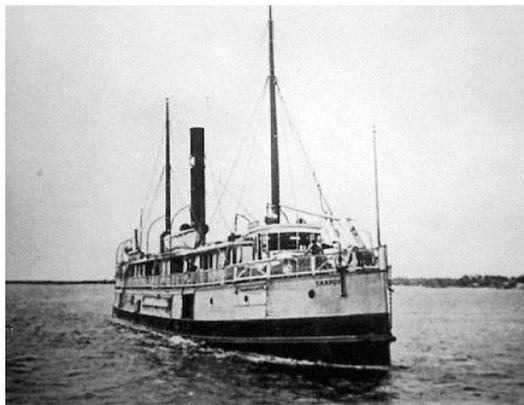


S.S. Tarpon
2003 Field Report



**Program in Underwater Archaeology
Florida State University
Research Reports # 19**



Whitney Anderson and Julia Giblin

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Abstract

The wreck of S.S. *Tarpon* lies approximately seven miles south of Panama City, Florida in ninety-five feet of water. Built in 1887, she is a 159-foot twin-screw steamship that sank in a gale in August of 1937. In 1997, she became the sixth of seven State of Florida Underwater Archaeological Preserves. In March 2001, the Florida State University Program in Underwater Archaeology, in conjunction with the Florida Bureau of Archaeological Resources conducted a survey and investigation of the site to assess its overall condition and propose further areas of study. Recommendations from this project included increased public awareness of the site, creation of a photographic record of the site and updated maps of the wreck layout. On March 29, 2003, under the leadership of undergraduate students Whitney Anderson and Julia Giblin, the students of ANT 4131 (Techniques of Underwater Site Research) at Florida State University undertook diving operations to address these issues. This report is a description of the research conducted.

Acknowledgements

We would like to express our sincere appreciation to the numerous individuals who played such an integral part in the success of this project: Dr. Michael Faught of Florida State University for his leadership, guidance, and knowledge of the wreck; Ron Grayson and Brian Marks for their support and expertise in conducting diving operations; Dr. Dan Marelli of the Florida State University Academic Diving Program for his instruction and excellent photography skills; Jeff Lane and Mike Pomeroy, also of the Academic Diving Program, for their support with the diving operations; and Rachel Horlings, for her encouragement and wealth of background knowledge. We would also like to extend our gratitude to the students of ANT 4131, including Bert Ho, Masahiro Kamiya, Kristin Klein, Ashley Melton, Tom McMullin, and Marc Skeist, without whom none of this would have been possible. Thanks also to Hydrospace Dive Shop of Panama City, Florida for their cooperation and diving expertise, and to Jenny Gorber for her wonderful baking skills.

Diving Operations

The wreck of S.S. *Tarpon* is located approximately seven nautical miles south of Panama City, Florida at 30° 05.702' N, 85° 56.555' W. She lies in ninety-five feet of water on sandy bottom. When she sank in 1937, S.S. *Tarpon* had established a reputation for reliability and speed as a coastal trader and passenger boat. In 1997, she became the sixth of seven shipwreck preserves in the state of Florida. On March 29th, 2003 the students of ANT 4131 from the Florida State University (FSU) Program in Underwater Archaeology undertook diving operations on S.S. *Tarpon* to address the issues proposed by earlier field research projects.

In keeping with recommendations for further research from the 2001 investigation of S.S. *Tarpon*, the main objectives for this project were to establish a photographic and video record of the site and note any changes in site layout and condition. Secondary goals included a biological survey of marine life around the wreck as well as cleaning and maintenance of the site.

