



A . D . M . A . T .

Anglo ~ Danish Maritime Archaeological Team

*A Non-Profit Educational Organisation, Assisting Students To Participate In Maritime Archaeological Field Work
Protecting Underwater Cultural Heritage*

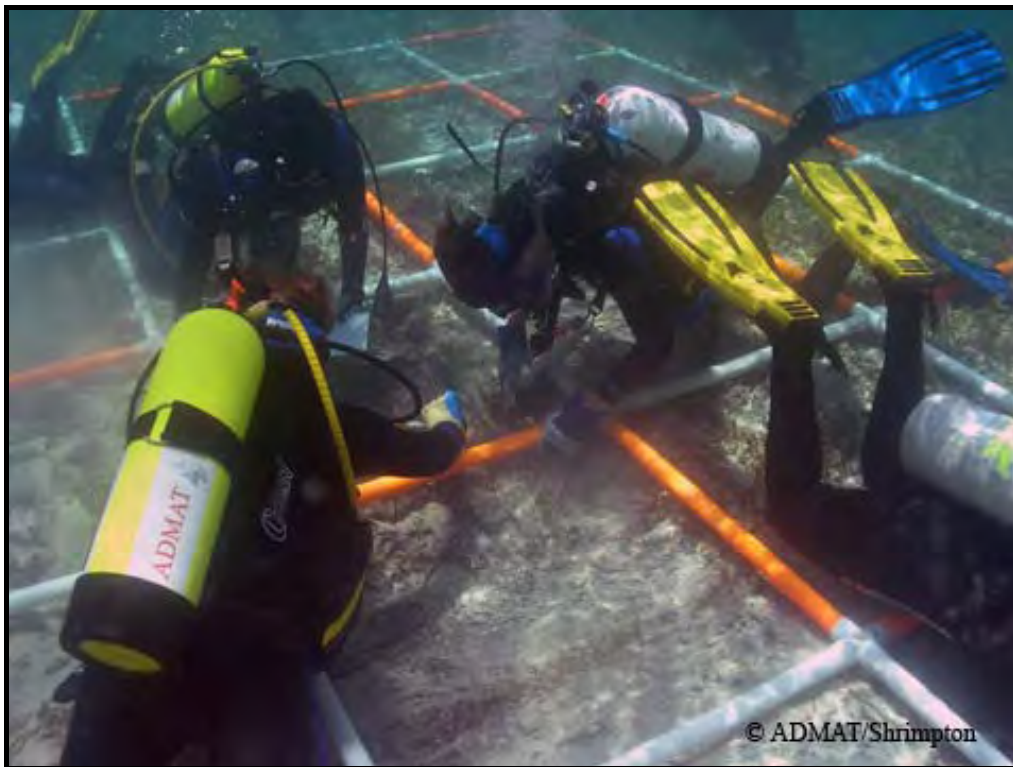


Illustration 1: The Team recording Sq. D2 on the Button Wreck in the FKNMS (© ADMAT Archives - Shrimpton).



THE BUTTON WRECK

Phase 1, of ADMAT's Florida Keys Maritime Archaeological Project.

WEB BASED

INTERIM ARCHAEOLOGICAL REPORT, December 2005.

Submitted to:

**CDR Stephen Beckwith - Upper Keys Regional Manager, NOAA
Florida Keys National Marine Sanctuary (FKNMS)**

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ADMAT-FRANCE is a non profit organisation based in the Institut de Paléontologie Humaine, Muséum National d'Histoire Naturelle, Paris

ADMAT USA is an American Charity (Section 501 (c) 3), Dedicated To Protecting Historic Shipwrecks.

ADMAT USA & ADMAT-FRANCE are sub divisions of the Anglo ~ Danish Maritime Archaeological Team



DEDICATION AND ACKNOWLEDGEMENTS

As with all non-profit archaeological field schools, a large number of people have assisted and advised. ADMAT and ADMAT USA are very grateful for their support, comments and assistance. We therefore give our gratitude to the following:

Maj. Denis B. Trelewicz (Rtd.) who without his assistance, the idea of conducting a maritime archaeological survey of the Button Wreck, would never have occurred; Dr. Duncan Mathewson III for his extensive knowledge on ship construction and his assistance with the school network; Cdr. Stephen Beckwith - Upper Keys Regional Manager and Brenda Altmeier from NOAA who assisted with the permit application, arranging NOAA's support for the project and the donation of the petrol for the boat, the arrangement and introduction of the accommodation and the general day to day assistance; Cdr. Albert J Exner MD Regional Director of Health Services, NOAA- Marine Operations, Pacific; LTJG Eric Johnson – NOAA; Cheva Heck – NOAA; John Hallas – NOAA; Ivy Kelley – NOAA; Dave Dinsmore Director, NOAA Diving Program and Bruce Terrell, NOAA/NMSP Senior Archaeologist; Dr. William (Bill) Fitt, who kindly rented his Key Largo Marine Research Laboratory (KLMRL) to us for the duration; Jerry Wilkenson President of the Historic Preservation Society in the Upper Keys for arranging the lecture and Nancy Diersing Education Specialist FKNMS.

We owe a great debt of gratitude to the three boat captains, for being an essential part of the Team day in and day out, and for lending us their boats. These are Capt. "JJ" Kennedy, Capt. Bob Hills and Capt. Hyatt Hodgdon who in addition to lending us his boat, made his home and docks available for us to use for the duration of the project. We also thank Maj. Denis B. Trelewicz (Rtd.) for the extensive use of his boat for the RECCE and the project.

The private companies and organisations that assisted with non-financial sponsorship in various ways are:

Bob Williams and Aquascan International Ltd., Conleth McCallan and Datanet UK Ltd., Chris Roper and Roper Resources Ltd., Jeff Robertson and NIBCO John Gann and Chesapeake Technology Inc., Keith Forward and Forward Diving Services, Keith Forward and Explorer Cases Ltd., Peter Holt and 3 H Consulting, Callum Magee and AC-CESS, Kathryn Gambola and Luxfer Gas Cylinders and NOAA. The team are very grateful to all these companies and individuals who volunteered and gave assistance.

The ADMAT core personnel conducted excellent work before, during and after the project. Without the hard work and assistance of: Christine Nielsen, Jeremy Schomberg, Andrew Shrimpton, Kathy Schubert and Dr. Simon Q. Spooner; the project could have not started. Christine Nielsen in addition spent months cleaning and processing the 16 gigabytes of photographic information. Dr. Simon Q. Spooner for being the Principal Investigator, writing the report and collating the 1,750 measurements and drawing the site plan by hand.

ADMAT would like to congratulate the students for taking part and thanks them for their hard work and assistance. The students were: Roberto Sanchez, Faith Sahadath, Patricia S. Balian, Karen Terry, Patrick Enlow, Sarah E. Chamlee, Frank Betts, Ryan Duggins, Ben Kilbey, Jessica Berry, Angela O'Reilly, Dr. It Vladimir Pletser, Jayne Pletser, Dimitri Pletser, David Firn, John W. Hillard and Guillaume Malingue.

During this field school, we had representatives from the following countries: England, Denmark, The Netherlands, France, Mexico, Canada and the USA.



Illustration 2: ADMAT core team and the international students for the second half of the project (© ADMAT Archives - Shrimpton).

This project was dedicated to Maj. Denis B. Trelewicz (Rtd. USAF) 1932 to 2005. Denis was a resident of Key Largo and for the last 12 years and has been documenting the historic wreck sites in the Upper Keys for the Florida Keys National Marine Sanctuary.

He was named an “Environmental Hero” by former Vice President Al Gore.

Denis was the inspiration behind ADMAT working on the Button Wreck. May he rest in peace in the knowledge that this Button Wreck of his is at last being investigated and documented as he requested. (ADMAT 2005).



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Chapter 1: Non-technical Summary

1.1 Aims of the Research

Following meetings with the local Volunteers headed by Maj. Denis B. Trelewicz (Rtd.) and NOAA officials headed by Cdr Stephen Beckwith, it became clear that there were a number of historic shipwreck which urgently needed recording before the rest. These included *The Button Wreck*, which was located south of Carysforth Light Tower in the Florida Keys National Marine Sanctuary and *HMS Winchester*.

There were two aims of the research. The first to conduct a non-intrusive survey of *The Button Wreck*, site to see if further clues as to the ships identity and purpose could be found, as well as measure and record the surviving hull structure. The second was to allow students, divers and archaeologists take part in the survey by way of ADMAT's educational field school. The team training was given on survey equipment, including ADMAT's own Underwater Survey Diver course Pt 1&2, Proton Magnetometer Diver Course (both PADI SDC's unique to ADMAT) and various relevant archaeological courses which were run.

Both of these aims were successfully achieved, within the restraints for the Permit Issued by NOAA on behalf of the FKNMS.



Chapter 2: Introductory Statements

2.1 Site Location

The site of *The Button Wreck* is situated on a flat reef in 9ft of water, approximately two miles southwest of Carysfort Light Tower, about 5 miles off shore, and approximately 10 miles from the dock in Key Largo on the Atlantic side of the Florida Keys. The wreck is located in the northern arrear of ADMAT's permit and of the Florida Keys National Marine Sanctuary (FKNMS).

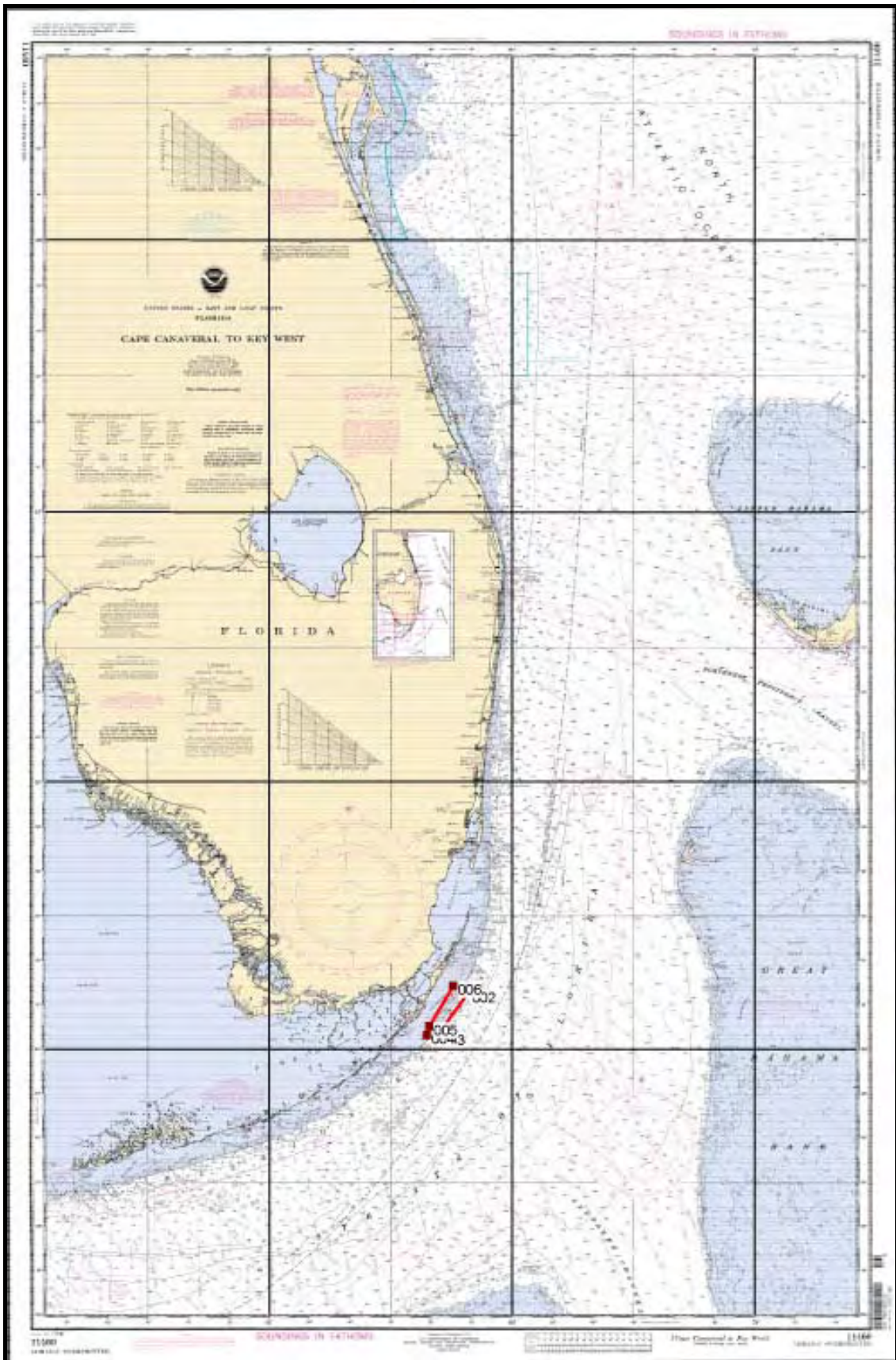


Illustration 3: NOAA chart for the region Cape Canaveral to Key West showing the extent of ADMAT's permit area. (© NOAA).



2.2 The Maritime Archaeological Survey/Inventory Permit

National Oceanic & Atmospheric Administration (NOAA) issued the Survey/Inventory Permit # FKNMS-2005-006 on the 4th April 2005, under the National Marine Sanctuaries ACT together with the Florida Keys National Marine Sanctuary and Protection Act. This authorises maritime archaeologist Dr. Simon Q. Spooner to conduct maritime archaeological work in a 13 mile by 3 mile stretch of the FKNMS.

Dr. Simon Q. Spooner (a Research Associate at the Centre For Maritime Archaeology And History at the University of Bristol) together with the Anglo~Danish Maritime Archaeological Team (ADMAT) and it's US sub-division ADMAT USA, both non-profit organisations (ADMAT USA being a 501 C3 (Charity)); conducted non intrusive maritime archaeological work on the Button Wreck, during 19th July to the 9th August.

It is hoped that this report will be the first of many resulting from ADMAT's work in their permit area and will assist NOAA and FKNMS to protect these important Maritime Heritage Resources.

Illustration No:3 & 4 shows a close chart detail of the 13 mile long permit area.

Illustration No:5 to 8 outlines the permit and the conditions therein.

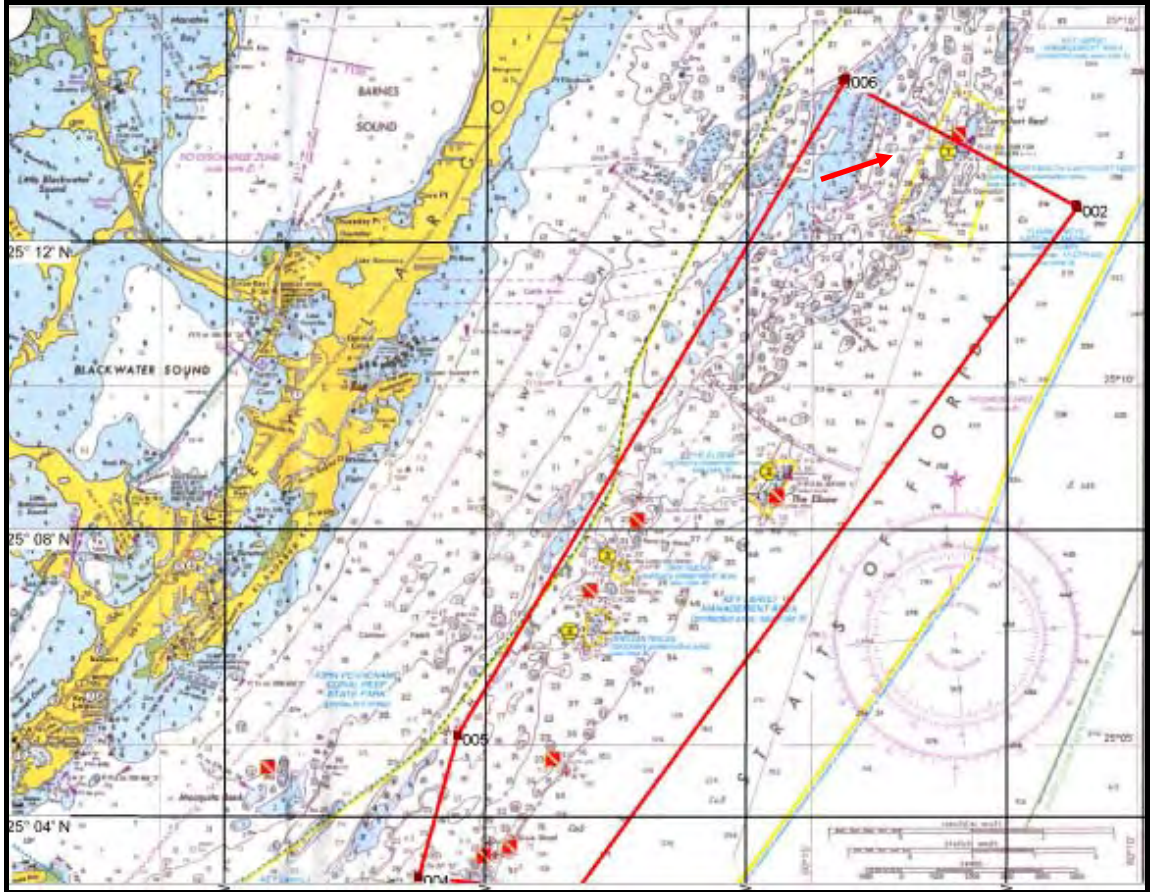


Illustration 4: Detailed local diving chart, showing the boundaries of ADMAT's permit area. The location of the Button Wreck is shown by the red arrow.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
MARINE SANCTUARY DIVISION
Florida Keys National Marine Sanctuary
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4 April 2005

Dr, Simon Spooner
ADMAT and ADMAT USA
805 Brewers Bridge Road, Apt. 19B
Jackson, New Jersey 08527

Dear Dr. Spooner:

The Sanctuary staff and the Florida Division of Historic Resources have received your request for a permit to conduct archaeological survey and inventory activities in the Florida Keys National Marine Sanctuary (FKNMS). Enclosed you will find Survey/Inventory Permit, No. FKNMS-2005-006, to begin operations.

A NOAA research flag shall be prominently displayed on the vessel(s) being used to conduct the survey activities. NOAA research flags may be obtained at the FKNMS office in Key Largo. All NOAA research flags shall be returned upon completion of the field season.

All permit holders are required to maintain cruise logs. The logs shall contain a description of cruise activities, geographic locations (GPS coordinates), and names of personnel participating. The permittee shall submit copies of the cruise logs one year from the approval date of permit and in the same month each year thereafter for the duration of the permit. Within 30 days of the permit expiration date a final report shall be submitted to Mr. John Halas, Resource Manager.

Please be aware that the area you have chosen to conduct archaeological survey and inventory activities is within the boundaries of an Existing Management Area that lies inside the FKNMS. As such, the natural and historical resources within the area are afforded greater protection. It is important for me to inform you it is FKNMS policy that "no permits will be issued for salvage or recovery in sensitive areas; i.e., Sanctuary Preservation Areas, Ecological Reserves, Wildlife Management Areas, Existing Management Areas, and other areas where there is coral, seagrass, or other significant natural resources." Furthermore, "no permits will be issued for excavation in areas where coral, seagrass meadows, or other significant natural habitats exist."

Should you have any questions regarding this permit or National Marine Sanctuary permits in general, please contact me directly at (305) 852-7717 x35 or Mr. John Halas, Resource Manager at x34. Thank you for your cooperation with the Florida Keys National Marine Sanctuary.

Sincerely,

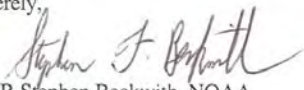

LCDR Stephen Beckwith, NOAA
FKNMS Upper Keys Region Manager

Illustration 5: Covering letter to Dr. Spooner from LCDR Stephen Beckwith, NOAA in respect of the granting of the permits (© ADMAT Archives).



