purpose was to use the properties of a doctor's stethoscope in order to hear submarine engines operating underwater. This tool was only accurate in its location of submarines when the subchaser's engines were not running. Operating in groups of three, subchasers would take bearings of the direction of the submarine, based on the K-tubes, and could then triangulate the location of that submarine in order to destroy it. The second device used by subchasers to locate submarines that rested on the sea floor was a trawling device. This consisted of:

> "a heavy copper bar that was connected to the chaser's keel with 300-feet of wire. The wire was attached to a sensitive relay switch aboard the search ship. If the copper bar touched the iron body of a submarine, an electrical charge – caused by the chemical action of salt water on copper and iron – would set up a current that would trigger an alarm buzzer" (Feuer 1999: 40).

## Information from Informants

The history of the shipwreck investigated near the St. Marks lighthouse is not thoroughly known. Mr. Alton Gresham of Tallahassee, whose family operated the St. Marks lighthouse for many decades, stated that the vessel had likely been a privately owned yacht that was donated to the U.S. Navy during the First World War. Unfortunately, this information has not yet been corroborated by historical documentation. The identification

of this vessel as the former subchaser (S.C.) 144 was based upon Friedman's (1987) table that identified only one World War I subchaser sold to the State of Florida, on 3 February 1923. Friedman purported that this vessel was converted by the Vinyard Boat Building Company of Milford, Delaware. This information, although equivocal, does present a strong argument for the identification of this vessel as the former S.C. 144. According to Friedman, its conversion into a subchaser was complete on 30 March 1918 and it was then sold to the U.S. Navy. Clark (1929) stated that S.C. 144 operated as a coastal patrol vessel in the U.S. and served as a patrol ship during mine sweeping duties in Cape May, New Jersey in May of 1918. No other information pertaining to the operation of S.C. 144 during World War I has been located at this time.

Mr. Gresham stated that the State of Florida Shellfish Commission, no longer a government agency, utilized the ship as a sort of pleasure craft for government personnel and may have called it *Dispatch*. He described the vessel as steel-hulled with a propulsion system consisting of twin screw propellers powered by steam. Apparently, the vessel, when converted at the Vinyard Boat Building Company, did not exchange its steam power for gas or diesel engines. Mr. Gresham then discussed the chain of events leading up to the destruction and eventual settlement of the wreck in its present location. The ship was anchored at Long Bar, near the St. Marks lighthouse, in 1928 when an on-board generator caught on fire while running. The ship became engulfed in flames and Mr. Gresham's father towed the vessel upriver until it ran aground. The steel hull buckled upon impact with the bottom and the ship sank. During the years after its deposition, on numerous occasions, metal was salvaged from the wreck during World War II. Little superstructure and machinery remain at this time. Dumping of modern refuse, such as anchors and other debris, has apparently occurred for many decades.

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## Research Design

### Objectives

The objectives for this archaeological investigation include the systematic survey and mapping of an alleged former World War I subchaser, later used privately by the State of Florida Shellfish Commission. Length and width of the wreck, as well as the entire site, will be determined. Mapping of diagnostic structural features will be conducted to determine nature, functionality and age of the site. This survey will document the state of structural integrity of the vessel in order for future monitoring of its degradation to be conducted.

### Methods

Non-intrusive mapping and survey was conducted without the recovery of any artifacts. A baseline was established along the approximate centerline of the vessel. Structures were initially measured as offsets from this baseline. Measurements were recorded on Mylar waterproof paper. Digital and standard 35mm cameras provided visual documentation of the site as well as many features and structures on the vessel.

### Expected Results

A map of the site was produced in order to document the extent of the site as well as structural features that may be utilized for the identification of the vessel, its type of ship construction and provide a record of this unique wreck in Florida waters (Figure 11).

### Procedures for Unexpected Discoveries

As this investigation is strictly a non-intrusive survey and mapping exercise, no artifacts were collected at any time. Any diagnostic artifacts or features were recorded using photo documentation.

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## Description of Fieldwork

Archaeological investigation of the St. Marks lighthouse wreck will include survey and documentation of the vessel as well as any debris scatters associated with the wreck.

### Survey Methodology

Survey of this wreck, which lies in ten to thirteen feet of water, was completed on November 7, 8, 14 and 15, 1998 and utilized students from the Florida State University BSC 4933 - *Applications of Diving to Research* class, Academic Diving Program staff and FSU Program in Underwater Archaeology student volunteers. These volunteers included Jeff Bauer, Mark Butler, Melanie Damour – Field Director, Patrick Gensler, Sarah Kelly, John Kilgo, Thadra Palmer, Gregg Stanton and Paul Threatt. Transportation to the site was made possible by the use of Gregg Stanton's 45-foot S/V *Olapa* and Jeff Bauer's 15-foot private motor vessel. Most survey activities were conducted during low tide when the upper portion of the wreck is exposed although some scuba diving was necessary. Each dive team was provided with tape measures and clipboards with Mylar waterproof paper for written documentation. A digital and a standard 35 mm camera were used for photo documentation of the wreck above water only, at low tide, as poor visibility prevented photo documentation underwater. Aerial photographs were taken from the top of Gregg Stanton's sailboat mast in order to document the entire site. (Figure 3).