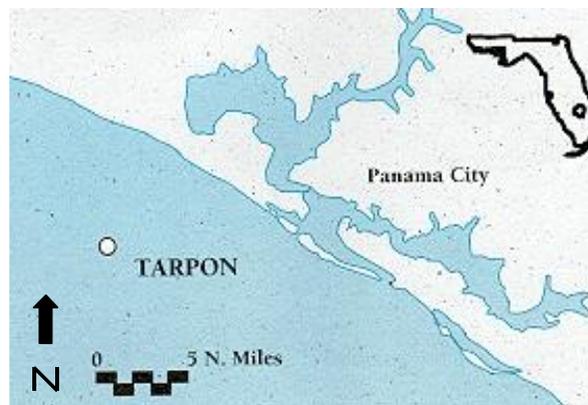


Figure 1 Approximate Location of S.S. *Tarpon*

Diving operations were conducted out of Hydrospace Dive Shop in Panama City, Florida. One of the dive shop's commercial vessels, a 65-foot dive boat, was the diving platform for the project. Dr. Michael Faught was the Principal Investigator of the research project, with graduate teaching assistant Ron Grayson serving as Diving Supervisor. Graduate student Brian Marks served as backup Diving Supervisor. Dr. Dan Marelli, University Diving Safety Officer, was also present as a Nitrox instructor and photographer, as were Diving Engineer Jeff Lane and Program Assistant Mike Pomeroy, who served as volunteer divers from the Academic Diving Program. The main field workers were the students of ANT 4131 (Techniques of Underwater Site Research) from the Program in Underwater Archaeology (PUA) at FSU. Undergraduate students Whitney Anderson and Julia Giblin served as the coordinators for project operations.

The research team left the marina at 9:15 a.m. on Saturday, March 29 2003. Diving conditions were optimal, with swells of one to two feet and minimal current. Although the sky was slightly overcast, there was only a slight breeze and the air

temperature was a balmy 75 degrees. The boat arrived at the wreck of S.S. *Tarpon* after approximately forty-five minutes and anchored to the north of the site on the ship's boiler.

The participants were assigned tasks to perform during their dives and briefed on the conditions to be expected. All divers utilized 95 cubic foot steel cylinders with Enriched Air Nitrox (between 34 and 37 percent oxygen) in order to extend the limited bottom time imposed by the depth of the wreck. In order to maximize efficiency and ensure adequate safety support, divers were organized into two main rotations of two to three buddy teams. Dive lengths were restricted to the lesser of twenty minutes or 500 pounds per square inch of air pressure remaining, with a minimum of an hour and forty-five minute surface interval between every dive.



Figure 2 Kristin Klein Enters the Water



Figure 3 Jeff Lane and Ron Grayson

The objectives of the first dive team were to begin a video survey of the site, clean the plaque and conduct a biological survey of marine life present around the wreck. Julia Giblin utilized a submersible video camera to record the stern section of the wreck while Ron Grayson ensured that the depth of the camera remained relatively constant. Photography and video efforts were facilitated by the excellent water clarity, with approximately fifty feet of visibility and low particulate levels. Two other divers attempted to locate the plaque in order to clean it before it was photographed but became disoriented and were unsuccessful. Kristin Klein and Ashley Melton conducted a survey of biota present on the site, which consisted of an abundance of pelagic fishes including large schools of amberjack, snapper and spadefish. In addition, Dr. Dan Marelli took several digital photographs of the site and marine life.

While the first dive team conducted their surface interval the second rotation entered the water to video the main mechanical components remaining on the wreck, including the engine, main boiler, and propeller drive shafts. Whitney Anderson used the video camera to record these structures, and also obtained footage of students Marc Skeist and Bert Ho for use in public relations promotions. It was noted that the main boiler, engines, and drive shafts were intact and in fairly good condition, as were a plethora of unidentified pipes and other mechanical structure that were not recorded on the site map. Most of the stern section mechanical components were located in their original positions with the exception of the main boiler, moved north of the wreck by an

earlier storm, and a large engine component located several feet south of the wreck. Both of these components were recorded on earlier site maps. It was also noted that one of the original propellers was still intact under starboard hull plating. The other propeller was not located. Dr. Michael Faught and Brian Marks conducted a visual survey of the site to attempt to assess any modifications from previous visits. They noted that several features that had previously been covered by sand were now exposed (see fig. 12).