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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
MARINE SANCTUARY DIVISION
Florida Keys National Marine Sanctuary
P.O. Box 1083
Key Largo, FL 33037

**PERMIT
FKNMS-2005-006**

**TO CONDUCT ARCHAEOLOGICAL SURVEY/INVENTORY ACTIVITIES WITHIN
THE
FLORIDA KEYS NATIONAL MARINE SANCTUARY**

This Survey/Inventory Permit is issued in accordance with the National Marine Sanctuaries Act (NMSA), 16 USC §1431 *et seq.*, implementing regulations (15 CFR Part 922), and the Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA), PL 101-605, 16 U.S.C. 1433 note, and the Programmatic Agreement for Historic Resource Management in the FKNMS (under section 106 and 110 of the National Historic Preservation Act) among NOAA, The Advisory Council on Historic Preservation, and The State of Florida. All activities shall be conducted in accordance with those regulations and laws, and the management plan for the Florida Keys National Marine Sanctuary (FKNMS). However, activities that would otherwise be prohibited under § 922.163(a)(3), (4) and (9), may be conducted in strict accordance with the terms and conditions of this permit.

Subject to the terms and conditions of this permit, Dr. Simon Spooner, President of the Anglo-Danish Maritime Archaeological Team, or his designee, is hereby granted permission to survey and inventory within the Florida Keys National Marine Sanctuary (FKNMS). All activities are to be conducted in accordance with the permit application received, January 4, 2005. The application is incorporated by reference to this permit and made a part hereof, provided however, if there are any conflicts between the permit application and the terms and conditions of this permit, the terms and conditions of this permit and the above laws shall be controlling.

In addition to the above terms and conditions, the following terms and conditions apply to this permit:

Special Conditions

1. This permit is effective as of its approval signature dated 4 April 2005 and will remain in effect for one year.
2. The following activities are recognized under this permit:
 - a) Remote sensing, to include magnetometer, side scan sonar, sub-bottom sonar and metal detector surveys within the following coordinates:

Lat 25° 14.261' N	Long 080° 14.537' W
Lat 25° 12.519' N	Long 080° 10.989' W
Lat 25° 06.358' N	Long 080° 19.392' W
Lat 25° 05.246' N	Long 080° 20.448' W
Lat 25° 02.928' N	Long 080° 18.650' W
 - b) Photographing and videotaping anomalies.

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Illustration 6: Page one of the letter of Permit to conduct maritime archaeological work by NOAA and FKNMS (© ADMAT Archives).



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
MARINE SANCTUARY DIVISION
Florida Keys National Marine Sanctuary
P.O. Box 1083
Key Largo, FL 33037

- c) Placing temporary datum markers (pvc) in the seabed to mark different sites.
3. The use of prop-wash deflectors is expressly prohibited.
4. No recovery of objects is permitted. All identifications of anomalies shall take place in situ.
5. Limited hand fanning for the purpose of in situ identification of anomalies in areas devoid of seagrass and coral is permitted.
6. Issuance of this permit does not convey any rights to any future permits, including private-sector disturbance to or recovery of any shipwrecks or associated artifacts within the permitted area.

General Conditions

1. All persons participating in the permitted activity shall be under the supervision of Dr. Simon Spooner, the permittee, and the permittee shall be responsible for any violation of this permit, the NMSA, regulations thereunder, and the FKNMSPA. The permittee shall assure that all persons performing activities under this permit are fully aware of the conditions herein.
2. NOAA reserves the right to have an observer(s) aboard the permittee's vessel during all activities authorized by this permit. The NOAA Observer(s) may document the permittee's activities for the purpose of determining whether the permitted activities are conducted in accordance with the terms and conditions of this permit and the applicable statute and regulations. The NOAA Observer(s) may also provide limited advice and technical assistance, if requested by the permittee. The NOAA Observer(s) will not be present for the purpose of safety of permittees, nor for the purpose of approval of activities not specifically authorized by this permit. NOAA further reserves the right to conduct, or have conducted, independent study or verification of any cultural resources within the permit area.
3. The permittee shall maintain a cruise log. The log shall contain a description of cruise activities and geographic locations. The permittee shall submit copies of the cruise log one year from the approval date of permit and in the same month each year thereafter for the duration of the permit. Logs shall be submitted to the person listed below:
Mr. John Halas, Resource Manager
FKNMS
P.O. Box 1083
Key Largo, FL 33037.
4. If the permittee wishes to renew the permit or apply for an additional permit, the permittee shall submit a final report consistent with the "Survey/Inventory Permit: Reporting Guidelines" no later than 30 days before the expiration of this permit. No Research/Recovery permit will be issued for this site due to the fact it is located within an Existing Management Area. If the permittee does not wish to renew the permit or apply for an additional permit, the report will be due no later than 30 days after the expiration of the permit.

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Illustration 7: Page two of the letter of Permit to conduct maritime archaeological work by NOAA and FKNMS (© ADMAT Archives).



U.S. DEPARTMENT OF COMMERCE
 National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SERVICE
 MARINE SANCTUARY DIVISION
 Florida Keys National Marine Sanctuary
 P.O. Box 1083
 Key Largo, FL 33037

5. A NOAA research flag shall be prominently displayed on the vessel(s) being used to conduct the survey activities. NOAA research flags may be obtained at the FKNMS office in Key Largo. All NOAA research flags shall be returned upon completion of the field season
6. This permit is non-transferable and shall be carried by the permittee at all times while engaging in any activity authorized by this permit.
7. This permit may be suspended, revoked, or modified for violation of the terms and conditions of this permit, the regulations at 15 CFR Part 922, the NMSA, the FKNMSPA, or for other good cause shown. Such action shall be communicated in writing to the applicant or permittee, and shall set forth the reason(s) for the action taken.
8. This permit may be suspended, revoked or modified if requirements from previous permits or authorizations issued to the permittee are not fulfilled by their due date. Permit or authorization applications for any future activities in the Sanctuary by the permittee may not be considered until all requirements from this permit are fulfilled.
9. If the permittee or any person acting under his supervision conducts, or causes to be conducted, any activity in the Sanctuary not in accordance with the terms and conditions set forth in this permit, or who otherwise violates such terms and conditions, the permittee shall be subject to civil penalties, forfeiture, costs, and all other remedies under the NMSA, the FKNMSPA, and the regulations at 15 CFR Part 922.
10. Any publications and/or reports resulting from these activities shall include the notation that the activity was conducted under National Marine Sanctuary Permit #FKNMS-2005-006 and be sent to the individual listed in general condition #3.
11. This permit does not relieve the permittee of responsibility to comply with all other applicable Federal, State and local laws and regulations, and this permit is not valid until all other necessary permits and/or authorizations are obtained.
12. Issuance of this permit does not constitute abandonment or waiver by a sovereign state to any claims of sovereign immunity or other sovereign interest in any submerged cultural resources subject to this permit.
13. Any question or interpretation of any term or condition of this permit shall be resolved by NOAA.

This permit is effective as of the approval signature and date shown below and will remain in effect for one year from that date.

Approved: Stephen F. Beckwith 4 APRIL 2005
 LCDR Stephen Beckwith, NOAA Date
 FKNMS Upper Keys Region Manager

Illustration 8: Page three of the letter of Permit to conduct maritime archaeological work by NOAA and FKNMS (© ADMAT Archives).



2.3 Site History and Historical Research

Over the years the SRI Volunteer Team situated in the Upper Keys of the FKNMS, conducted excellent surveys and non-intrusive site surveys of wrecks and artefacts located in the upper keys. Their work was lead by Maj. Denis B. Trelewicz (Rtd.) and their observations are found in eight volumes, currently held by Hyatt Hodgdon, with copies retained by NOAA. In all we were informed that over 400 sites of interest and requiring further investigation, were reported.

The site history and historical research was mainly conducted by Maj. Denis B. Trelewicz (Rtd.). A summary of his research into *The Button Wreck* is set out below from his article in the Florida Keys Sea Heritage Journal in 2002 with his permission.

In the vicinity of the remains of the C.W. Baird (Captain Tom's Wreck) which lies approximately two miles southwest of Carysfort Light Tower are the remnants of a wreck. This site which was found some 30 years ago by Jimmy Longendyke was dubbed by Jimmy as the "Button Wreck" because of a number of uniform buttons that were found admixed with the wreck debris. I have seen seven of the buttons that were recovered. They are heavily eroded, surfaces containing considerable scale which obscured the faces. All but one of the buttons are of copper alloy most likely bronze. Two of the buttons have a faint embossing on its faces.

The button with the numerals "34" appears to be bronze while the one with the numerals "113" appears to be of pewter. Efforts to determine the identity of the ship are ongoing. As of this date no positive identification has been possible. It seems that the ship may have been of British origin, perhaps a packet boat, that was sailing northward through the Straits of Florida when it ventured too close to shore and struck the reef and bilged.

In conducting archival research on the buttons, it has been determined that the buttons were from uniforms. The button with the numeral "34" is from a British Regiment, the 34th Cumberland of Foot. This unit was one of several that were involved in the invasion and capture of Havana in June 1762 from the Spanish. When Spain cede Florida to the British in for return for the British returning Havana to Spanish rule, the 34th was one of the corps which proceeded to Florida to take possession of the territory. The Regiment landed at Pensacola and was initially stationed in West Florida but was subsequently deployed at a number of locations in the north formerly in the territory previously occupied by the French.

The finding of the pewter button with the embossed numerals "113" is some what of a mystery. The 113th Regiment, also of Foot (Royal Highlanders) according to historical records located in the United Kingdom's Public Records Office indicate that this unit existed during the period of 1761-1763 and was based around Abingdon in Oxfordshire. The regiment was deemed to have become surplus to the requirements following the end of the Seven Years War in early 1763 and War Office correspondence confirms that the unit was disbanded in May of 1763 (W04/72). No evidence has been found to indicate that the 113th of Foot ever left England for foreign service.

One explanation for the button being found here in the keys is that a soldier originally issued a uniform with the buttons, subsequently joined a new regiment. We do know the 113th was disbanded in 1763 and it is perhaps reasonable to suspect that some members of this Regiment may have been reassigned to other units



of the Army. It is thought that the soldier may have been retained his old uniform, or simply kept the button as a souvenir and thus had it in his possession at the time of the shipwreck.

A review of the correspondence of General Thomas Gage, the Commander In-Chief of British Forces in North America with the Secretaries of State and the War Department and Treasury between 1763 – 1775 (Carter.C; 1931) uncovered some very interesting items about the 34th Regiment's activities in North America. In a number of despatches General Gage comments that the recruits arrived from England for the ranks of the 34th and other Regiments to bring them up to strength. Accordingly, it is quite possible soldiers originally from different units may have been incorporated into the ranks of the 34th when their units were disbanded.

The deployment of the 34th in the years between 1762 to 1769 was such as to suggest that members of its ranks were not stationed in the vicinity of Florida Keys. In a footnote on page 9 of Cecil Johnson's book, "British West Florida 1763-1783", he mentions that Major Farmer in command of the 34th Regiment is on board the Conquistador July 19th 1763. Johnson states:

"Major Farmer, with the 22nd and the 34th Regiments, also under orders from General Keppel (after departing Havana, Cuba) went by way of Jamaica and Pensacola to Mobile, and on October 20, 1763, took possession of that town and Fort Conde."

General Gage in his correspondence notes on various occasions the whereabouts of the 34th Regiment. Keeping track of units dispersed at great distances from General's headquarters in New York was very difficult and considerable time would elapse before headquarters learned of location and movements of units. In his dispatch of January 1766 to Lord Barrington, the General comments that he has heard "nothing" of the progress of the 34th Regiment's trek up the Mississippi since they left Natchez in the month of August 1775. On March 29th, 1776, he writes Lord Barrington that:

"Major Farmer with the 34th Regiment got to Fort Charles in Illinois Country the beginning of December (1765) being eight months from his leaving Mobile and about five from his departure from New Orleans"

Fort Chartres is on the Mississippi River on the Illinois side of the river, approximately 30 miles south of what is now St. Louis, Missouri.

In a September 1768 dispatch the General notes to Lord Hillsborough that five companies of the 34th Regiment are to be in Philadelphia. Further, he says in another letter to Lord Hillsborough that:

"The former garrison of the 34th Regiment left Fort Chartres on the 15th of September (1768) and arrived at Philadelphia on the 23rd of December (1768)".

On July 22nd, 1769, General Gage informs Lord Hillsborough that:

"Transports should be provided forthwith to transport the 9th and the 34th to Ireland".

Then in his communication No: 35, dated September 9th, 1769, General Gage confirms that the 34th Regiment did embark Philadelphia and sailed for Ireland.

It is indeed unfortunate that the historical record often times is not complete and that on many occasions not accurate and contains ambiguous information. In the case of the 34th, according to S.A. Eastwood, Museum Curator of the Regiment Museum of the Border Regiments citing to me in a letter dated 8th February 2002:

"The records of the 34th in the eighteenth century are generally very poor as the Regiment lost many of its records in 1795".

He further mentions that his research of records for the period did not turn-up anything of detail about the loss of a transport carrying men of this Regiment on south Florida Waters.

What I found really interesting is that according to Mr. Eastwood, "numbered buttons do not appear to have been taken into service until 1767", consequently, suggesting that the buttons found on the wreck site probably date to a period after 1767. If this is the case, just why would a button be produced and issued far (sic) a unit which was disbanded in 1763? The 113th of Foot does show up again in War Office records as being formed in 1794 under Colonel Archibald Mac Donnell. However, a year later the unit was in "Mutiny" and disbanded in 1795 with its men transferred to other units. The 34th Regiment shows up again in records as being in North America in 1780 at Saratoga, New York.

Just how the uniform button recovered by Jimmy Longendyke years ago found their way on board the vessel that wrecked on Carysfort Reef will no doubt remain a mystery. Not enough remains of the wreck to provide clues to suggest something about the vessel. The only ship that I have come across which may be that of the "Button Wreck" is that of a British parquet boat from Pensacola to Falmouth in England. The ANNA Thersa was reported by Lloyds to have wrecked near Cape Florida in July 1768. (The area comprising Cape Florida included what we now call Carysfort Reef.)



Mr Eastwood also commented that the type of button which I have sketched bearing the numerals “34” fits with “our” Regiment. According to Curator Eastwood, the 34th Regiment was a silver-laced regiment. Officers’ buttons being silver and those of the soldiers made of pewter. He believes that the possibility that officers’ buttons may have been silver plated over bronze.

Accordingly, all of this leaves open to imagination and speculation to contrive a theory of how the buttons found their way on the “Button Wreck” site.

At present, the above information is the sole amount of archival information which was undertaken by the SRI team on this wreck site. However Maj. Denis B. Trelewicz (Rtd.) estate has found a complete filing cabinet with additional notes and research material on his work over the years. It is possible that there might be further information on this wreck in these files, although discussions with him prior to his death, indicated that there was no further information (Per. Com. 2005)

2.4 History Behind the Project

During early 2005, the two founding members, Dr. Simon Q. Spooner, BSc, MRICS, PhD, MIFA; President of Anglo~Danish Maritime Archaeological Team (ADMAT), and Christine Nielsen, who is the Vice President, began thinking that ADMAT and ADMAT USA should assist the preservation of Underwater Cultural Heritage in America. Numerous discussions were made with Dr. Duncan Mathewson III, a leading authority on shipwreck sites in the Florida Keys, as to which area urgently needed our assistance. Dr. Spooner was put in contact with Maj. Denis B. Trelewicz (Rtd.), and they began lengthy communications as to how ADMAT could assist the FKNMS and SRI. It was explained that Dr. Spooner would have to approach NOAA with a view to receiving a permit to conduct maritime archaeological work. Discussions with Lt.Cdr Beckwith (Now Cdr) outlined the procedures. Information on ADMAT’s past work was sent to the authorities at NOAA and Bruce Terrell, NOAA/NMSP Senior Archaeologist. Following verbal approval from Bruce Terrell, NOAA/NMSP Senior Archaeologist., Dr. Spooner



then had the task of assessing which wrecks should be set out in the survey permit area. In the end it was decided that Dr. Spooner would fly to the Keys for a RECCE to meet with Maj. Denis B. Trelewicz (Rtd.) and Lt.Cdr Beckwith to conduct a brief inspection of some of the sites.

The RECCE was conducted on the 27th March 2005. During initial meetings with Maj. Denis B. Trelewicz (Rtd.) and Lt. Cdr Stephen Beckwith - Upper Keys Regional Manager and Brenda Altmeier from NOAA, it was decided that the historic wrecks put forward by Maj. Denis B. Trelewicz (Rtd.) should be looked at.

During the brief inspection of these shallow water sites, the *Dixie Shoals*, *The Button Wreck*, *The Iron Bar Wreck* were examined. The *HMS Winchester* was too far for time permitting to inspect. *The Button Wreck* was an immediate choice for the Team to start surveying. From the initial observations, a number of floors and futtocks were seen to be protruding from the surface of the sand. A section of the keelson was also visible. No copper sheeting, or bronze drift pins were seen and it appeared that the ship was constructed with trunnels, which together with the apparent absence of copper gave an initial pre 1780 time period for construction. The vessel also seemed to be in an excellent condition, although at the same time it was in a highly vulnerable location, high on the shallow reef. There was a serious risk that a hurricane could devastate the site and leave only “match wood and kindling” before the Team could assess and document the site. In addition, it became clear that the survey would have to design a way of protecting the coral growths on the keel bolts along the centre line. This was an important point as it followed ADMAT’s biological protectional policy, and was a requirement under the permit. Illustrations 9 to 12 show the site at the RECCE.



Illustration 9: Photograph from the RECCE showing the floors visible under the sand on *The Button Wreck* (© ADMAT Archives - Spooner).



Illustration 10: Photograph from the RECCE showing the floors and ceiling planking clearly visible by the sea grass infestation on *The Button Wreck* (© ADMAT Archives - Spooner).



Illustration 11: Photograph from the RECCE showing the coral growth on one of the iron keel bolts on *The Button Wreck* (© ADMAT Archives - Spooner).



Illustration 12 Photograph from the RECCE showing the coral growth on *The Button Wreck* (© ADMAT Archives - Spooner).



2.5 ADMAT's Florida Keys Maritime Archaeological Project

After Dr. Spooner's return to the UK, the project was planned. It was decided that ADMAT USA would advertise a 3 week long field school, for Phase One, and would address *The Button Wreck*. The wrecks which had been researched and documented by the SRI group were plotted and an area was asked for in the permit application. The area took into the account that each wreck site needed the Wrecking Process examined, both in the micro and macro taphonomic processes. This would take into account all the movement of the vessel and ancillary artefacts, as it started its wrecking process, to the final deposition on the seabed and its current position. This was a speciality of Dr. Spooner and one which he has spent nearly a decade examining.

The chart was examined and it was decided that a three mile by 13 mile area should be applied for on the permit. This hopefully would be renewed on a yearly basis for at least five years, and a five year program was started. This area was granted under the permit.

Once *The Button Wreck* was completed, other wrecks such as the *HMS Winchester* and the Civil War Wreck the *Tonawanda* would be surveyed in turn.

ADMAT also wanted to involve the local schools as part of ADMAT's educational policy. Dr. Duncan Mathewson III was contacted and agreed to start the process, by arranging ADMAT to conduct lectures at the end of the field school, to the local schools in the Key Largo area as well as Key West.



Chapter 3: Aims and Objectives of ADMAT's Field School

3.1 Preservation of Cultural Heritage

The aims of this project are to assist NOAA and FKNMS in the preservation of their great Underwater Cultural Heritage. The Florida Keys has a wealth of cultural heritage and a large number of maritime archaeological sites which urgently need recording and assessing. This Cultural Heritage is extremely fragile and may easily be destroyed by storms, looters and will be uncovered and re covered by periodically, which is why it is important to act when hull structures are visible. ADMAT & ADMAT USA are very proud to be able to assist NOAA and FKNS in their work.

3.2 Education

After the preservation of shipwrecks, education is the next aim of ADMAT. In fact they should go hand in hand. At present around the world there are very few opportunities to take part in maritime archaeological projects. Maritime Archaeology is not a common Course at universities and Field Schools run by universities are rare. This is due to: The fact that maritime projects are on average 5 times more expensive than land excavations. Large amounts of expensive diving, boats and scientific equipment are required. There is also a lack of experienced “hands on” lecturers and organisers around the world. Therefore non-profit field schools have to be run by enthusiasts and organisations dedicated to the task, such as ADMAT and assisted by local and international sponsorship and benefit in kind. The fact that ADMAT USA is a (**Section 501(c)(3) Charity**) means that companies which make donations can receive the fullest tax advantages as well as plenty of positive PR for their company.



During the field school students were taught the principles of underwater surveying, artefact identification, ship construction, survey and non-intrusive excavation techniques drawing, data recording and first aid conservation. In addition it was also undertaken that local members of SRI could take part in the field school which was a great advantage.