**Figure 3: Aerial view of site looking north.**

The wreck is covered by rust, barnacles and oyster shells. It lists to the starboard side and the bow faces east at a bearing of 98°, toward the St. Marks lighthouse (see Figures 4, 5 and 6). Most of the deck is completely degraded and many structures have been moved either during the sinking event or during the subsequent salvage of metal and other materials. A baseline was established roughly along the midline of the ship, parallel to the keel. The strong current, during the rising tide, caused the baseline to move, therefore, few measurements were made in relation to the baseline itself. Most measurements taken, due to limited time on site, pertained to the overall vessel form and how large structural features measured in relation to each other.

**Figure 4: View toward the bow, facing east toward St. Marks lighthouse.**

**Figure 5: View toward the stern, facing west. Notice channel marker in the background.**

**Figure 6: View of the starboard side, facing north.**

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## Description of Analysis

### Findings

The overall length of the site was determined to be in excess of 144 feet (43.9 meters) while the width, or beam, was 21 feet (6.4 meters). The height of the remaining hull structure, down to the channel bottom, was measured at 8 feet 7 inches (2.62 meters). The bow and stern were significantly damaged and a debris scatter fanned out from each end of the vessel. The bow and stern were easily discernable due to the presence of one complete propeller (minus one propeller blade) and the shaft of a second propeller found mostly articulated with the port side of the hull. The shaft measured 1'8" (50 cm) in circumference and the blades were 2' 8" (81 cm) in length and 2' (61 cm) in width. The length of exposed propeller shaft was 12' 10" (3.92 meters). Between 18 and 20 meters from the bow, just forward of midship, a structure remains that may be related to the pilothouse. (Figure 7 and 8). Seven meters aft of this feature, two round structures, possibly boilers, rest toward the starboard side of the vessel and measure 9' 8" (2.95 meters) in length. (Figure 9 and 10). They are cylindrical with a diameter of 2' 4" (71 cm).

There were several different types of fasteners observed throughout the wreck; iron bolts, hexagonal ¾ inch bolts, flathead screws and threaded bolts. Both bronze and iron fasteners were represented among the structural components of the vessel. According to Friedman (1987), the rudders of subchasers were bronze but no rudder was located on this wreck therefore it was probably salvaged. No anchors associated with the wreck were observed. No other diagnostic features were positively identified due to limited time available for survey and recording. Much modern and recent debris was observed throughout the wreck and testifies to the fact that the vessel is a popular attraction.

The wreck appears to have been a subchaser based upon the structural features located and mapped during this survey as well as its identification posited by Mr. Alton Gresham. Fasteners identified and documented identify the vessel as most likely constructed during the early 20$^{th}$ century. The structural integrity of the wreck appears to be relatively stable below the waterline. Unfortunately, repeated exposure to air will promote degradation of the upper hull.