Figure 4 Jeff Lane Surveys Site



Figure 5 School of Amberjack

The final dive rotations completed video mapping of the bow of the wreck and succeeded in recording an abundance of small structural components that did not appear on previous site maps. Julia Giblin recorded a section of hull plating along the port bow that had moved positions since its initial mapping. Footage of the plaque was also obtained. A second survey of the biota present was also carried out, with results similar to the first (see appendix II). Superficial cleaning of the wreck was also conducted, producing several lead fishing weighs, fishing line, beer cans and bottles. Bert Ho also noted a brown glass beer bottle approximately five inches tall by three inches wide that was identified as part of the original cargo of Spearman's Beer. No other sightings of cargo remains were noted.



Figure 6 Marc Skeist and Bert Ho

Video Survey and Digital Photography

The primary goal of the 2003 *Tarpon* project was to create high quality visual documentation of the site in order to more effectively monitor future degradation of the wreck structure and increase public awareness of S.S. *Tarpon* as an excellent dive site and valuable member of Florida's shipwreck preserves. To serve these needs, the initial research plan called for the use of a submersible video camera, digital camera, and two 35 mm film cameras, which would be used to create a visual reference of the site condition as well as recording diver activity and marine life.

Julia Giblin and Ron Grayson utilized the underwater video camera to conduct a video survey of the site layout in two 20-minute dives. Julia Giblin controlled the camera while Ron Grayson guided the team across the site, maintaining consistent speed and height from the bottom (approximately 82-88 feet) by monitoring his approximate swim speed and the depth indicator on his instrument console. The visibility was excellent (approx. 50 feet), with low particulate levels suspended in the water, and many structural components of the wreck visible.

The survey path on the first dive included the starboard side of the vessel from the main boiler to the stern, from the stern southwest towards the bow with a slight detour south of the wreck to document the commemorative plaque denoting the site as an underwater archaeological preserve, and from the plaque northwest towards the bow and from the bow back to the main boiler.

During the second dive, footage was taken from the main boiler towards the stern in order to provide more coverage of the mid and port side of the stern area. The main engines were documented in depth as well as exposed structural components in the stern section. From this point, video footage was recorded heading west straight through the middle of the wreck to ensure adequate coverage of the amidships area from stern to bow. Toward the end of the last track the battery in the camera ran out.

In addition to the survey footage of structural components, Whitney Anderson filmed the student divers and marine life around major structural features such as the main boiler and engines. Dan Marelli also used the digital camera to record still photographs of the wreck, plaque, divers, and marine life over the course of two dives. The original plan to utilize 35mm film cameras was aborted after it was determined that additional photographs were unnecessary.

The video coverage of the site was successful in several areas of interest. It produced high quality documentation for a feature site map that includes visual reference to major elements on the site as well as some unmapped areas of interest (see insert). The video, digital stills and feature map are valuable for future research and site formation process studies of the wreck, as well as promotion of the site as a state underwater archaeological preserve. The video allowed for a post dive study of the condition of wreck. Changes in the location and angle of hull pieces were noted and large hull pieces that had not been mapped were identified.

Site Transformation

A principal objective of the project research was an assessment of the condition of the wreck site in comparison to earlier surveys. Divers utilized waterproof maps from previous surveys to note any changes to the site including degradation of the integrity of intact structure, sediment cover, relocation of previously mapped features, and presence of wood planking and cargo materials. Video footage taken of the site was also extensively analyzed in the laboratory to note changes to the site. In addition, divers conducted biological surveys to analyze variations in marine life presence in comparison to the 2001 biota surveys.

Several variations in the site layout were noted through a combined study of field notation and video analysis. Dr. Michael Faught noted a greater field of debris scattered near the starboard bow area. He also noted an unidentified circular feature off the starboard bow near the boiler, and a possible hull section off the starboard beam toward the stern of the site. Video analysis of the wreckage revealed that a previously mapped portion of the hull plating off the port bow had shifted position (fig. 8) and relocated next to a section of unidentified plating. A large section of unmapped hull plating was located just aft of these objects, perpendicular to the wreck.