Chapter 4: Methodology

4.1 The Base Camp Accommodation and Boats.

For the duration of the field school, we needed suitable accommodation for up to 14 people at any one time, near to the storage of the boats. In addition we needed a dock and facility to place the boats and all the diving equipment. We therefore needed the following;

- Kitchen with cooking and refrigerated food storage,
- Suitable safe 240v and 110v power supply to provide power for the lighting and refrigeration, scientific equipment and computers.
- Office accommodation and lecture room facilities.
- Dive centre for the pumping of tanks.
- Workshop and equipment storage.
- Secure daily storage for the scientific equipment.

All of the above was met. Brenda Altmeier from NOAA introduced ADMAT to Dr. William Fitt, who has the Key Largo Marine Research Laboratory (KLMRL). This accommodation was ideal for the base camp, and we rented this for the duration of the project. The living room proved to be a good area for evening lectures, the back garden for training grid construction, the dock for testing the ROV and relaxation, shown in Illustrations 13 & 14.



Illustration 13: The rear of the KLMRL where the Team were occupying the ground floor (© ADMAT Archives - Betts).

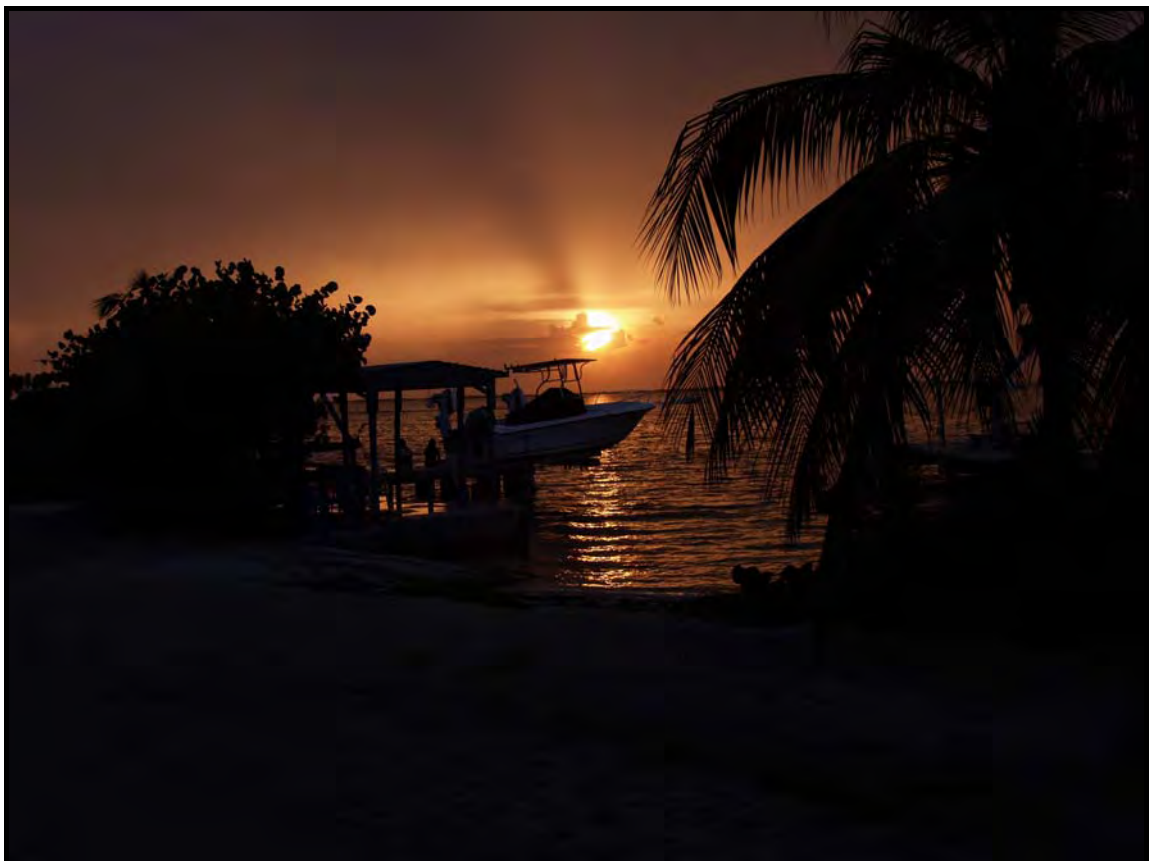


Illustration 14: The classic evening sunset, from the accommodation overlooking the dock (© ADMAT Archives - Betts).



The boats had already been kindly donated along with their Captains. Captain “JJ” Kennedy would be in command of, Denis B. Trelewicz’s boat which was used for the whole period. Captain “JJ” Kennedy also had his own boat which was available. The second boat was a very smart powerboat *Trans Action* which was owned by Capt Hyatt Hodgdon. Hyatt Hodgdon also very kindly made his home and dock available for us to use as a dock and dive equipment storage facility. This facility was used for the entire project and we are very grateful to Hyatt Hodgdon for this. The third large boat *Ocean Fox* was provided by Capt Bob Hills, which was a Coast Guard Auxiliary. His extensive knowledge of the reefs was a great assistance. It would be correct to say that ADMAT has never had such luxurious boats from which to conduct our work and we are very grateful to the three Captains and Denis Trelewicz.



Illustration 15: Captain Bob Hills (© ADMAT Archives - Shrimpton).



Illustration 16: Captain Hyatt Hodgdon and the project mascot Bullet (© ADMAT Archives - Shrimpton).



Illustration 17: Captain "JJ" Kennedy (© ADMAT Archives - Nielsen).



4.2 The Diving and Archaeological Methodology

The three week section of the field school enabled the Team to dive on average for four hours per day per person in the morning. This enabled the rear section of the wreck to be hand fanned and recorded. In total over 700 man hours were spent underwater measuring the site. The diving was run as non-decompression diving, with all the divers using computers. Decompression was not a worry as the site was only three meters deep. However the collective bottom time for the key staff, was important, to ensure that they did remain outside the total saturation limits of long duration shallow diving over the three week period. 80cuft tanks were used. No hookah was used as it was deemed unacceptable under ADMAT's Health & Safety policy.

The site was visually surveyed first to ascertain the orientation of the wreck. The wreck was almost running on a north south direction. During the initial surveys, a small coral reef was found to the north, north west of the site which proved to be the Gudgeons of the ship. Once this was ascertained the site was surveyed for biological growth which would be in the way of the archaeological survey. The coral growth on the wreck site was mainly confined to the iron keel bolts in the centre line and a black sponge on the starboard quarter.

4.2.1 The Grid

The decision to deploy ADMAT's design grid was made, which would enable the frames to be measured in with accuracy. Clearly the whole wreck could not be completed in the time allocated so the decision was made to focus on the stern section which was the easiest to uncover. The criteria being that the grid should cover the stern section, missing the black sponge and designed to protect the coral along the keelson.



Further criteria being that the grid must withstand major storms, as the field school was in a very active hurricane season. ADMAT's normal grid is made of 1 metre square interlocking sections with nails securing the intersections. The all important cross pieces are kindly sponsored by NIBCO who manufacture them. However the design plan for the grid was discussed as a task for the students. They took the basic design and enhanced on it as part of ADMAT's ~Underwater Survey Diver course. The students used diagonal nails to interlock the pieces together which were then bent over locking the grid together. The second enhancement was that along the centre line, the grid rose one meter high to form a protective tunnel for the keelson, the keel bolts and the coral growth. The design was a combination of Patrick Enlow (Green Beret and Special Forces engineer) and Dr. It Vladimir Pletser (European Space Agency).

The grid was numbered alphanumeric with A0 on the port side; E0 down the keelson line. The grid number is always read from the upper left hand corner. In total the grid was extended for 10 meters in length (33 ft) and 7 meters (23 ft.) wide. Illustrations 22 to 44 show the grid being designed and then constructed over a number of days after diving.



Illustration 18: Patrick Enlow calculating the number of 1 meter lengths of PVC required for the grid (© ADMAT Archives - Nielsen).



Illustration 19: Dr. It Vladimir Pletser and Frank Betts working on the grid late into the night (© ADMAT Archives - Nielsen).



Illustration 20: Guillaume Malingue and Patrick Enlow building the raised centre section to protect the coral growth which was attached to the iron keel bolts (© ADMAT Archives - Nielsen).



Illustration 21: The Team practising the construction of the grid on land, so that the construction underwater would be simple (© ADMAT Archives - Nielsen).



Once the grid was constructed, the Team practiced constructing it in the back yard, which would make constructing it underwater easier. ADMAT's Underwater Survey Diver course (Equivalent to NAS part 1 to 2) was given and the Team then practiced measuring items into the grid on land, as shown in Illustration 11.

Once the grid was finished, each piece was coded and it was disassembled. The plan being that underwater the coded grid would slot together without any problems. The next challenge was to take all the pieces on Capt. Bob's boat to the site and erect it underwater.



Illustration 22: Jessica Berry and Jayne Pletser, undergoing ADMAT's Underwater Survey Diver Course training, prior to transporting the grid to site (© ADMAT Archives - Betts).



Illustration 23: Frank Betts and Guillaume Malingue handing the grid squares one by one, in order to the divers underwater who constructed the grid. The grid can be clearly be seen through the water, between Capt. Bob Hall's and Capt. Hyatt Hodgdon's boats (© ADMAT Archives - Enlow).



Illustration 24: Dimitri Pletser arranges the grid sections on *The Button Wreck* site (© ADMAT Archives - Shrimpton).

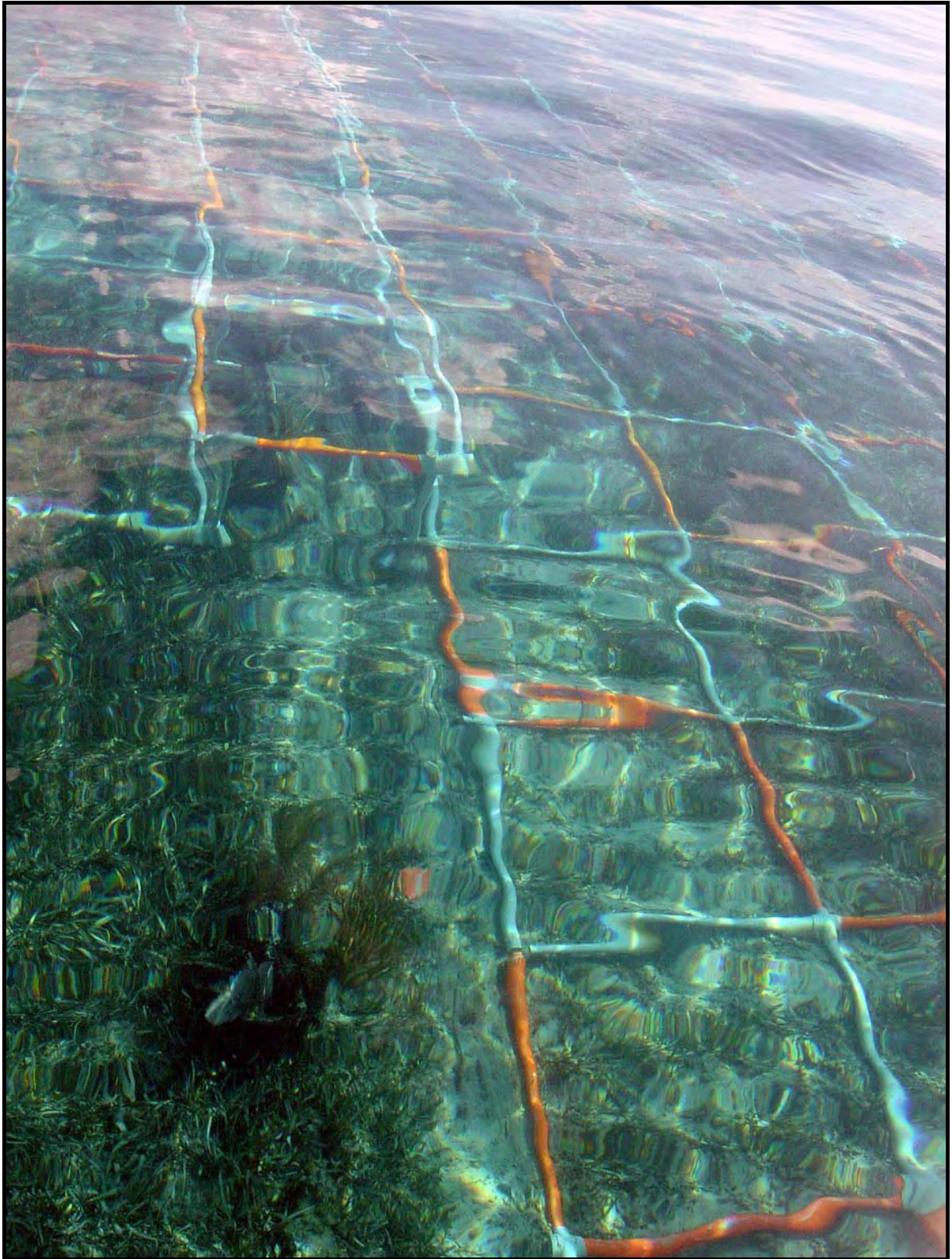


Illustration 25: *The Button Wreck* with the stern section gridded and the keelson boxed over, taken from the surface
(© ADMAT Archives - Spooner).



The estimated total length of the wreck is 25+ metres (82.5+ ft). On this site there was no modern contamination, and as soon as the grid was in place, the site was photographed. As the survey continued the Team extended the grid on the starboard side and the port bilge strake, which was extended by a further five meters taking the area recorded to 15 meters on the starboard side (49.5ft.).

4.2.2 Archaeological Dredges and Hand Fanning

In a normal ADMAT survey, the overlying sand and strata on the wreck site, is removed by the use of archaeological dredges. This process allows the underlying surviving ship's construction to be uncovered and documented by photographing, videoing and measuring each plank by plank. The use of archaeological dredges, allows the archaeologist to hand fan into the dredge and for the sand to be removed. This speeds up the operation and allows an archaeological site to be examined much more efficiently. *The White House Bay Wreck* in St. Kitts, *Musket Ball Wreck*, *Le Casimir*, *Tile Wreck*, *Faience Wreck* and others which ADMAT has undertaken in the Dominican Republic for their Government, have all have been recorded and documented this way. The use of archaeological dredges also gives the maritime archaeologist to tools with which to cover the wreck at the end of the survey. This is a very important part of the preservation of the shipwreck.

As *The Button Wreck* is within the boundaries of the FKNMS, the permit specifically stated that the use of archaeological dredges was not allowed. Permission was granted for the Team to hand fan the overlying sand which was undertaken, although this took great lengths of time and was not very effective. The problems encountered was that the Team could only hand fan about a few centimetres deep of sand, and the sand had to be



moved across the entire site in sections one at a time. The quality of the photographic documentation was greatly reduced, as the sand could not be effectively removed in the bilges and deeper sections of the ship. In addition the storms and currents each night would re fill the areas uncovered by the previous day.

The second main problem with hand fanning was that it was not possible to address the all important bow section. The reason for this was that the overlying sand shale mix was too deep to hand fan. This resulted in important features of the vessel not being documented which was detrimental to the objectives of the maritime archaeological survey. The understanding and documentation of the bow, gives vital clues as to the nationality and typology of the vessel. The “rising ceiling” will give vital clues as to the nature of the ship, was it a merchant ship or warship, was it designed for inter-coastal waters or transatlantic voyages? In addition it was important to find the midpoint part of the vessel, which is required to establish the dimensions of the ship.

4.2.3 The Sea Grass

The field school did introduce interesting conflicts and dilemmas as to the correct methodology to use when preserving the UCH, versus the protection of biological plant life. The sea grass is a recent intrusion onto the wreck site. During the wrecking process the hull settled in the sand on the coral reef. In recent years the sea grass has encroached onto the site. At the time of the archaeological survey, the sea grass was present and was destroying the timbers of the wreck by its roots. The roots were in some cases burrowing in deep into the timbers and expanding causing the timbers to crack and disintegrate, as shown by illustration 30. Dr. Spooner asked Cdr. Beckwith, Upper Keys Regional Manager, advised by Bruce Terrell (Senior Archaeologist with NOAA/NMSP), for



permission to remove the sea grass within the confined of the Shipscape (Spooner: 2004). A decision on this was not given during the field school, and so the measurements were taken as best as they could. The photographs unfortunately were also affected by the contamination, as the grass had filled the gaps between the planking and the frames.



Illustration 26: *The Button Wreck* site before the grid was put in position, showing the sea grass contamination (© ADMAT Archives - Spooner).

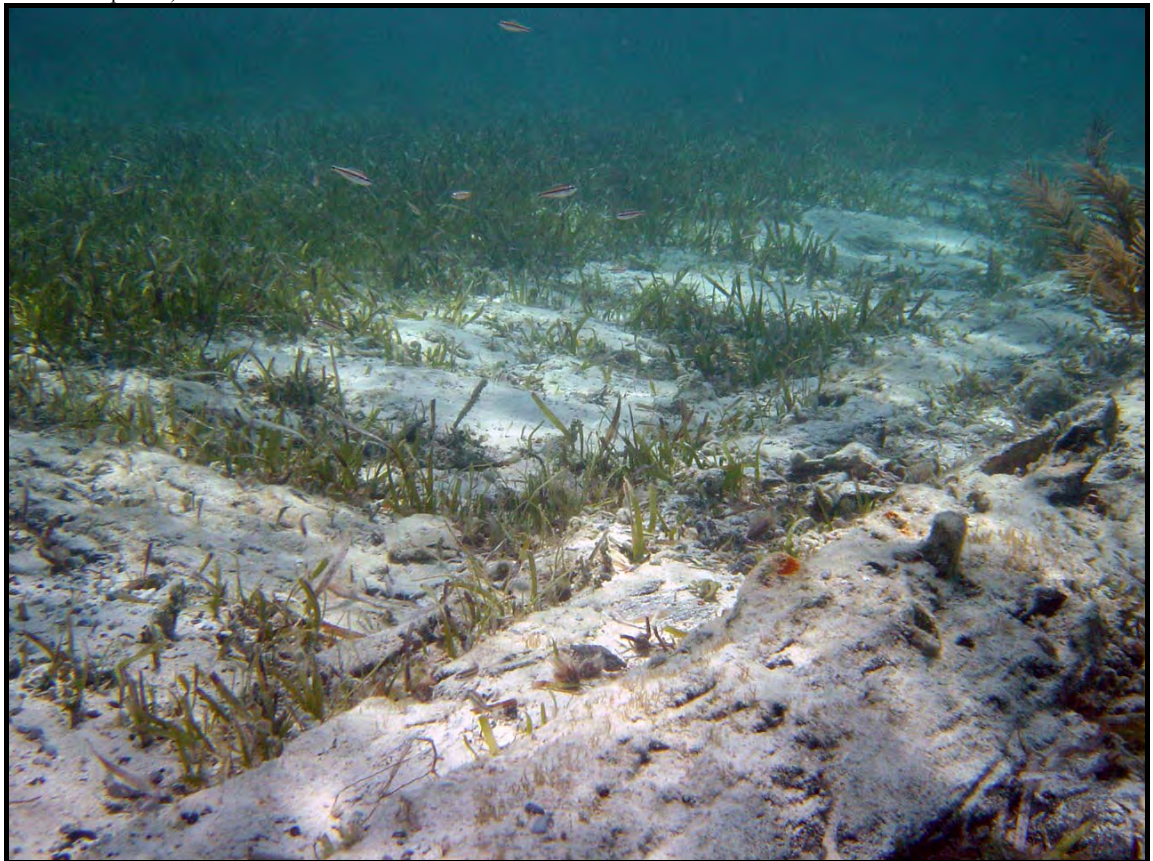


Illustration 27: Sea Grass encroaching over the timbers and the gaps, on the port side of *The Button Wreck* (© ADMAT Archives – Nielsen).