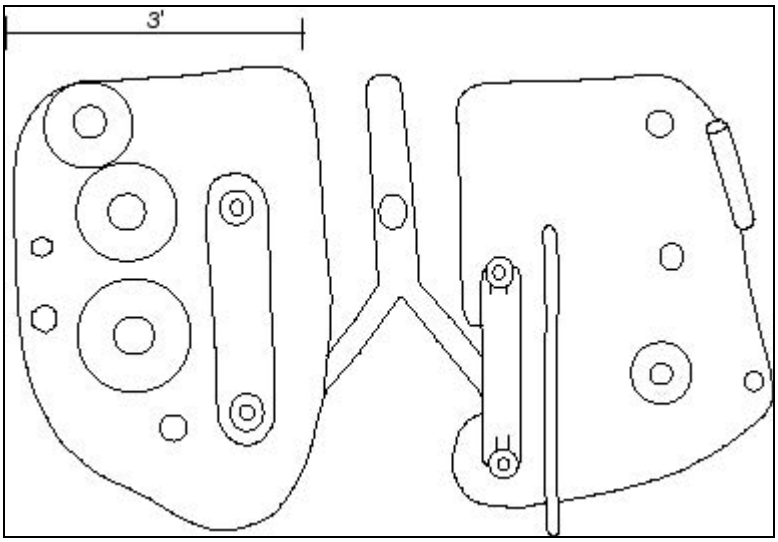


**Figure 7: Structure possibly related to the pilothouse.**

**Figure 8: Scanned photo of pilothouse feature (facing 98° East).**

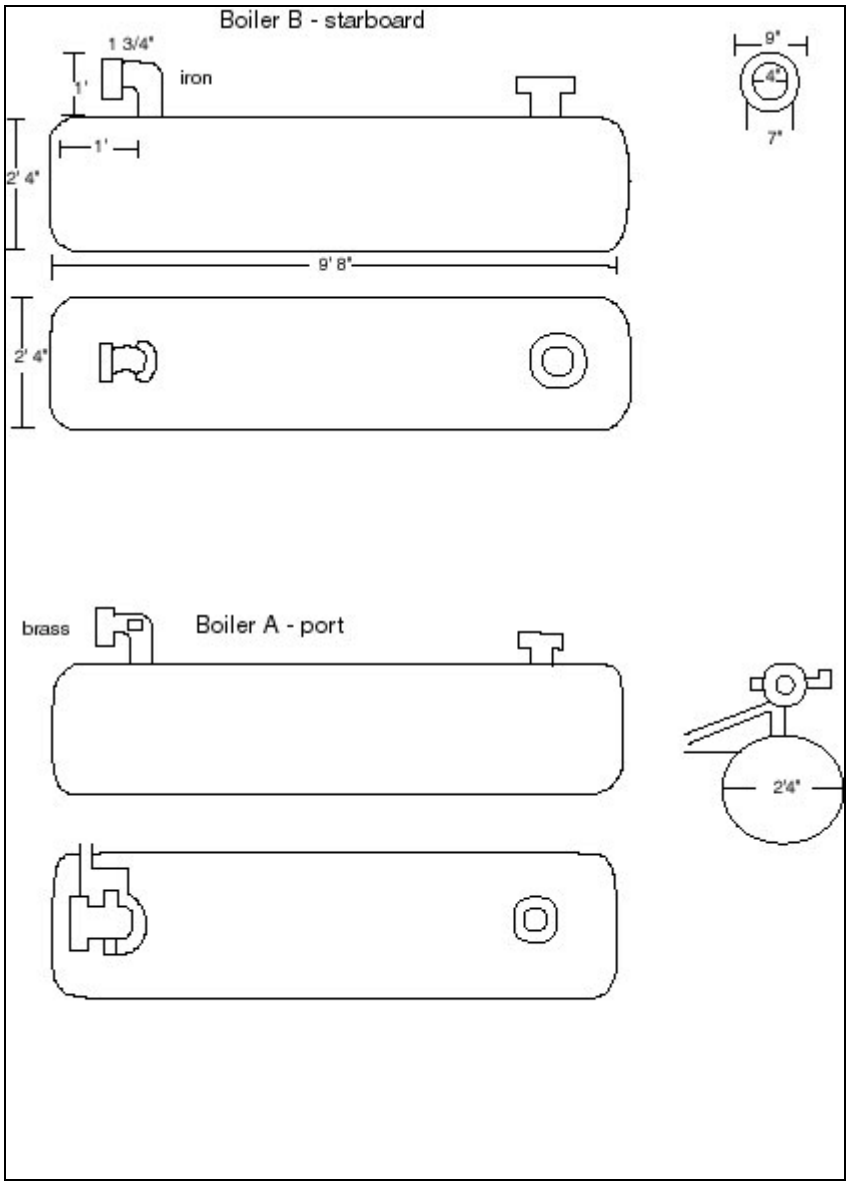


**Figure 9: Boilers.**

**Figure 10: Scanned photo of boilers.**

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## Conclusions and Recommendations

The wreck located near the St. Marks lighthouse is part of a unique aspect of American history. It represents an example of the technological specialization in civilian and military watercraft due to the rapidly changing context of naval warfare in the early 20th century. Unfortunately, little investigative attention has been paid to this shipwreck due to its recent history. The identification of the vessel as the former World War I craft, S.C. 144, is relatively certain though still somewhat equivocal. Its history before World War I has not been determined. This vessel did not conform to the standardized construction specifications for mass production World War I subchasers; therefore, it likely was a privately owned vessel before the war. S.C 144's activities during World War I, along with its postwar service in the State of Florida Shellfish Commission, remain unclear.

More archival research and in-field survey is necessary in order to illuminate the multi-faceted history of this wreck and its contributions to American history. The value of future archaeological investigation of this vessel is certain. Its current state of degradation is relatively slow due to the nature of its steel hull, as opposed to wooden-hulled vessels. Continuous fluctuations in the level of exposure to air will likely perpetrate the continuous corrosion of the hull exposed during low tide, which can be monitored. Any future activities, such as boating and tourist visitation, may also affect the rate of degradation. Damage due to passing boats and visitors walking on the exposed structure, as well as modern refuse discard, will greatly affect the structural integrity of the hull.