Figure 7 Main Boiler

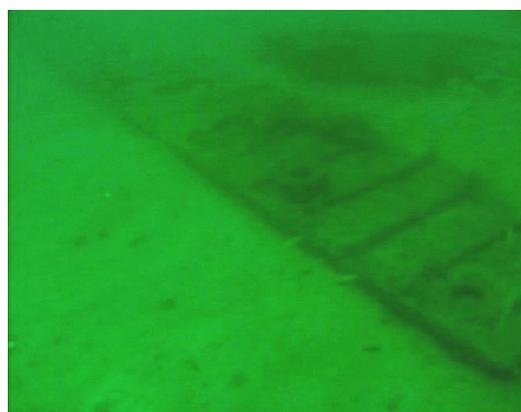


Figure 8 Relocated Hull Section

Diver surveys and analysis of video footage both indicated that a greater portion of the site was exposed than during previous research, especially near the bow and anchor windlass. A great deal of unmapped mechanical structure was exposed amidships both fore and aft of the steam engines. Much of this structure was visible but not mapped during the original mapping of the site, however analysis indicates a greater overall degree of exposure of this previously noted structure.

Mechanical structures on the site including the main boiler, engines, drive shafts and boiler supports seem to have retained their stability since previous surveys and remain relatively intact (figs. 7,10). The starboard propeller is intact under the starboard stern hull plating, and appears to be bent, possibly from the ship's impact with the sea floor after sinking (fig. 9). This feature is unmapped on the original site map. The port propeller was not located.



Figure 9 Starboard Propeller



Figure 10 Starboard Engine

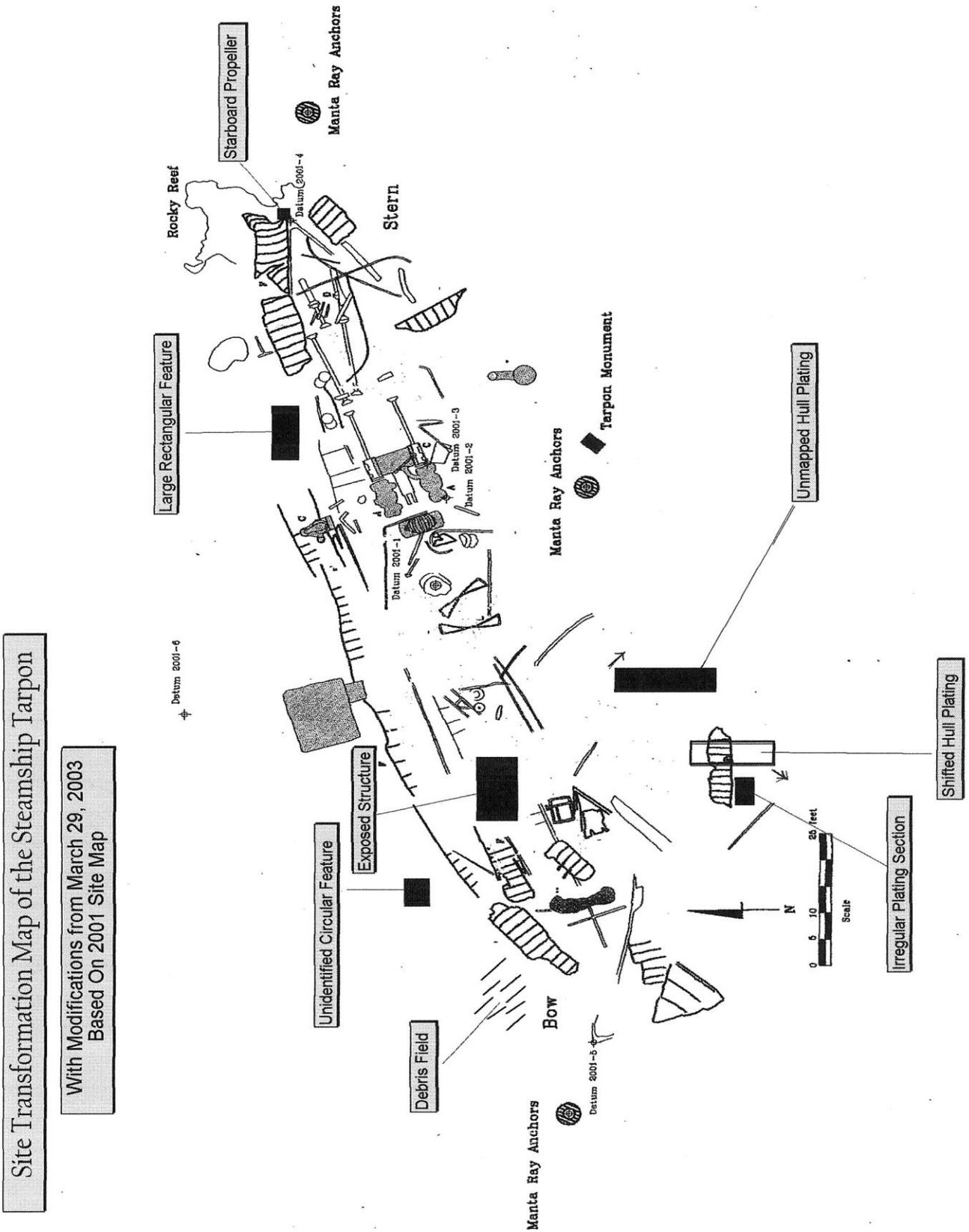
A reduction in the amount of wood planking and structure since the 2001 report was also noted. Discussion with divers on previous surveys of the site suggested some ambiguity as to the original presence of wood remains, as much of the ferrous structural elements strongly resemble wood. Bert Ho noted a small brown beer bottle from the original cargo of Spearman's beer, but no other cargo appeared to be exposed.