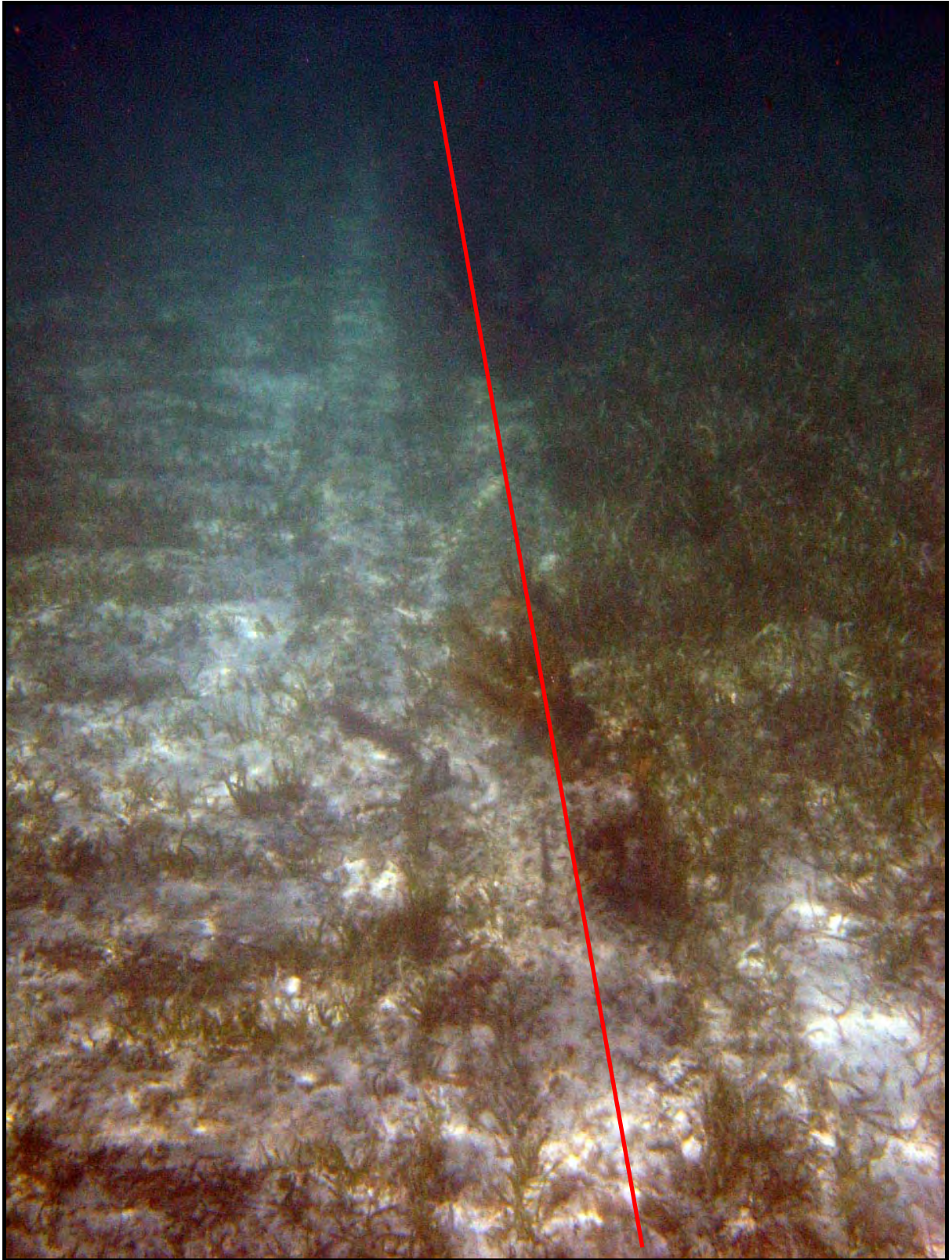


Illustration 28: Illustration showing the keelson down the centre of the picture as shown by the red line. The starboard side shows the encroachment of the sea grass, almost covering the amidships to bow area (© ADMAT Archives – Nielsen).



Illustration 29: Student Sarah E. Chamlee, with archaeologist Kathy Schubert recording the hull planking through the sea grass on *The Button Wreck*, which was a difficult task (© ADMAT Archives - Nielsen).



Illustration 30: Photograph of the sea grass roots digging and destroying the hull ceiling planking on *The Button Wreck* (© ADMAT Archives - Spooner).

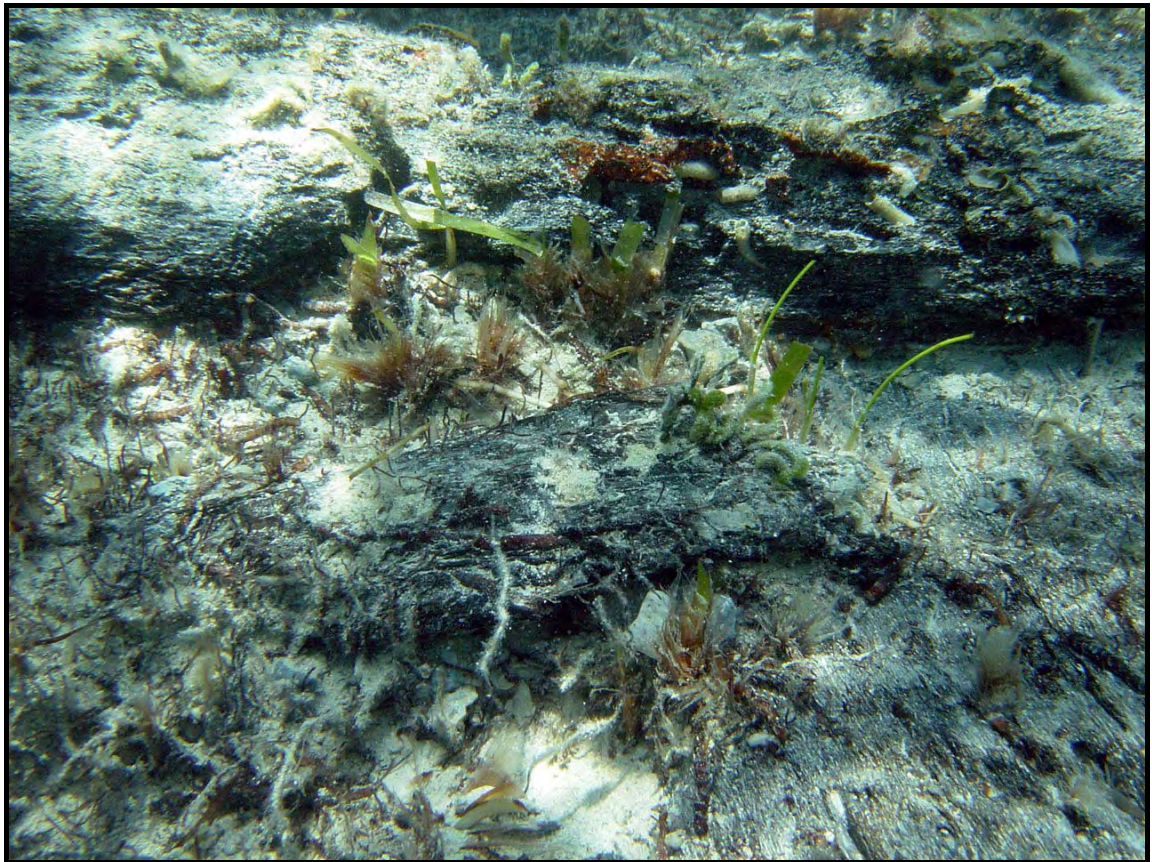


Illustration 31: Photograph showing how the sea grass on *The Button Wreck* can over time destroy enough of the timber so that the wood disintegrates (© ADMAT Archives - Spooner).



Illustration 32: Photograph looking at the Starboard stern quarter bilge streak and ceiling planking on *The Button Wreck* after the grid was removed and prior to re covering. The sea grass contamination is clear to see (© ADMAT Archives - Spooner).

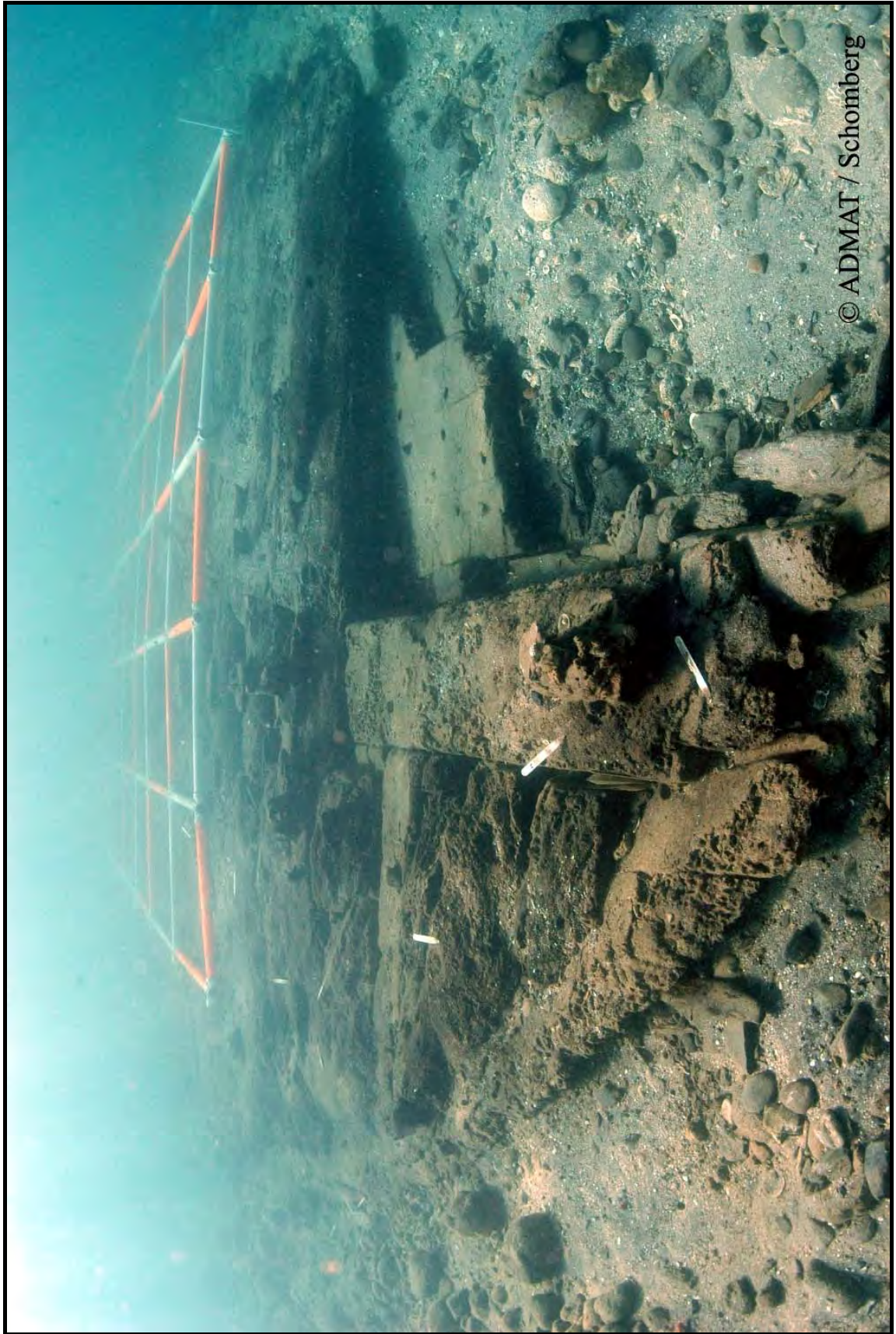


Illustration 33: Photograph of the bow of *The White House Bay Wreck* in St. Kitts, which was archaeologically surveyed with the use of archaeological dredges. By comparison the frames are clearly defined without sea grass (© ADMAT Archives - Schomberg).



Chapter 5: Findings and Results

5.1 Looted Artefacts

The archaeological survey of *The Button Wreck* revealed that as expected, there was an almost complete absence of artefacts on the site. This is due to a number of reasons:

- Salvage at the time of sinking.
- Historic looting after the time of sinking.
- Removal and reburial by storm/ currents and wave action.
- Modern day looting.

The absence of diagnostic artefacts means that the identification and dating of the wrecking is more difficult. From an archaeological view point, when someone removes an artefact from site, even if it is with good intentions, they are creating three problems.

- 1 The item has been removed from the archaeological site, will lose its provenance and the information as to exactly where it was found. The vertical and lateral context is important, as each artefact has a relationship to others within the micro and macro taphonomic process in the Shipped.
- 2 On removing the artefact, damage might be caused to others and the archaeological site. It is very easy for the untrained person to grab the artefact and “tug” it to release it from a concretion or where it is partially buried. In this “tugging” process the artefact or associated finds can easily be broken, whereas if it was properly removed (sometimes taking hours of careful work) it will not be damaged, and can be fully recorded (photo and video) as well as measured. In addition, if the site is uncovered in the process, currents can further affect the site creating further damage than if



the artefact was left in situ, reported and properly assessed by trained maritime archaeologists.

- 3 It is very easy to remove items. The usual items which are looted are iron anchors and cannons. These artefacts are very important to assist with the dating of a site. Once these items of plunder are removed from site conservation problems usually occur. Iron in particular is very difficult, expensive and lengthy to conserve. If the iron items are attacked with a hammer to remove the concretions (a normal practice for the looters), when the concretions are removed the top surface of the iron will be removed damaging the artefact. In addition, if no electrolysis is conducted, the item will literally explode as the salt ions and crystals expand. ADMAT has seen iron cannons looking fine once removed from the sea, reduced to a rotten smelling pile of iron dust after six months.

A handful of small artefacts were found along the keelson line. These will be discussed later. Due to the lack of diagnostic artefacts, the ships construction was the main diagnostic, in that if understood, it could give indications as to the type of ship and purpose. The condition of the remaining hull construction would also give information as to the wrecking process. Obviously the time constraints, and the lack of dredges meant that it was impossible to document and record the bow structure and the amidships. This is very important, as the bow gives vital clues to the type of ship.



5.2 The Ship's Construction

At the time of the archaeological survey, it became apparent that the wreck was very important for a number of reasons, the primary one being that it was one of a very few remaining ships of the Colonial British time period 1740's that was intact in Florida. It is difficult to state why the lower hull is intact, other than good fortune. Dr. Spooner asked Bruce Terrell, NOAA/NMSP Senior Archaeologist for permission to take a number of wood samples. This permission was given verbally during Bruce Terrell's site inspection, but it is unfortunate that the necessary tools were not available to undertake the removal of a number of key samples. This will hopefully be rectified in the next survey during 2006, and will be able to be analyzed to give the origin of the wood and the date of felling.

5.2.1 Overall Dimensions and Framing Pattern

The estimated total length of the wreck is 25+ metres (82.5+9 ft) and 10 metres (33.3 ft) wide from information derived from the survey. However it is very important to uncover the remainder of the ship including the bow so we can get the exact measurements which are vital for the identification of this vessel. We expected to find frames intact but the condition of the remaining timbers was excellent, far better than expected. The wood on average was hard and held its full integrity. The only damage which was apparent was the roots of the sea grass which were destroying the surface layers of the timber. In addition there was an absence of major shipworm damage. A few calcareous tubes were found indicating that there was a presence of worms, but far less than expected. Illustration No:34 shows the calcareous tubes left by the worms. All of the frames were well built and were large for the period. This was a well constructed ship, built in a



shipyard where wood was plentiful. On average the frames were spaced with only a 10-30 mm gap. This ship was built for strength.



Illustration 34: Photograph of the erosion caused by shipworm, and the remains of the calcareous tubes, caused by burrowing worms (© ADMAT Archives - Spooner).

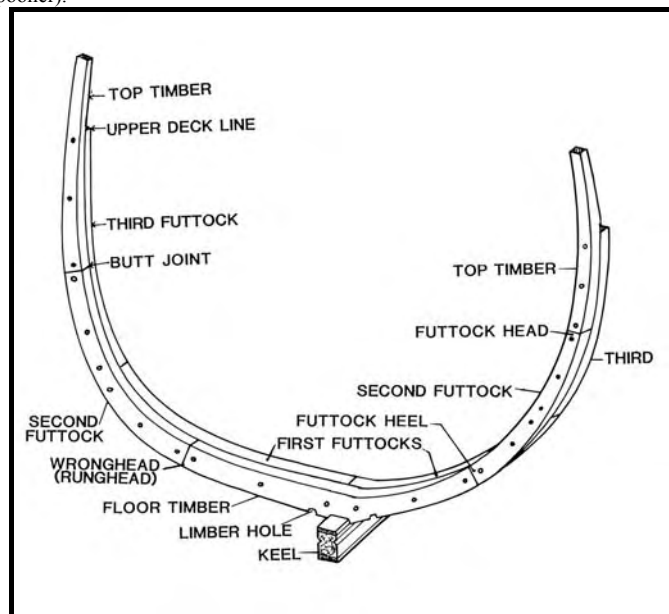


Illustration 35: An example of the positioning of framing and the technical names (© Steffy 1994).



5.2.2 Strakes (Hull Planking)

During the survey the only area of exposed strakes was along the starboard side, from the rear quarter to before the amidships section. In squares A8 to A10 and for a further 4.5 metres (14.85 ft), a strake, probably the bilge strake can be seen under the futtocks and what appears to be the footwale. Unfortunately due to the lack of archaeological dredges, it was not possible to reach the visible edge and obtain the thickness measurement.

This vessel was not copper sheeted, and there were no signs of sacrificial planking. A metal detector survey of the entire area confirms that there were no remains of copper sheeting which is what was expected.

There was however a piece of planking which was covered with lead sheeting. This was located on the bow area. The lead sheeting has a join along the length of the planking, with a tuck, which is a way of joining two pieces of lead together. As no archaeological dredges were present, and it was too deep in the sand it was impossible at the time to uncover more just by hand fanning, to see if this was a broken lead covered strake or something else. Lead sheeting was used to protect hulls of ships in areas where worms were in abundance. Only the surveying and excavation of the bow section would answer this question.

During the proton magnetometer survey, there was an area, in addition on the starboard quarter, which gave positive metallic indications from the metal detectors and magnetometer. At present it is unknown whether this is an anchor, cannon, or caldron from the galley. The area was too deep to hand fan and must be investigated at the



earliest opportunity.

5.2.3 Fastenings

During the survey, no copper nails or bronze bolts were found. The ship was constructed entirely with wooden trunnels and the occasional iron nail. Some of the trunnels were documented, with the diameter and positioning being recorded. Some were not, due to not having archaeological dredges, which made finding the trunnels difficult, as it was impossible to remove all the sand by hand fanning.

Wooden Trunnels.

The diameter of the wooden trunnels falls into two categories. 3 cm diam. trunnels which appeared to be used to attach the ceiling planking to the floors, futtocks, and 4 cm diam. trunnels. These were recorded in the keelson, and the nearest fastening to the centre line on the first futtocks, which were offset with vertical and diagonal ends. Unfortunately due to the ceiling planking being in excellent condition and still attached to the floors and first futtocks, only three sets of exposed first futtock ends were visible for inspection. Upon examination it was not possible to confirm either way as to whether the ship was constructed using 4 cm diam trunnels closest to the centre line or not. On all of the trunnels examined, there was no sign of the ends of the trunnels having v shaped hard wood wedges inserted to expand the trunnel. Some of the trunnels were hand carved, as shown by Illustration No:36 which shows a 4 cm diam trunnel. Illustration No:37 shows a trunnel next to a first attempt at making a hole. There is an almost circular mark, which appears to be made by the shipwright beginning to make a trunnel hole, and then changing his mind and moving the hole a few centimetres and then drilling a hold and fastening at that position.