Another future concern may be the location of the wreck in relation to the St. Marks River channel. If the channel is widened in the future, the wreck may be in jeopardy. In order to widen the channel, the wreck may have to be relocated or destroyed. Perhaps relocating the vessel to deeper waters may be the ideal solution for its preservation. It would then be completely submerged and its rate of degradation may stabilize in this environment. Divers would be able to visit the site at any time without restriction due to low tide. Fish populations could congregate around this wreck, which serves as an artificial reef for marine life. One thing is certain, the wreck is a known site among boat operators and local residents in the St. Marks area. Its preservation for future divers and tourists will add to the already plentiful register of Florida's shipwreck attractions.

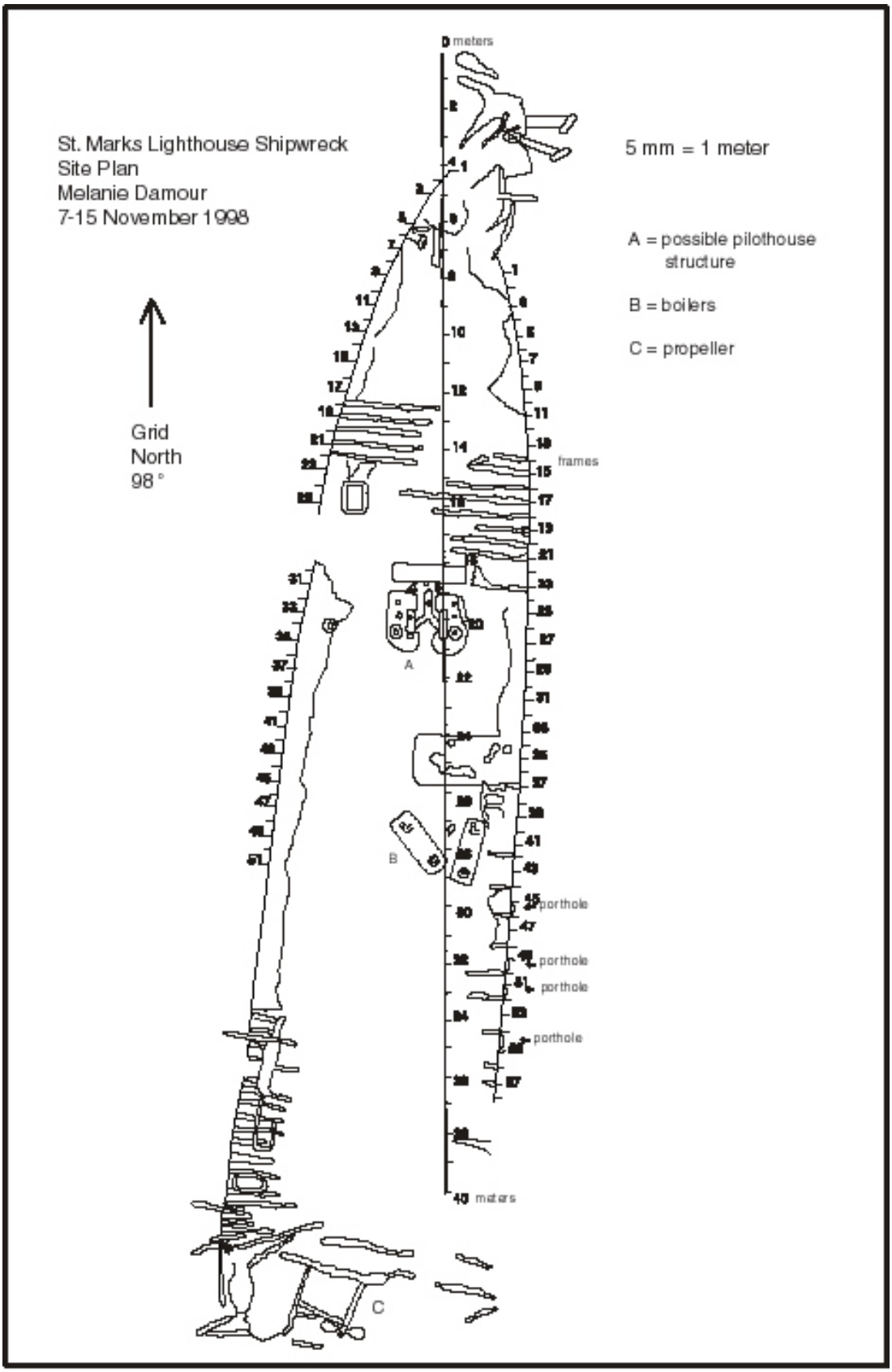


Figure 11: Site map.

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