Comparison of the biological survey with results from the March 2001 field report indicated greater abundance and diversity of marine life on the site (see appendices I and II). This is probably due to much warmer seasonal water temperatures than encountered during the 2001 project. However, variations in diver familiarity with species identification could possibly account for some differences. Future monitoring of marine life associated with the wreck would be useful, especially if there is an increase in recreational diver traffic on the site.



Figure 11 Angelfish On Port Engine

Figure 12 Site Transformation Map of S.S. *Tarpon*



Site Transformation Map of the Steamship Tarpon

With Modifications from March 29, 2003
Based On 2001 Site Map

Conclusions and Recommendations

In general, the main objectives of the project were successful. The attempt to create a video and photographic record of the site proved to be extremely helpful in subsequent analysis of the site and providing visual documentation for future research. Analysis of site transformation was effective and recorded several modifications of the wreck layout and condition. The biological survey and efforts to clean the site were also successful.

Future application of research conducted during this project could include utilization of video and digital stills to promote diver awareness of and visitation to the site. The photographic feature map could be used to create an underwater guide to the wreck for recreational use. In addition, the original video could be used as a valuable reference for monitoring the condition of the wreck, as well as documentation for any future research.

In addition, a photomosaic of the site could increase the level of accuracy in mapping and monitoring the wreck site. Addressing important issues such as camera angle, precise depth levels and track lines and increased attention to provenance would augment the more general existing photo record of the site.

A revised map of the site including more accurate measurements of the new features and possibly greater detail in mapping mechanical structure would be a good prospect for future research as well. A focus on the amount of wood structure remaining as well as a more thorough search for the missing propeller could also be areas of investigation. Continued monitoring of marine life and periodical cleaning and maintenance of the site would help preserve the wreck and ensure a diver-friendly atmosphere.



Figure 13 Julia Giblin and Ron Grayson

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Appendix I

History of S.S. Tarpon

S.S. *Tarpon* was built in 1887 in Wilmington, Delaware by shipbuilders Pusey and Jones and was originally christened *Naugatuck*. An iron-hulled steamer with superstructure and passenger areas made from wood, she originally measured 130 feet in length, 26 feet in beam, and had a seven foot depth of hold. Her original plans included a foremast topped by the figure of an eagle, and after later refitting efforts a second mast was installed in her stern section. She was powered by twin compound fore-and-aft steam engines.