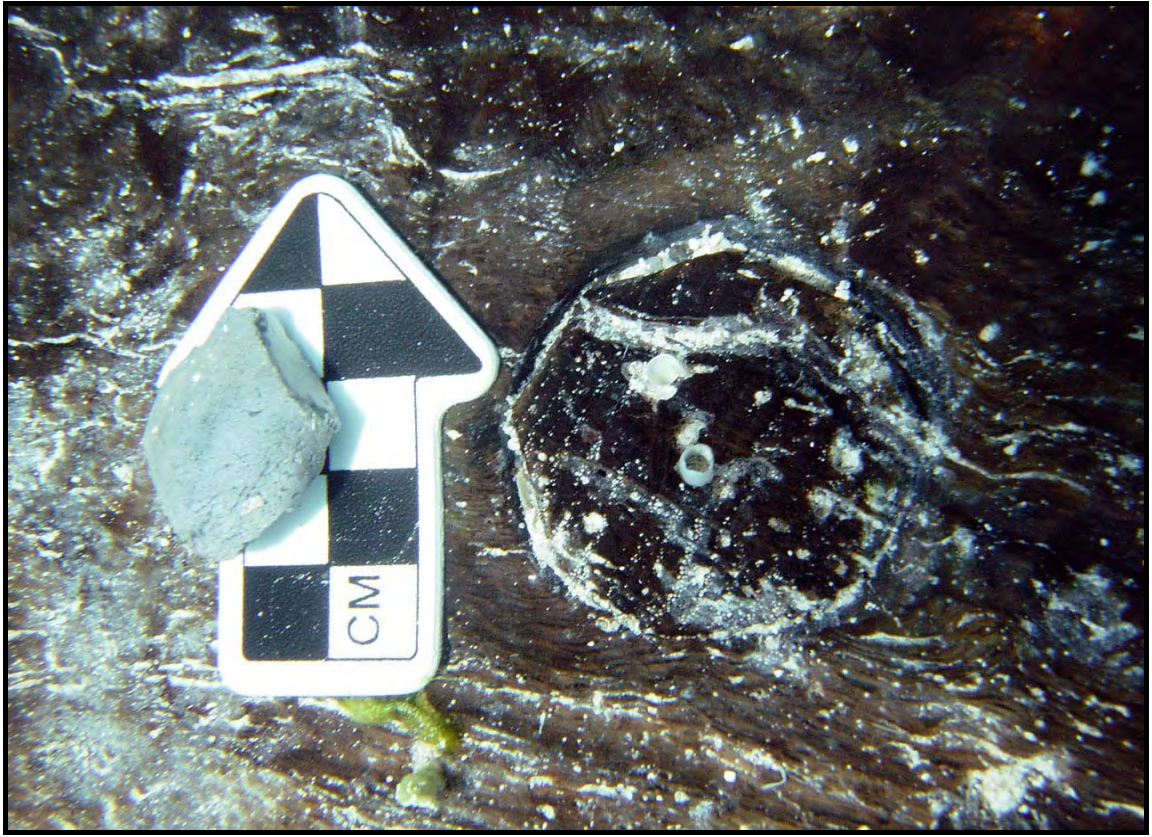


Illustration 36: A 4 cm Diam. wooden trunnel located in a floor on the Button Wreck (© ADMAT Archives - Spooner).



Illustration 37: Above a complete trunnel in its hole, next to an aborted hole attempt, which left an almost circular depression mark., as shown by the red arrow (© ADMAT Archives - Spooner).



Kemp (1976) describes the use of trunnels or treenails as follows:

Long cylindrical pins of oak, which were used to secure the planks of a wooden ship's sides and bottom to her timbers. Holes were bored with an auger through the planks and into the timbers, and the treenails driven home with a mallet. After the ends were cut flush with the planking and frame face, hard wood wedges were driven in at each end, the wedges lying at right angles to the run of the grain of planking and frame to prevent them splitting. They were a diameter of one inch for every 100 feet of a ship's length; thus a ship with an overall length of 150 feet would use treenails of 1 ½ inches in diameter (1976: 887-888).

William Falconer in 1771 stated:

the treenails are justly esteemed superior to spike-nails or bolts, which are liable to rust and loosen (sic) as well as to rot the timber; but it is necessary that the oak of which they are formed should be solid, close and replete with gum, to prevent them from breaking and rotting in the ship's frame. They ought also to be well dried so as to fill their holes when they are swelled with moisture.

The above information is interesting, as it gives an estimated length of *The Button Wreck* of up to 150 ft, which if correct, means that there is a section of the wreck unaccounted for under the sea grass, probably being that of the bow which is a greater length away than the length of the exposed keelson.

Iron Nails

A small number of iron nails were found on site. In Sq: F12 an iron nail was used. The nail head had a concretion fixed to the head. Other iron nail heads were located in Sq: B5 and in Sq: F11 there were the remains of an iron nail, which had been leached into the concretion, leaving only the impression in the concretion.

Keel Bolts.

The ship was constructed using iron keel bolts. All appeared to be made of rolled wrought iron and were set in a single row, double staggered (in pairs diagonally placed). This is an interesting feature. Keel bolts, by their very nature and purpose should be placed down the centre lone, and equally spaced. On *The Button Wreck*, they are not



down the centre line and some are closer together and off set, giving the “paired diagonal” affect. Most of the keel bolts had soft corals growing on them which prevented a through examination. The survey only measured and recorded a portion of the keelson. Approximately a further 10 metres (33.3 ft) of exposed keelson including the amidships and bow sections were not recorded, as we were unable to uncover the adjoining timbers. Two keel bolts shown in Illustration No: 38 & 39 show typical coral growth. One keel bolt in Sq: E7 appeared to be a replacement. The reason for this hypothesis being, that the iron keel bolt was square, and all the others inspected were round. The keelson was missing from Sq: E0 to Sq: E6 and the keel bolts were visible amongst the sea grass. In Sq: E3 a large soft and hard coral growth on the keel bolt prevented inspection. In Sq: E2 a pair of keel bolts were inspected close together in a narrow wooden floor which was shaped in a “V”. These two keel bolts were smaller than the rest with a Diam: 20 mm and 30 mm (the most northern one) and were spaced only 140 mm apart. They were in alignment. In Sq: F3 the most northern keel bolt was 30 mm. in Diam. At present we are not able to explain why the keel bolts protrude above the keelson by up to 20 cm. from the amidships position towards the bow, other than it is probable that some of the height of the keelson has been eroded over the years.



Illustration 38: Coral growth on an iron keel bolt to the south of the area surveyed on *The Button Wreck* (© ADMAT Archives – Spooner).

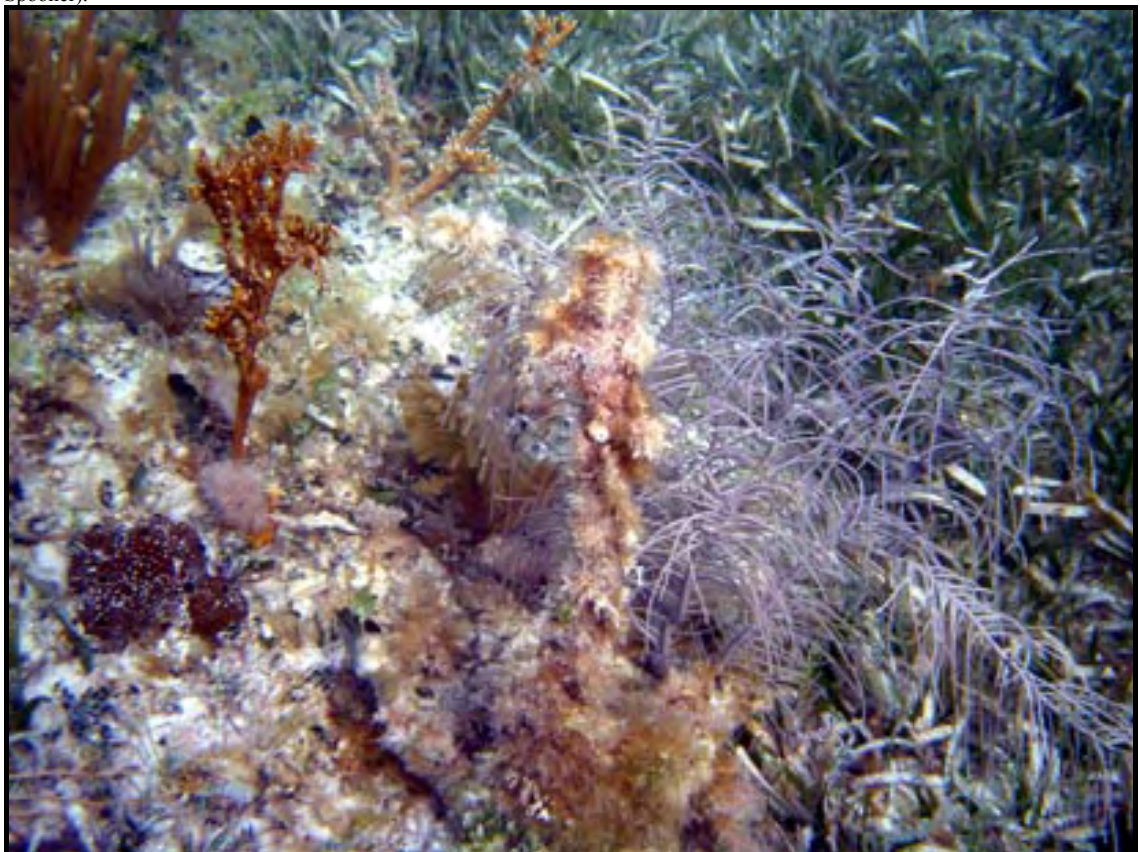


Illustration 39: Coral growth covering one of the keel bolts on *The Button Wreck* (© ADMAT Archives – Spooner).

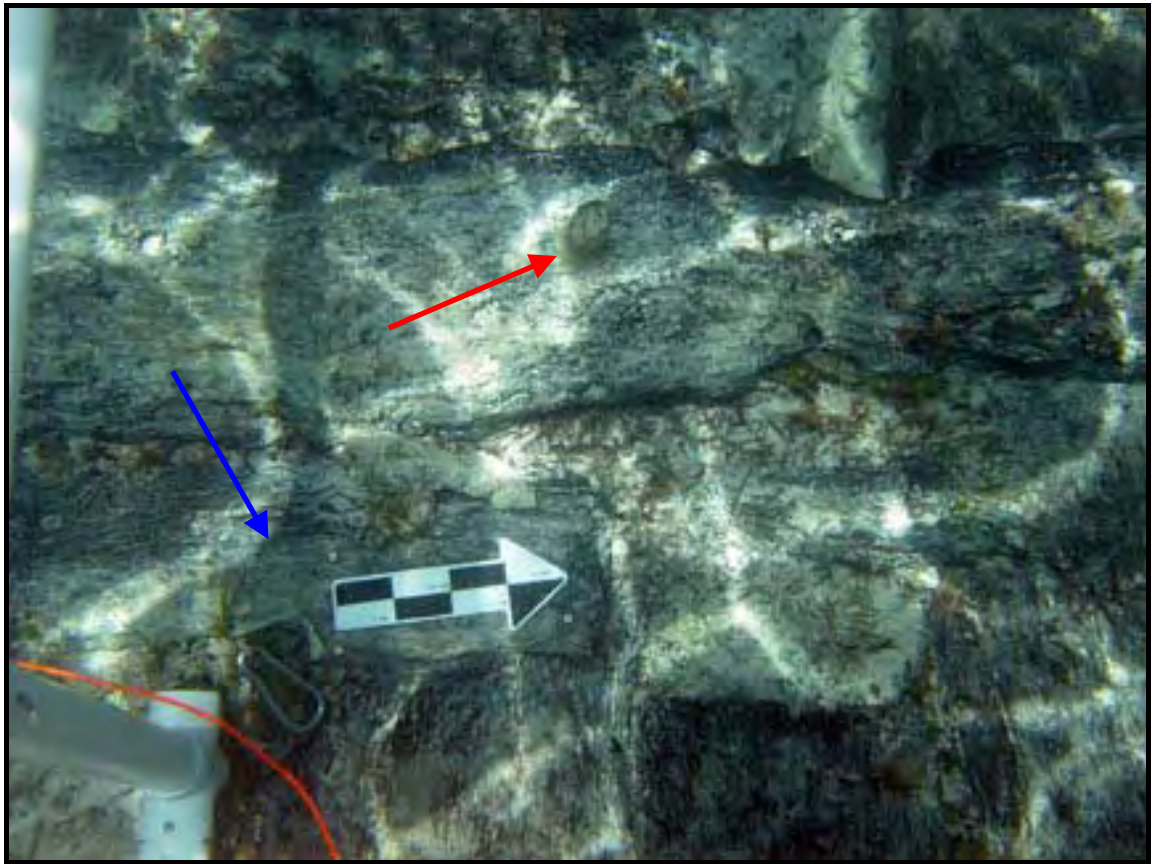


Illustration 40: Keel bolt, as indicated by the red arrow, in SQ: E6. The photo shows the port limber board as shown by the blue arrow (© ADMAT Archives – Spooner).



Illustration 41: Illustration showing the rolled iron keel bolts. This one was placed along the centre line of the keelson (© ADMAT Archives – Spooner).

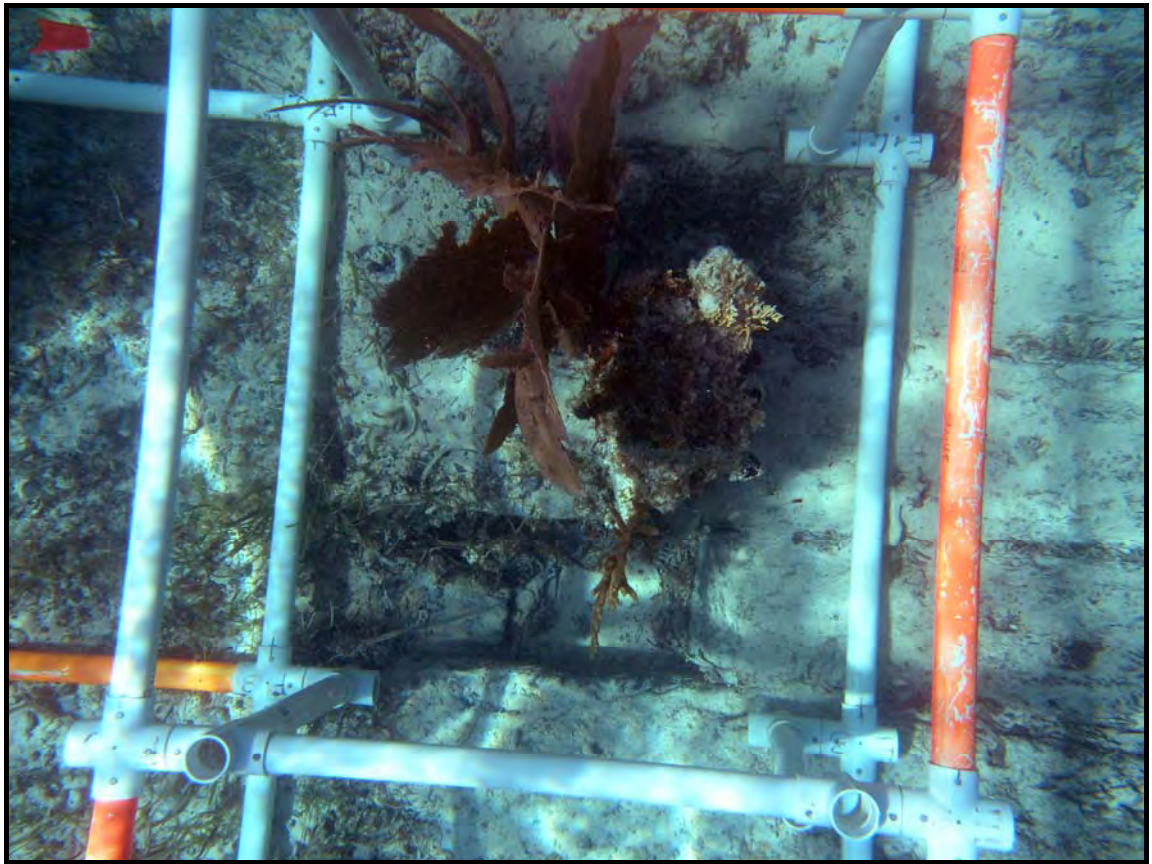


Illustration 42: The coral grown on the iron keel bolt on floor 2, on *The Button Wreck* (© ADMAT Archives – Betts).

5.2.4 The Keelson

The Keelson is “an internal keel in the form of a stringer bolted on to the keel, to provide additional strength and to support the floors” (Kemp 1976: 444). On *The Button Wreck* the majority of the keelson base is intact, which is visible for the majority of the site. Sections are probably missing from the bow although this has to be confirmed. Whilst it is difficult to confirm, from our initial inspection of the un-surveyed section of the keelson, it appears to be made from one piece of timber. The upper section of the keelson has been eroded over time, leaving the keel bolts protruding from the keelson.

The rear four metres of the keelson are missing. Sq: F4 is where the keelson starts to break up and is in two separate pieces. The main intact part of the keelson starts in Sq: E5. The width of the keelson varies. At the broken section in Sq: E5 the width is 20 cm.



which increases, as expected as the keelson becomes less eroded. The largest width recorded for the keelson is 50cm. Illustration No:43 shows the keelson central section with day glow line along the central axis where the keel bolts are located.

5.2.5 Ceiling Planking

The Button Wreck is fortunate to have an estimated 50 %+ of her ceiling planking remaining. Traditionally the ceiling planking is one of the first areas of the lower hull construction which does not survive. Therefore the fact that the ceiling planking remains adds to the exceptional nature of the remaining timbers, and has considerably improved the protection of the lower hull structure.

The ceiling planking is a layer of planking which is fixed to the top of the floors and futtocks. Not only does this add to the structural integrity of the vessel, but the ceiling was also used as a cargo deck on smaller vessels. The ceiling planking is coloured light brown on illustration No:44, where the coral plate and soft coral growth is in green, the keelson in brown and the top of the keel in dark brown. The widths of the ceiling planking ranged on average from 30 cm. to 36cm. In illustration No:45 the ceiling planking is missing on a small section on the starboard side. This reveals the upper surfaces of the floors and futtocks. In illustration No:47 red lines show the ceiling planking if it was not missing.



Illustration 43: The keelson with three visible keel bolts showing and day glow line tied down the central line prior to the grid being erected (© ADMAT Archives – Schomberg).

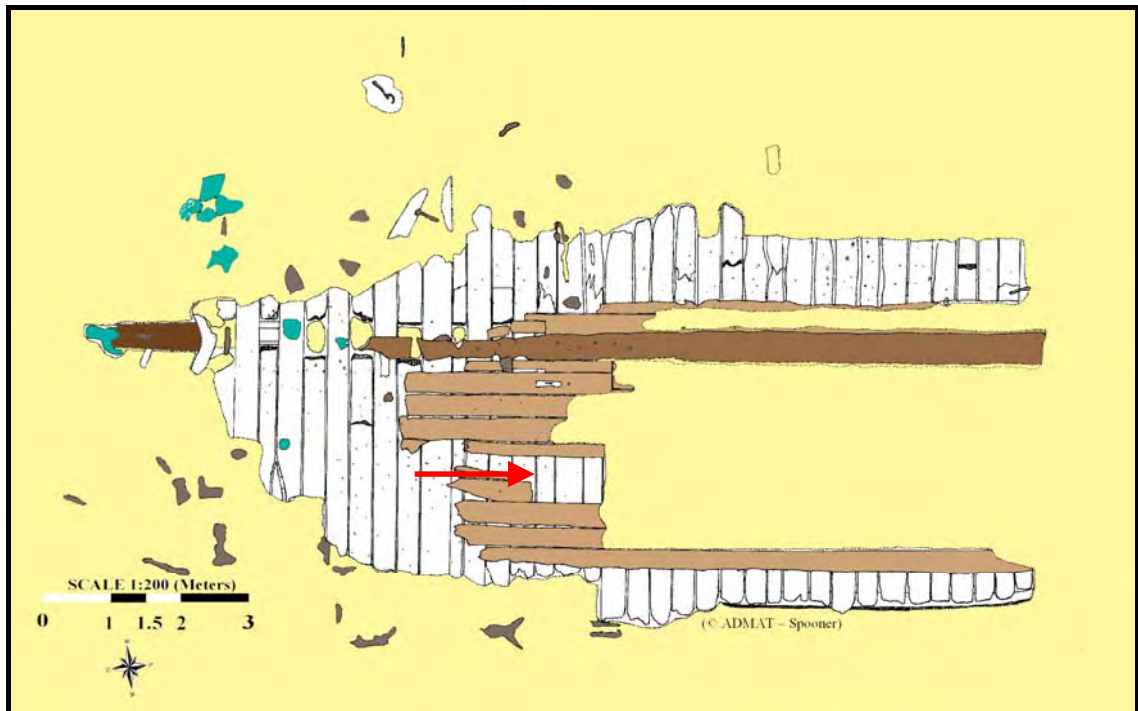


Illustration 44: Scale plan showing 2005 survey of the rear section of *The Button Wreck*. The ceiling planking, as illustrated in light brown, dark brown is the top of the keel, the brown the keelson, the green the coral growth, and the yellow the sand and sea grass areas which were un recorded. The red arrow shows the direction of the photograph in illustration 45 (© ADMAT – Spooner).

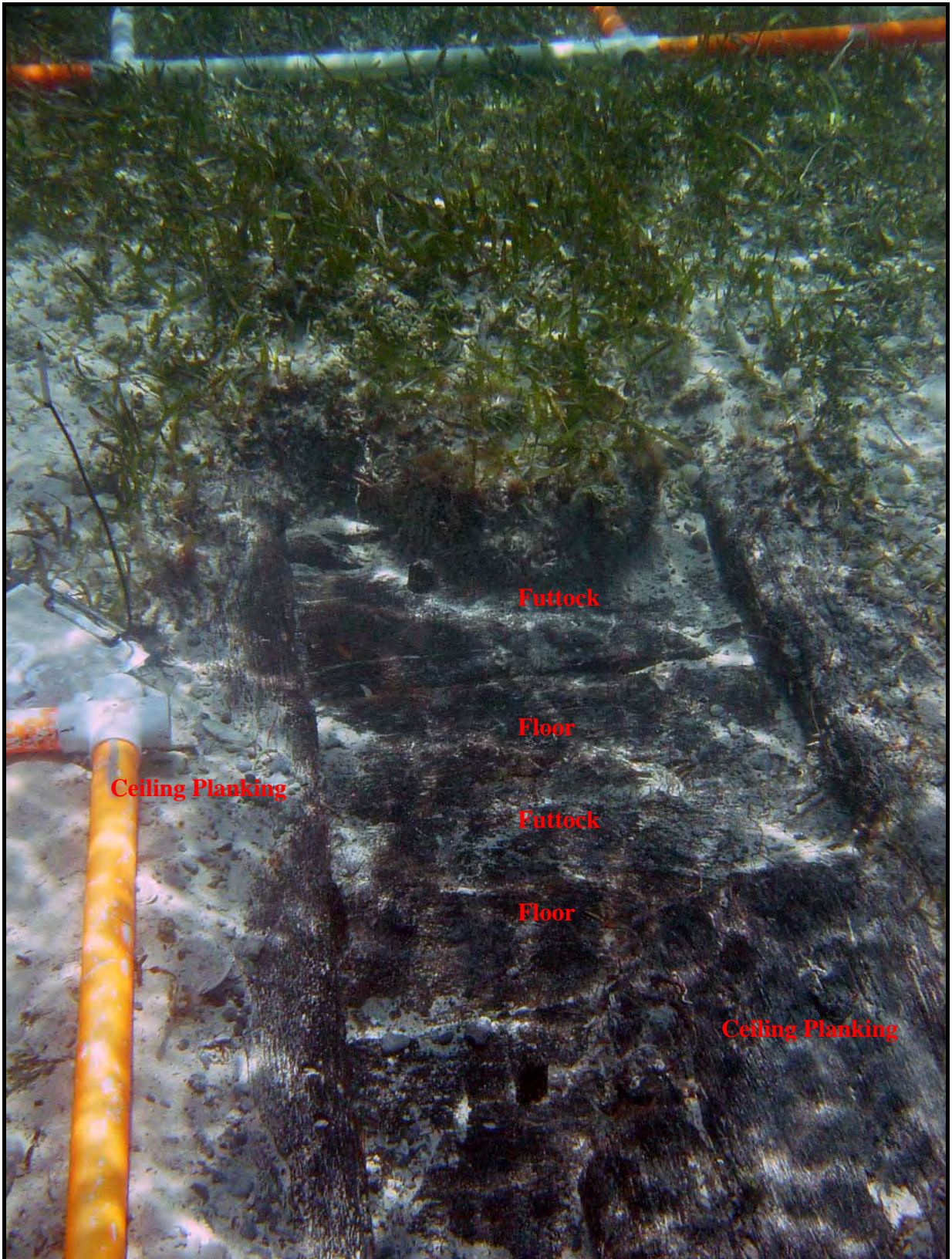


Illustration 45: Showing a section of missing ceiling planking, revealing the top of the floors and futtocks underneath on *The Button Wreck* (© ADMAT Archives – Spooner).



Illustration 46: Showing a section of missing ceiling planking, revealing the top of the floors and futtocks underneath the surface of which has been attacked by the sea grass (© ADMAT Archives – Shrimpton).

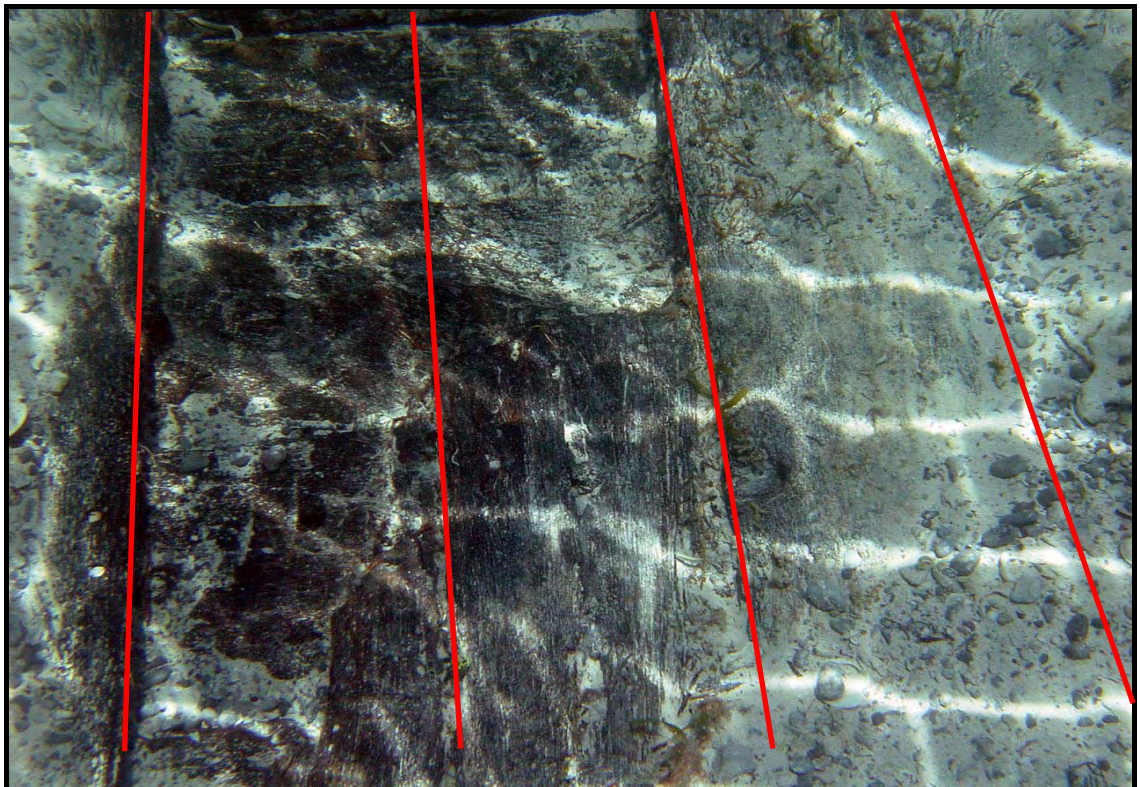


Illustration 47: Ceiling planking on the Button Wreck. The red lines indicate the individual ceiling planks, some of which are missing (© ADMAT Archives – Spooner).



5.2.6 Floors and Futtocks

The understanding of the ship's construction yields important clues as to the type of vessel. The positioning of floors and futtocks assists with the understanding or sometimes creates important questions, which may or may not be answerable from archival research or previous archaeological investigations. It is important to note, that only a small section of the vessel has been documented. The uncovering of the amidships and bow structure will reveal important new information, as to the ships construction. The futtock floor configuration usually does not change on the vessel. If it is floor futtock floor futtock, it will stay that way until the amidships point when the order of the frames is usually reversed. On *The Button Wreck*, the configuration is Floor Futtock Floor. However it is vital that the amidships and bow sections are uncovered and examined.

The Floors and futtocks are the “ribs” of the vessel, and provide the strength and rigidity of the ship. The design and spacing is paramount to the construction and design and type of vessel. Large gaps between the floors and futtocks, saves on wood and makes the vessel lighter. Heavily constructed vessels have the minimal gaps. The country of origin is also an important point. The scarcity of timber was an important factor, as well as design.

From 1677 timber suitable for ship construction was becoming scarce in England and Europe. The English vessels, which were always made of British Oak, were now having sections made of Dantzic oak from the Baltic, as supplies were getting very low. To reduce the requirement for seasoned frames, there was a tendency to increase the spacing of the frames where possible to save on timber and hence reduce the cost (BL.



Addit Mss 9328, f313.).

The French by way of their construction also were finding timber scarce at this time due to so much timber being felled for ships. However they believed in lighter faster vessels, as opposed to the English who believed in solid ships which would be slightly slower but could withstand heavy damage in action. Therefore the spacing on French vessels tends to be greater than an English vessel. Merchant vessels generally also have wider spacing in the frames, as they were not expected to endure battle damage and therefore the owners wished to reduce the construction costs. By comparison, French vessels in the Dominican Republic such as *Le Casimir* and the *Musket Ball Wreck* (Spooner: 2004) were both merchant ships, and so one would expect wider spaces between floors and futtocks. They were also French built which is why the frame sizes were small. *The White House Bay Wreck* was much larger than *The Button Wreck* at an estimated length of 160ft. The floors and futtocks had an average gap of 1.5cm. This ship was an English ship, built possibly 1740-1760s and was also built with solely trunnels. The average gap on *The Button Wreck* varied from 2.0 cm near the centre line to 5.0 cm at the floor 2nd futtock join. Some measured gaps at the ends of the futtocks on the turn of the bilges were on average 5.0cm rising to 7.0 cm in some places. Exact gap measurements were not always possible due to the sea grass.

The Floors.

The lengths of the floors were not able to be obtained. This was due to the sand and grass covering too much of the remains of the vessel. In addition the ceiling planking covered areas where it was expected to have timber joints. Illustration No:48 adds the numbered floors to the scale drawing, which are coloured in brown as indicated. The



numbering starts from the stern and increases towards the amidships. Floor 1 or possibly No: 2 is the aftermost square frame, after which the stern cant frames should be visible. It is very difficult to ascertain which one it is due to the sea grass which prohibits a clear picture of the frames. 18 Floors were documented and in the areas inspected no joining futtocks were seen. The average width of the floors was 340 mm in width. In comparison the floors are the same width as the *White House Bay Wreck*, (320 mm in width) in fact some of the floors are larger. That vessel was built at the same time period and extended to well over 100ft in length.

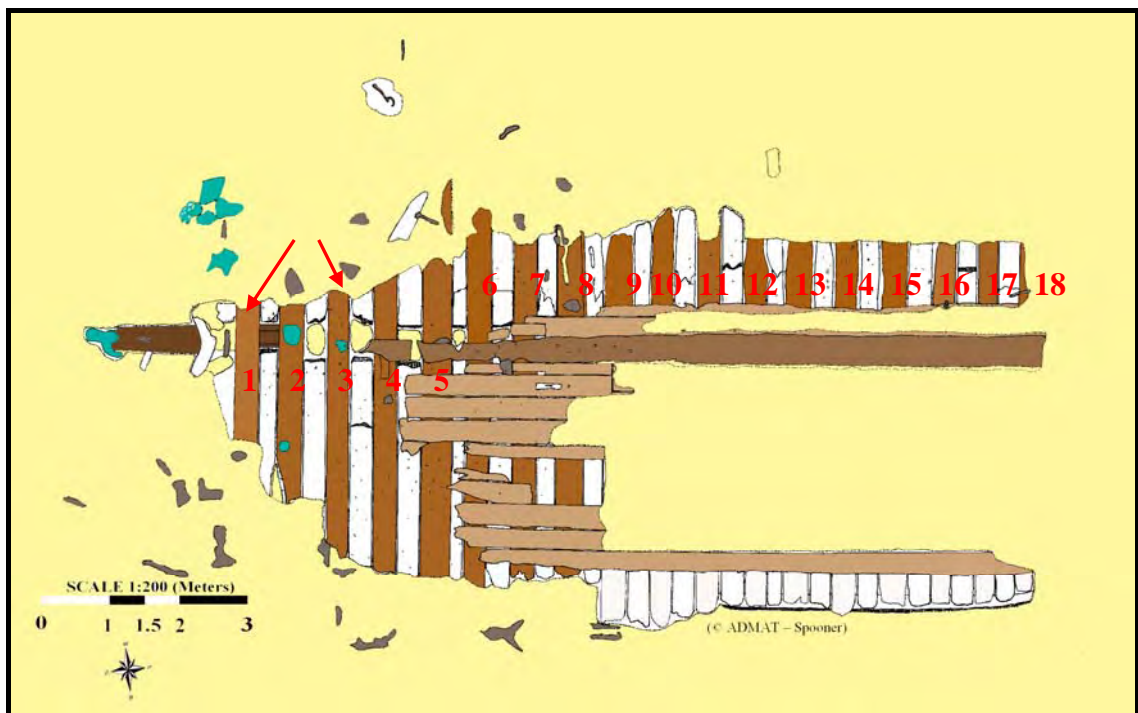


Illustration 48: Scale plan of *The Button Wreck*, adding the floors to the previous illustration and shown by a red arrow. The ceiling planking, as illustrated in light brown, dark brown is the top of the keel, the brown the keelson, the green the coral growth, and the yellow the sand and sea grass areas which were un recorded (© ADMAT - Spooner).

The section on the starboard side leading to the possible turn of the bilge has not had the floors coloured in the plan. This is because at some point the floors will have 2nd futtocks attached to them. Due to the ceiling planking, it is not possible to confirm that



the join between the floor end and the 2nd futtock has or has not occurred. If it has and is covered by the ceiling the floors will no longer be floors but futtocks. In addition the total length of the floors has not been ascertained. Looking at the floors on the exposed port rear quarter, the possible length of the floors from the central line is 3.5 m (11.5 ft) which is taken from the exposed No: 4 floor.

At present, and taking into account large areas of the site are still covered by sea grass, the estimated width of the wreck is at least 10 metres (33 ft.). During the 1700s shipwrights were using a 1:3 ratio between the width of the vessel and the length. This seems correct as from our initial survey 25 metres (82.5 ft) has been positively identified. This figure excludes the bow and stern cant frames. The bow cant frames could be another 5 metres (16.5 ft.) which adding the stern cant frames, takes the length of the wreck to over 100ft. A 1:3 ratio would place the width of approximately 10m+ (33ft+).

Illustration No:49 & 50 show the port and starboard side of the floors and the corresponding numbers assigned to them.

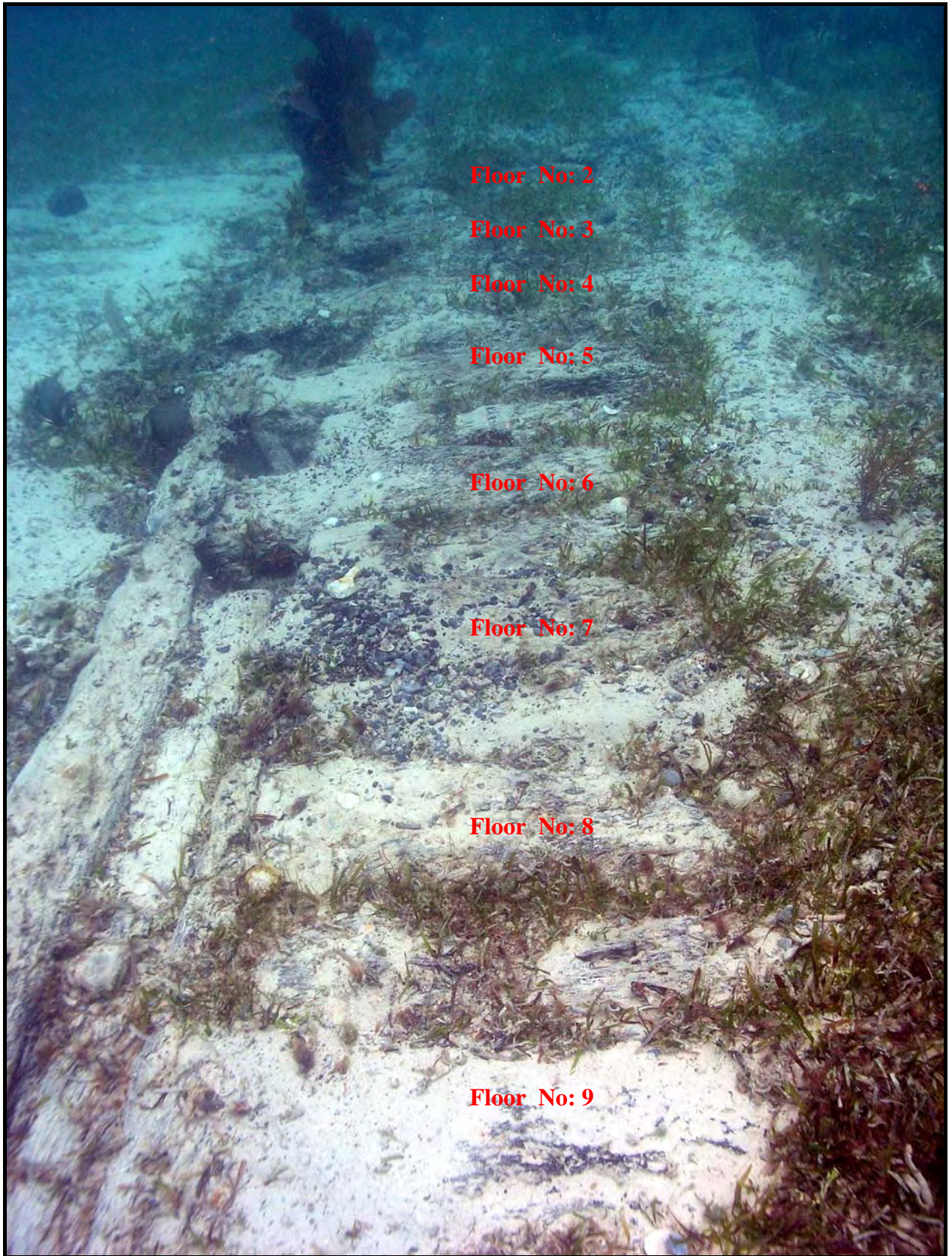


Illustration 49: Floor positioning on the port rear quarter of The Button Wreck, with floor numbers illustrated in red corresponding to the plan (© ADMAT Archives – Shrimpton).

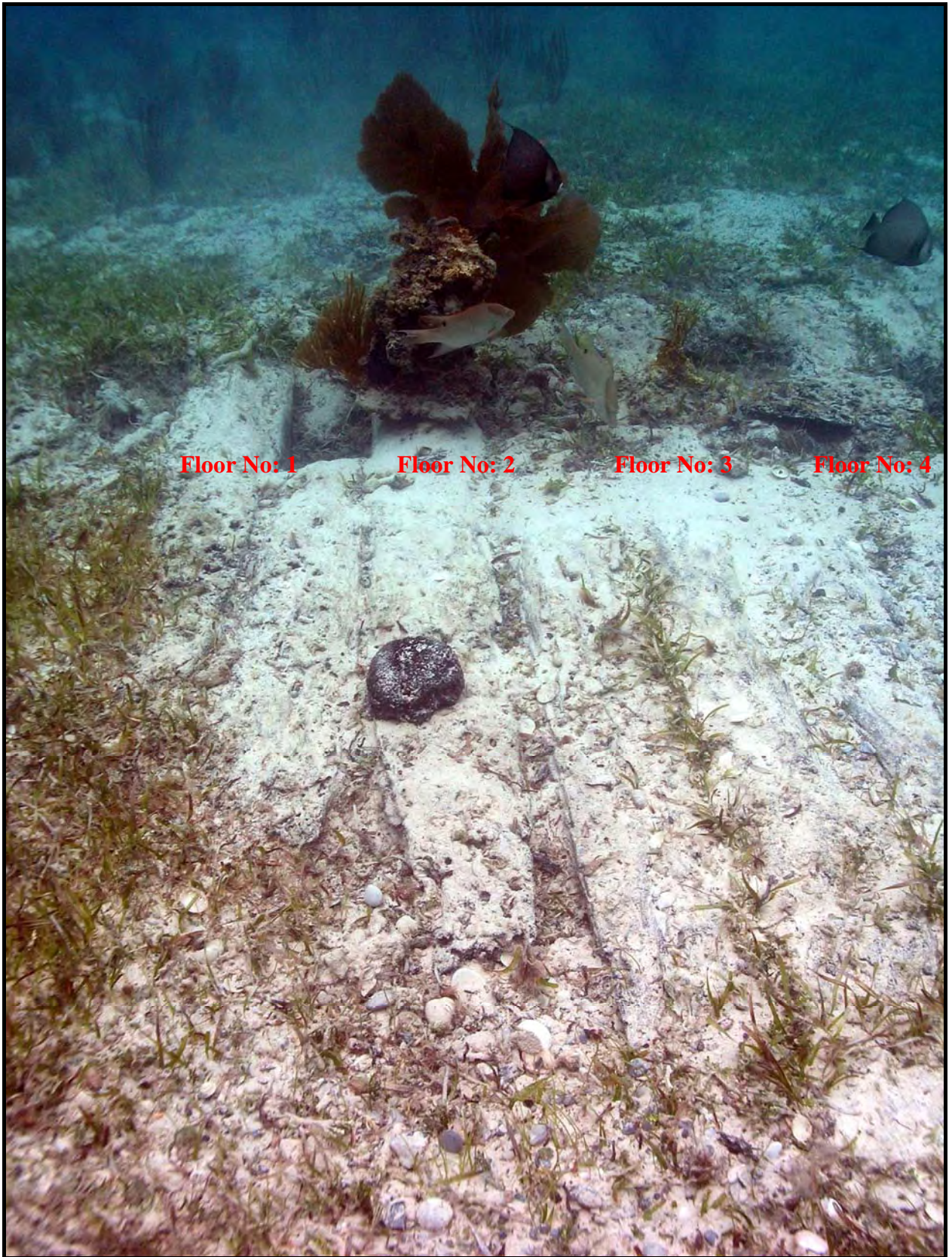


Illustration 50: Floor 1 to 5 on the starboard rear quarter of the Button Wreck (© ADMAT Archives – Shrimpton).