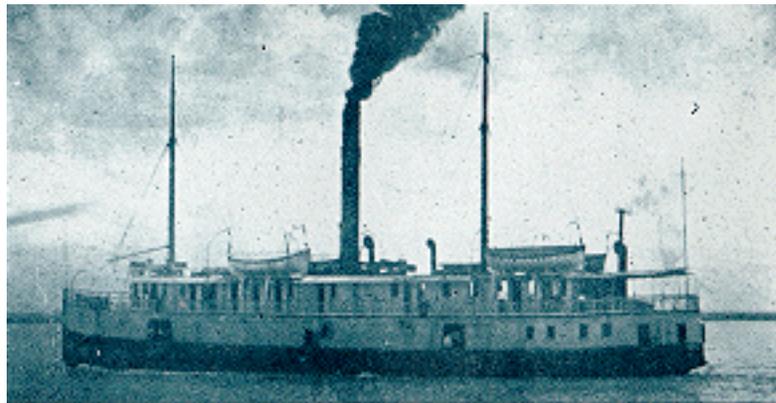


Figure 14 S.S. *Tarpon* Before Sinking.

For two years *Naugatuck* traveled the Naugatuck and Housatonic Rivers, clearing the channels of ice and delivering passengers and freight to New York City. Due to competition from a nearby railroad the Naugatuck Valley Steamboat Company went out of business and the steamer was sold to Henry Plant in 1890. Plant, who owned a railroad empire, lengthened the hull by 29 feet, added several staterooms and a stern mast and renamed the ship *Tarpon*. The steamer was put into service in Florida till 1902 where she was used as a substitute vessel as needed and employed in local service between Tampa and Bradenton. During this time she was also employed on the Manatee River and conducted runs to Mobile.

After the death of Henry Plant, *Tarpon* was acquired by the Peninsular and Occidental Steamship Company, under the leadership of Henry Flagler. The steamer was sent to Philadelphia for sale in 1902 and was purchased that same year by the Pensacola, St. Andrews & Gulf Steamship Company. From 1903 till 1937, *Tarpon* and her captain, Willis Green Barrow, became well known along the Gulf Coast of Florida for the reliable transportation of passengers and supplies to and from Mobile, Pensacola, St. Andrew Bay, Apalachicola, and Carrabelle.

On August 31, 1937, after 20 years of service with Captain Barrow, *Tarpon* left port from Pensacola and headed for Panama City loaded with 31 people and over 200 tons of general cargo. Barrow had a reputation for keeping a strict schedule and reliable transport of passengers and cargo despite weather conditions. He was also known for

overloading cargo and refused to paint the legally required loadline on the hull of his ship.

During the night heavy winds developed and the bow began to leak. As the leak worsened the ship began to list to port but flour barrels were thrown overboard and an even keel was regained. As the storm grew more intense water started pouring through the wooden bulkheads, causing the ship to list starboard. The crew determined that the ship could not be saved and headed *Tarpon* towards shore hoping they could ground the ship before she sank.

When Captain Barrow emerged from his cabin he ordered the ship back on course and more cargo jettisoned. However it was too late, *Tarpon* had begun to sink and by the time Barrow gave the order to abandon ship she was already settling down into the sea. The ship did not have a radio and never fired distress flares. Eighteen of the 31 people on board died, including Captain Barrow himself.

Captain Barrow was posthumously blamed for the wreck by a Marine Investigation Board. They concluded that he should have been forced to paint a loadline on his ship and adhere to the cargo and weight limitations of his ship. In addition, they determined that had he turned toward shore after the initial leak in the hull began, he may have been able to avoid disaster. The Board also recommended that all vessels traveling out of site of land be required to carry a radio in order to prevent similar tragedies in the future.

Appendix II

Biological Survey (2001 Results)

NAME	AGE	NUMBER	OBSERVER
Amberjack	Juvenile	10-50 (school)	Galloway/Marelli/Faught
Batfish	Mixed	10-20 (scattered)	Galloway/Marelli/Faught
Blue Angelfish	Mixed	10-20 (scattered)	Galloway/Marelli/Faught
Comb Jellies	Mixed	Many scattered	Galloway/Marelli/Faught
Damselfish	Mixed	Many scattered	Galloway/Marelli/Faught
Grouper	Juvenile	5-10 (school)	Galloway/Marelli/Faught
Hogfish	Mixed	Many scattered	Galloway/Marelli/Faught
Moray Eel	??	1	Rachel Horlings
Sea Cucumber	??	About 1/10 sq.mtrs	Galloway/Marelli/Faught
Sea Turtle	??	1	Della Scott-Ireton
Spadefish	Mixed	Large School	Galloway/Marelli/Faught