The Futtocks.

The position of the futtocks depends on the definition. There are a number of futtocks which make up the ribs and frames of the ship. Traditionally the “First” Futtock is the one closest to the centre line. On the Button Wreck, the First Futtock is clearly the futtocks which almost meet along the centre line and are spaced between the floors. Thereafter the futtocks are staggered, so that the Second Futtock is attached to the end of the Floor, and the Third Futtock attached to the end of the First Futtock and so forth, as shown in Illustration No:35.

All of the 1st futtocks were off set from the central line and are shaped so that the lower section protrudes farther out than the upper one at a combined angle of about 45° to the horizontal. The futtocks were a single height, unlike The White House Bay Wreck, which had double height futtocks. Lavery states:

In the early 1700s the first futtocks stopped short of the keel leaving a space, which formed a gutter for the bilge water. After 1715 strength took over priority and the first futtocks were brought down to meet over the keel. The ends were cut at an angle and a wedge was fitted between them in the hope of strengthening the join (Lavery, B. 1984: 32).

As only one “Hole” for a better description between the leading edges of both the port and starboard futtocks was uncovered, there is insufficient data to produce an average distance that these First Futtocks were off set from the centre line. The shortest was 12 cm and the largest gap was 50 cm from the centre line. Illustration No:52 to 54 show the Floors with the Futtock ends and the uncovered “Hole” which was uncovered in Sq: E3. The ends of the futtocks appear to have been finished in a quick manor, and have not been sanded to form a flat surface. In fact you can clearly see the carpenter’s tool marks which are on the face of the futtock in Illustration No:54. The tool used was probably an adze. Illustration No:51 shows the First Futtock configuration on the port side.

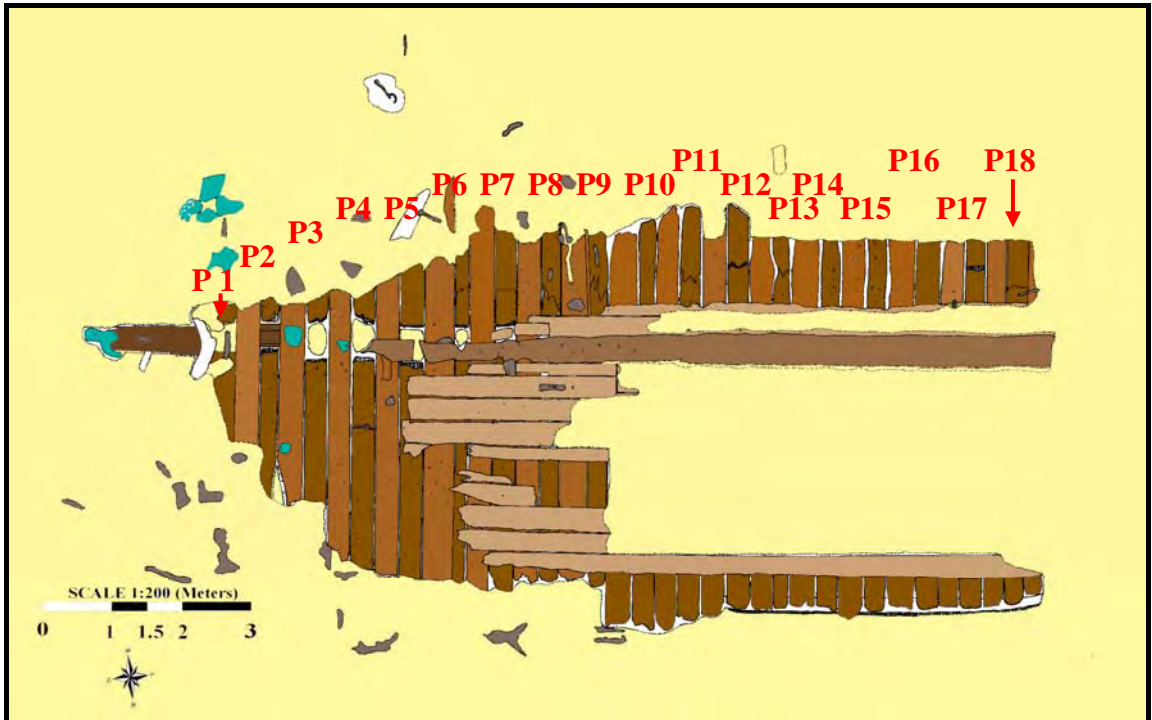


Illustration 51: Showing the 18 port side numbered First futtocks in dark brown as shown by the red arrows on two of them for clarification (© ADMAT Archives – Spooner).

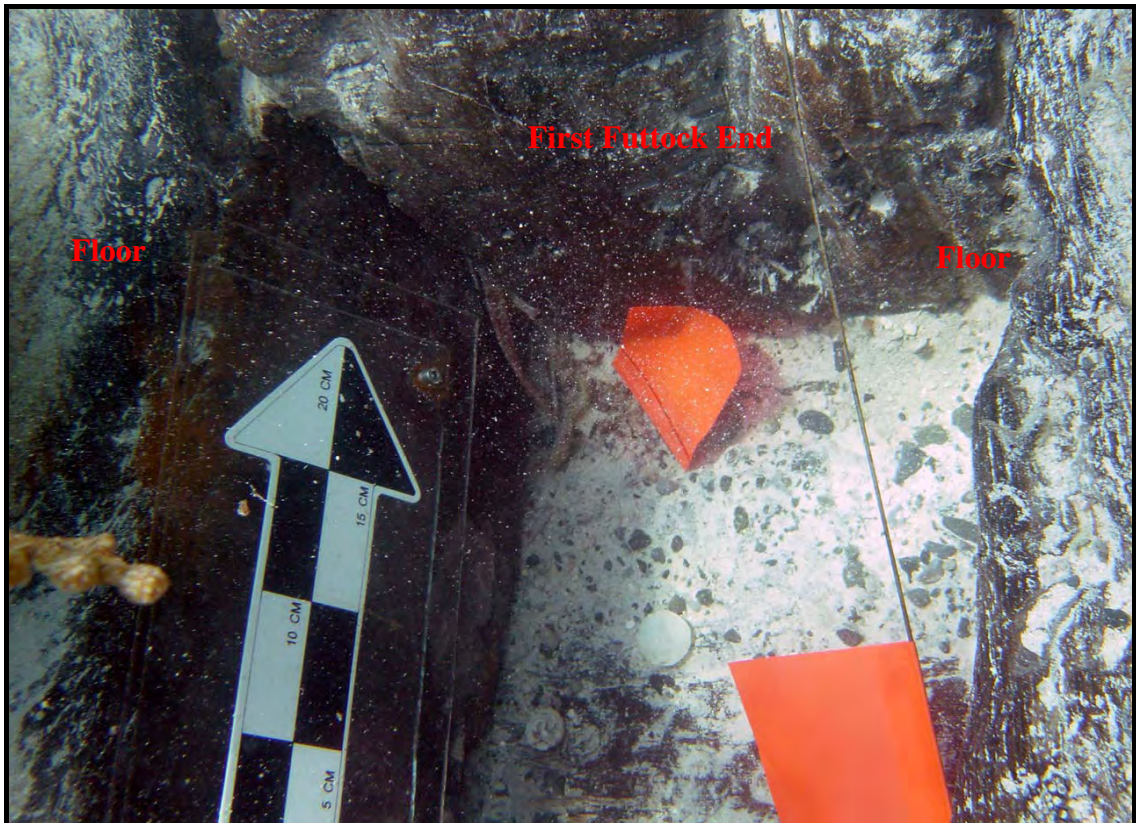


Illustration 52: The "Hole" on *The Button Wreck* caused by the two floors and the futtock ends off set as illustrated (© ADMAT Archives – Spooner).

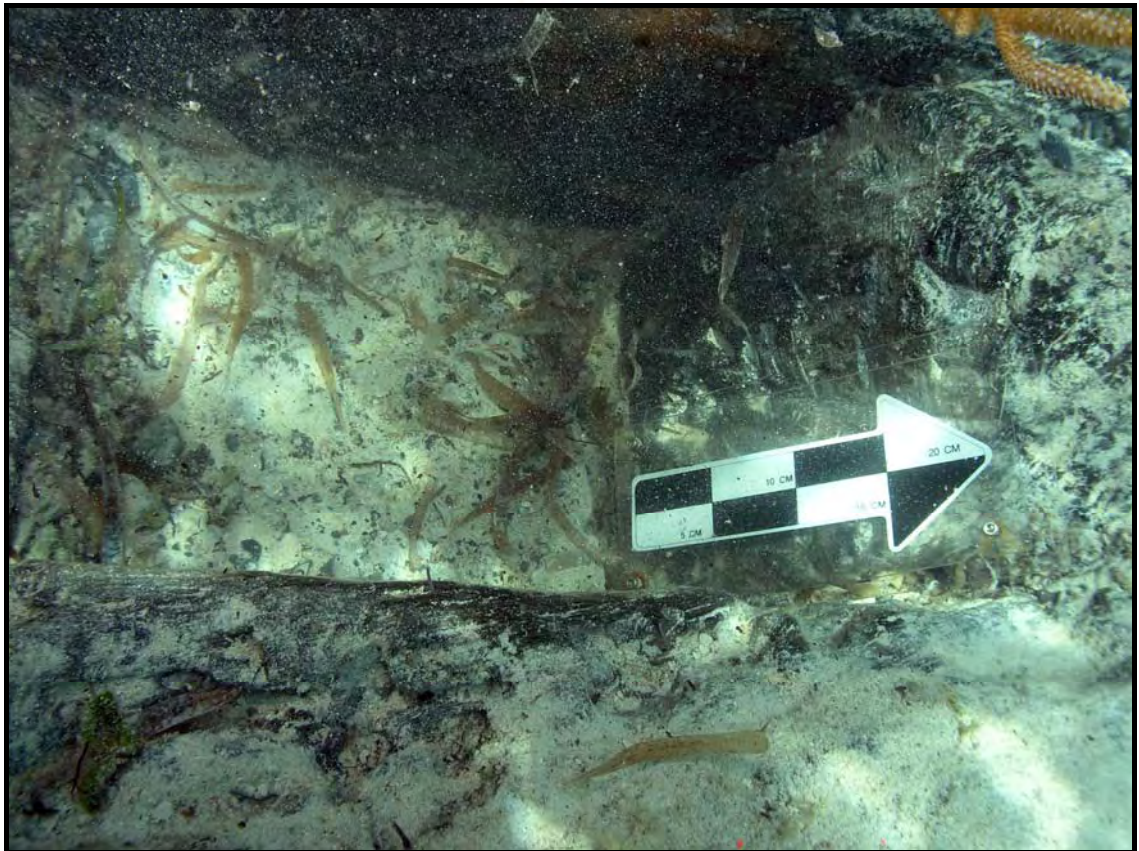


Illustration 53: Looking down into the “Hole” on *The Button Wreck* (© ADMAT Archives – Spooner).



Illustration 54: Looking at the end of the first futtock, on *The Button Wreck*, which is offset from the centre line. Here you can clearly see the carpenter’s tool marks (© ADMAT Archives – Schomberg).

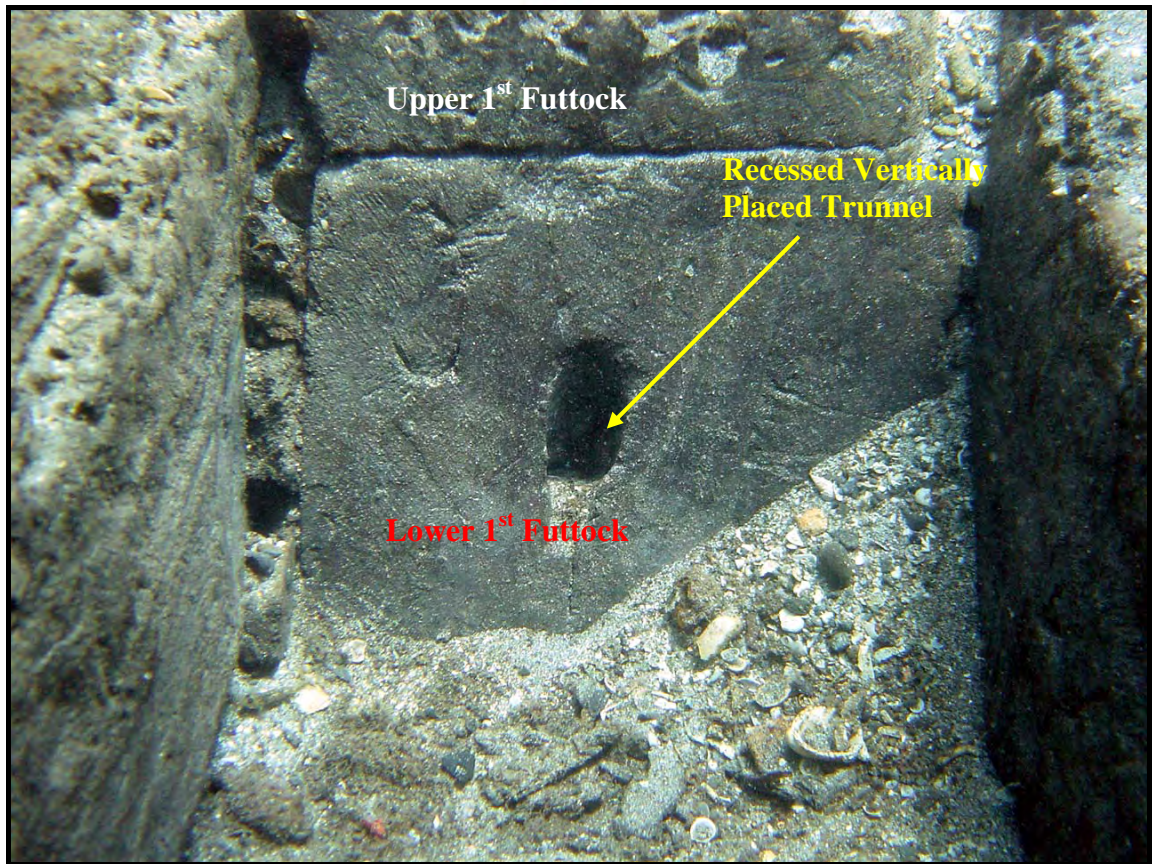


Illustration 55: The ends of the double heightened 1st futtocks, showing the lower and upper sections trunneled together, by a vertically drilled trunnel, which has a recess on *The White House Bay Wreck* for comparison (© ADMAT Archives).

Illustration No:55 shows the off-set recessed double heightened futtocks on *The White House Bay Wreck* in St. Kitts as a comparison (Spooner; 2003). Some of the futtocks on *The Button Wreck* appeared to possibly have top fillets. These are number: 6,7,8,9,11,12,13,17&18. This is probably done to solve a problem, in that depending on the angle of deadrise the lower hull was not flat but concave. If the frames were attached directly to the hull, they would produce a slightly curved surface with the slant towards the centre line. However if the frames were perfectly horizontal, by using top fillets to take away the slant, then the ceiling planking (cargo deck) could be attached directly to the top of the frames and would be perfectly horizontal, desirable for efficient cargo loading. *The Button Wreck* does have a ceiling which may well have been used as a cargo deck for storage of munitions and supplies.



There were no defined double frames (ie two frames closer together or even touching, other frames, forming pairs for strength and rigidity in the construction). Most vessels have distinguishable double frames, which are usually a floor and futtock together, *Carron Wreck* and the *Musket Ball Wreck* (Spooner; 2004) provides good evidence of this, where as the *Tile Wreck* did not have double floors simply because there were no “1st futtocks” and this ship was designed having the futtocks butt jointed in single frame and the 1st futtock was in the position of the 2nd futtock. In addition there appears to be no horizontal bolts or staples on the floors and futtocks, which one would normally expect.

Possible Repair or Double Frame.

As has been mentioned, the distance between the floors and the First Futtocks, was varied but on the whole more than 10 mm. Illustration No:56 shows a typical gap between the two frames. However in Sq: B5 & C5 a futtock (No:6) on the starboard side was much narrower than the others at an average width of 140 mm. In addition there was no gap between this futtock and the floor. The timber was abutting the floor perfectly. At present we believe that this is a repair, although there are a few questions about this hypothesis as to repair a futtock, the ceiling planking would have to be removed and replaced. There appeared to be no sign of additional trunnel holes and there was no ceiling on these floors to compare. In addition to make such a perfect join requires superb craftsmanship, which is not seen elsewhere. Illustration No:57 & 58 show the absence of any space between these two frames. There is another hypothesis, being that this is not a repair, but a double frame. Only further intrusive survey work will answer this hypothesis.



Illustration 56: The gap in Sq:C4 between the floor and first futtock, showing a typical gap (© ADMAT Archives – Shrimpton).



Illustration 57: The gap in Sq:B5 and C5 between the floor and first futtock, showing the possible repair and the touching timbers, which was only found between these frames (© ADMAT Archives – Shrimpton).



Illustration 58: The gap in Sq:B5 and C5 between the floor and first futtock, showing the possible repair and the touching timbers, which was only found between these frames, taken from a different angle (© ADMAT Archives – Shrimpton).

5.2.7 Ballast Stones

During the survey, no large ballast stones were found. The wreck would have had large quantities of ballast, which would have been a good diagnostic. However none was found. This was possibly due to salvage at the time, or subsequent salvage work. In addition it is a high probability that the ballast was washed away from the site by hurricanes over the years. Further use of archaeological dredges on the edges of the site might well uncover sections of ballast, which will give vital clues.

Small ballast “Chips” were found along the centre line. Permission was not given to have them raised so that a geologist could identify them. However pictures and descriptions of them were given to Denis B. Trelewicz who is a geologist.