Appendix III

Biological Survey (2003 Results)

NAME	AGE	NUMBER	OBSERVER
Amberjack	Mature	Many	Anderson/Klein/Melton
Cocoa Damsel fish	Mature	Few	Anderson
Gag Grouper	Juvenile	Few	Anderson
Gray Angelfish	Unknwn	Many	Anderson/Klein
Gray Snapper	Mixed	Many	Anderson/Klein/Melton
Harlequin Bass	Unknwn	Single	Klein
Round Scad	Mixed	Few	Anderson
Sea Cucumber	Unknwn	Single	Klein
Sharpnose Puffer	Unknwn	Few	Anderson
Spadefish	Mature	Many	Anderson/Klein/Melton
Spanish Mackerel	Mature	Few	Anderson
Spottail Pinfish	Mature	Many	Anderson
Tomtate Grunts	Mature	Few	Anderson

Definitions: Abundant = >100, Many = 11 to 100, Few = 2 to 10, Single = 1.

Appendix IV:

Video Time Log*

Time	Subject
First Dive	
00:00-00:39	Participants loading equipment truck at FSU ADP.
00:40-01:35	Diers analyzing Nitrox.
01:36-01:42	Stern shot of dive boat.
01:43-01:49	Belowdecks, preparing photo equipment.
01:50-01:54	Underwater footage begins, from boiler toward stern.
01:55-04:50	NE sections of wreckage, heading toward stern.
04:51-05:41	Julia clearing mask.
05:43-07:20	Stern section (head on) to stern port side, hull sections.
07:20-08:05	Footage of plaque.
08:06-08:37	Footage of small fish schools and sand.
08:38-08:46	Unidentified pipe-like feature.
08:46-09:30	Unmapped hull section.
09:39-10:00	Sand.
10:30-10:38	Unidentified circular feature.
10:38-12:00	Water.
12:01-12:07	Footage of Ron Grayson waving at camera.
12:07-12:40	Water.
12:40-13:35	Bow section of site.
13:36-14:55	Water.
00:00-00:20	Diver ascending anchor line by boiler.
00:21-00:25	Hull plating.
00:26-00:42	Wreckage near boiler.
00:43-00:44	Camera test.
Second Dive	
00:45-03:34	Footage of Marc Skeist and Bert Ho near boiler.
03:35-03:51	Footage of engines, marine life, and divers.
00:00-01:30	More footage of engines, fish, and divers.
01:30-01:44	Marc Skeist and propeller drive shafts.
01:45-02:39	Bert Ho swimming near engines.
02:40-03:25	More divers and engine footage.
03:25-03:37	Scenes switch.
03:38-04:49	Engines.
04:50-06:44	Footage of water as cameraman ascends anchor line.
06:45-07:18	Marc and Bert ascending anchor line.
07:19-07:25	Dr. Michael Faught and Brian Marks descending.
07:26-07:39	Jeff Lane and Mike Pomeroy descending.
Third Dive	
07:44-07:49	Footage of Ron Grayson and Mike Pomeroy.
07:50-8:00	Water.

08:01-08:34 Structure amidships.
08:35-09:00 Engine footage.
09:04-09:38 Water.
09:38-10:20 Engine and drive shafts.
10:20-11:05 Section of hull plating.
11:05-11:20 Footage of datum point.
11:22-11:27 Sand.
11:28-12:37 Footage of stern and propeller, moving toward bow.
12:37-13:20 Engines.
13:20-14:00 Structure amidships, moving toward bow.
14:00-14:17 Unmapped mechanical detail.
14:18-14:30 Box feature.
14:31-14:53 Datum point.
00:00-00:13 Bow wreckage.
00:14-00:28 Water.
00:28-02:22 Bow structure heading toward port stern.
02:23-02:40 Water and sand.
02:41-2:59 Footage of Dr. Dan Marelli taking digital photographs.
03:00-03:09 Water.
03:10-03:22 Hull section that has moved since previous site map.
03:23-04:07 Onboard footage of return trip.

* Copy of video available through Florida State University's Program in Underwater Archaeology.