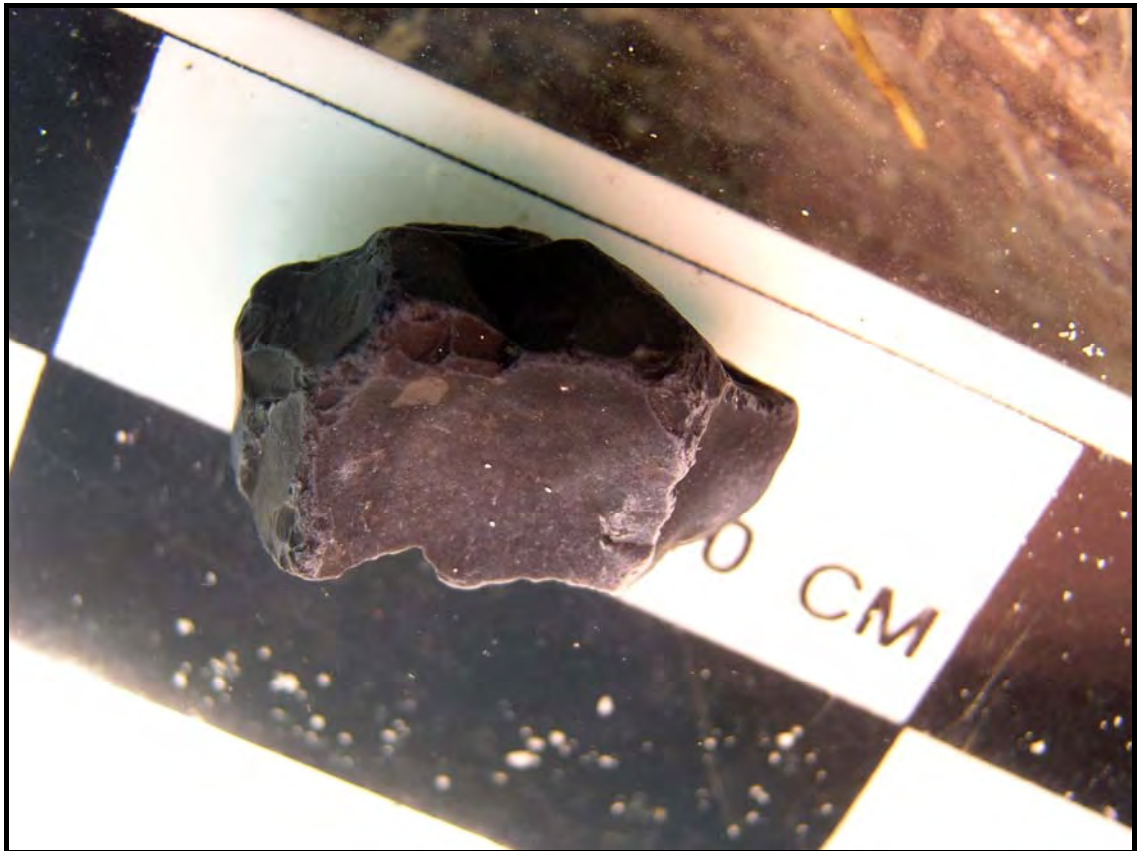


Illustration 59: one of the small ballast stones found on the central line under the keelson, on *The Button Wreck* (© ADMAT Archives – Shrimpton).



Illustration 60: A selection of ballast "Chips" found under the keelson in the futtock "Holes" on *The Button Wreck* (© ADMAT Archives – Nielsen).



He suggested that the stones might be chert and flint from the River Thames in England, which certainly was used as ballast during the ships time period. This if correct, indicates that at some stage the vessel was in England. Illustration No:59 shows one of the small pieces of stone, found along the centre line and left in situ, and illustration No:60 a number.

5.2.8 Angle of Deadrise

The angle of dead rise is the angle from the horizontal to the side of the lower strakes. Fast ships had a high angle because they need to cut through the waves. Slower vessels such as merchant ships and larger men of war have low angle of deadrise. As an example, the French privateer ship *La Vengeance*, a copy of the American style pilot boat was designed for speed and has a high angle of deadrise. This is clearly shown in illustration No:61. The French Brig *Le Cygne*, whilst built much later in 1806 shows the high angle of deadrise associated with fast Brigs (illustration 62).

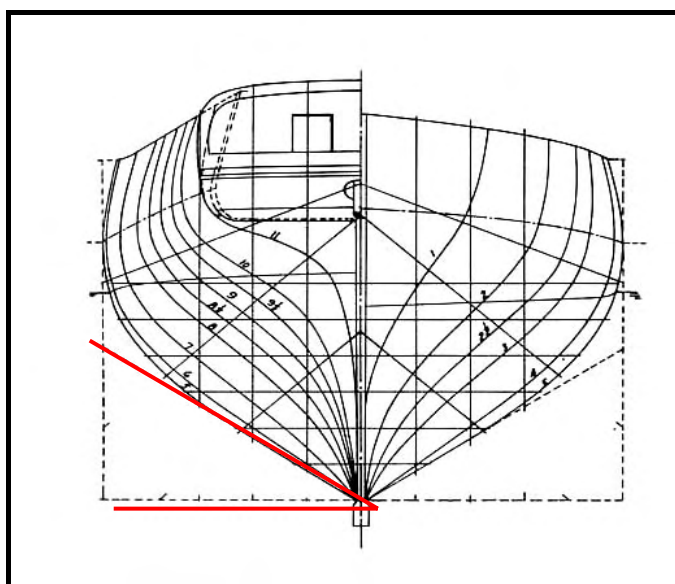


Illustration 61: The American designed, French privateer sloop *La Vengeance*, built 1795, showing a high angle of deadrise as shown by the red lines (© ADMAT Archives & NMM).

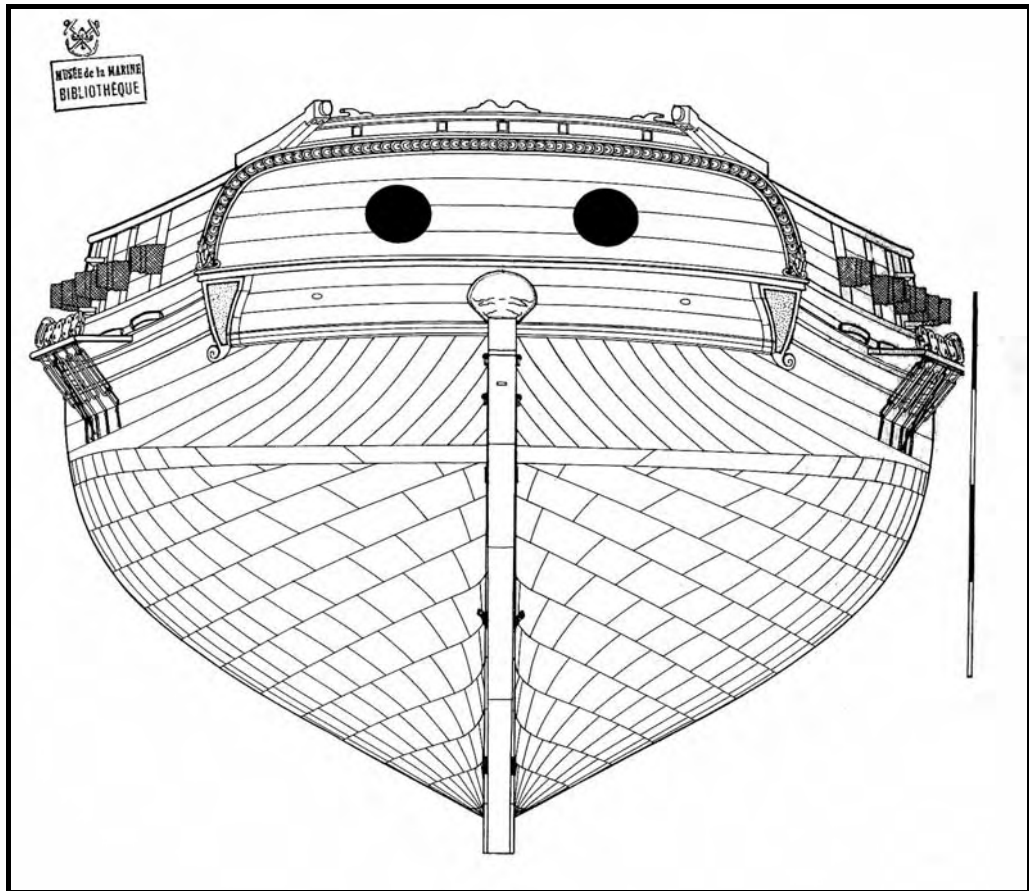


Illustration 62: The French Brig *Le Sygne*, also showing high angle of deadrise (© Boudriot).

The angle of deadrise is much flatter for frigates by comparison, even though some of the American brigs were almost the same size in length and tonnage (Chapelle, 1945: 57). *HMS Tarter*, whilst a larger ship than *The Button Wreck* it is a good example of the difference in angle of deadrise. This cross section is shown in illustration No:63. The profile of *HMS Boston* 1762 also shows the difference in angle of deadrise (illustration No:64).

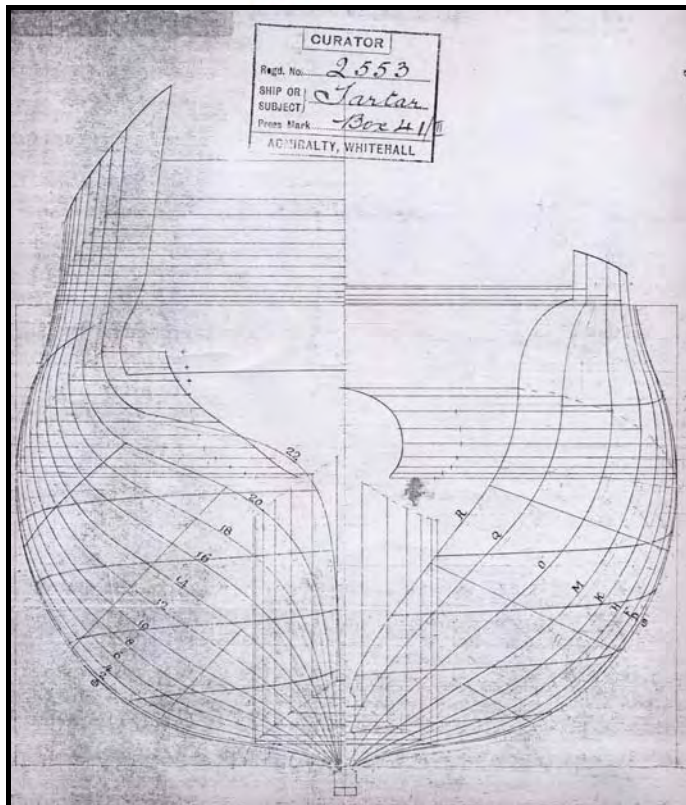


Illustration 63: *HMS Tartar* 1756 6th rate, cross sectional profile showing low angle of deadrise (© ADMAT Archives & NMM, 2A23198).

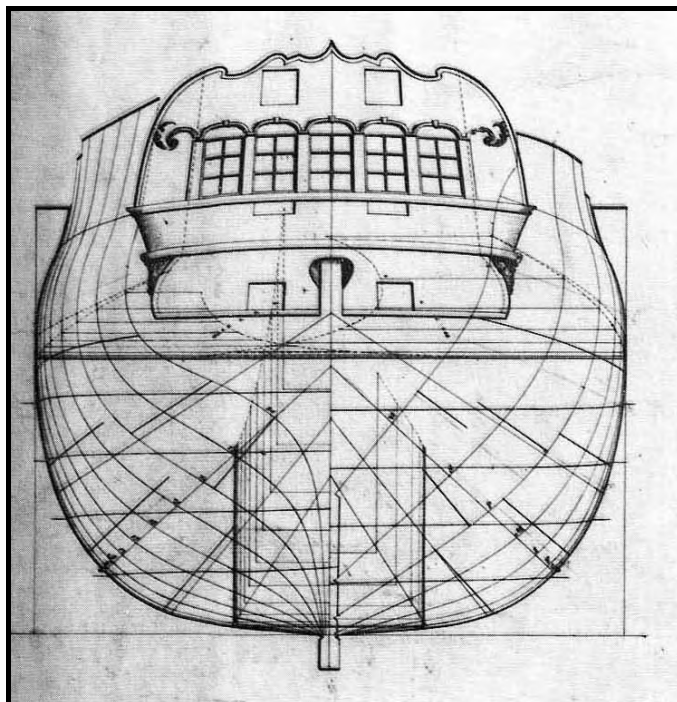


Illustration 64: *HMS Boston*, 1762 a 32-gun 5th rate frigate, which lasted until 1811 (© NMM in Gardiner, 1992a: 24-25).



At present, we cannot calculate the angle of deadrise on *The Button Wreck*, as we do not have access to the side profile or the bow, and we need to use archaeological dredges to uncover the amidships point. The only indication that the angle of deadrise is larger than smaller is from a treenail found on site. In Sq: F8 (one meter from the keel) a treenail of 40 cm long was found in the hole. This was loose and was withdrawn, measured and then replaced. However, this can only point to the thickness of the futtock and without further examination, it is impossible to establish the necessary angles required to conduct a scale drawing. Additional treenails would also have to be measured before the angle could be calculated with any certainty.

5.2.9 Limber Holes, Limbers Channels, Limber Boards and Limber Strakes

The limbers are constructed so that the water runs for and aft towards the amidships point which is the lowest point in the ship. This is usually at the centre line and where the pumps are situated. As no archaeological dredges were in use it was impossible to inspect the pumps.

Limber holes are little square holes cut in the bottom of all the ground timbers next to the keel, right over the keel, about 3 or 4 inches square. The use whereof is to let the water pass to the well of the pump, which else lies betwixt the timbers (Lavery, 1987:67).

The limbers are channels which also act as the bilges. In fact the offsetting of the futtock ends creates good areas for water to collect and in effect forms the bilges. To allow water to pass the floors, it is usual for the floors to have round holes cut in the underside on both sides. This would be in alignment with the limber channels so that water could flow freely. The limber channels may well have been created by a deadwood being placed on top of the keel. The deadwood would be smaller in width to the keel top thereby creating rectangular channels. This is what we believe we have on *The Button*



Wreck. Upon examination in square E3, when the sand was hand fanned away shown by illustration No:65, the two futtock ends and the floor sides were clearly seen. At the base of the hole, the limber channels were visible. There are no such limber holes cut into the underside of the floors, just a gap where the recess created by the deadwood which creates in effect holes in the underside of the floors. As only one hole was uncovered, it was not possible to check the limbers for perfect alignment. What was interesting is that whilst parallel, the two limber channels were not equal. The one on the port side had a width of 10. cm whilst on the starboard side, the limbers only had a width of 2 cm. In addition there was concretion on the starboard side. The limbers on this vessel were in correct alignment.

The same arrangement was found on *The White House Bay Wreck*, in St. Kitts, and is shown in illustration No:68 & 69.

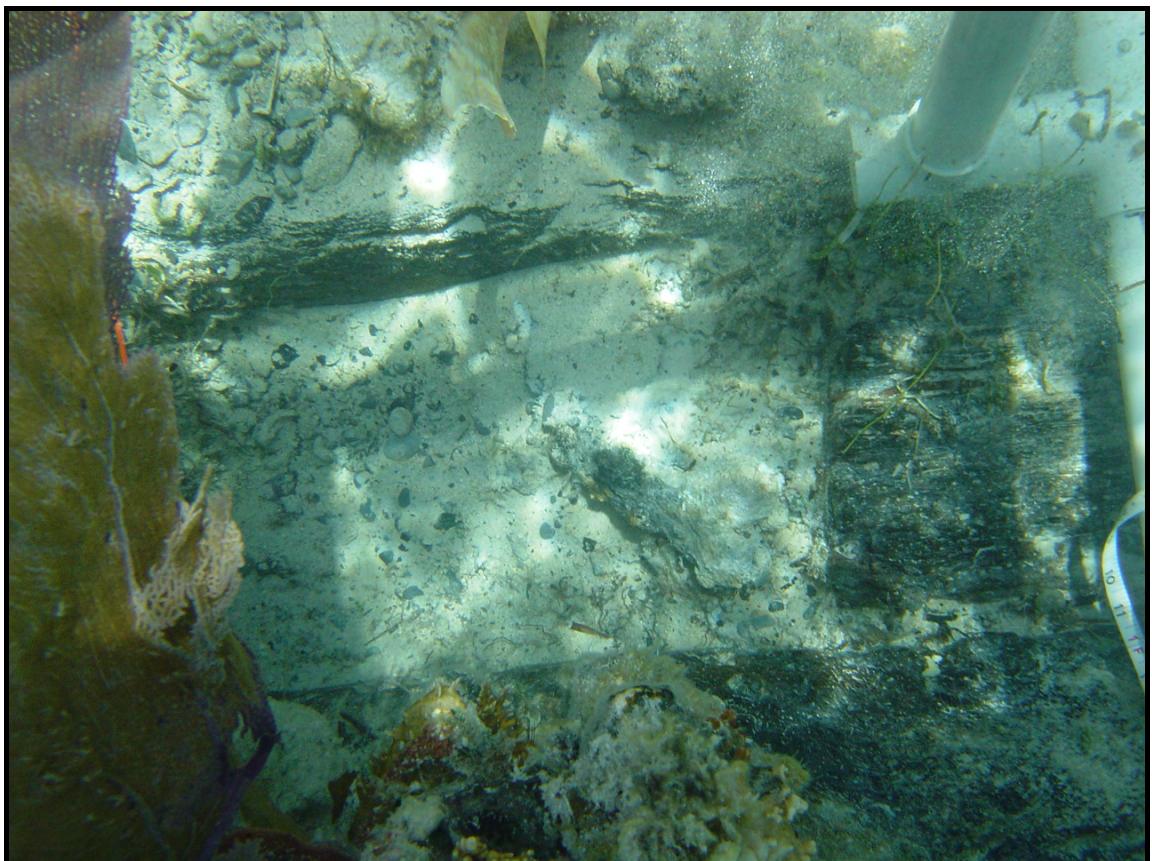


Illustration 65: The area of the hole made by the futtock ends and the sides of the floors prior to uncovering by hand fanning, on *The Button Wreck* (© ADMAT Archives - Spooner).

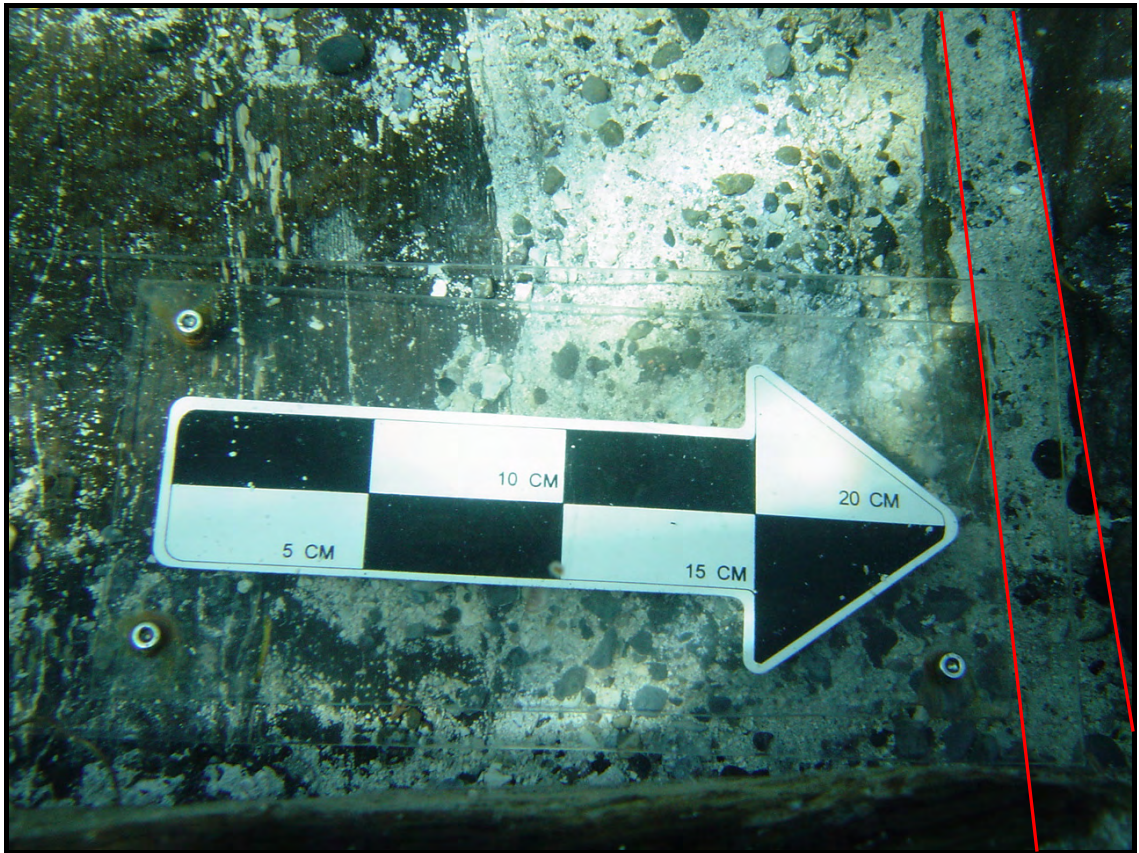


Illustration 66: The port side limber channel shown by the sides in red lines, next to the concretion in Sq: E3 on *The Button Wreck* (© ADMAT Archives - Spooner).

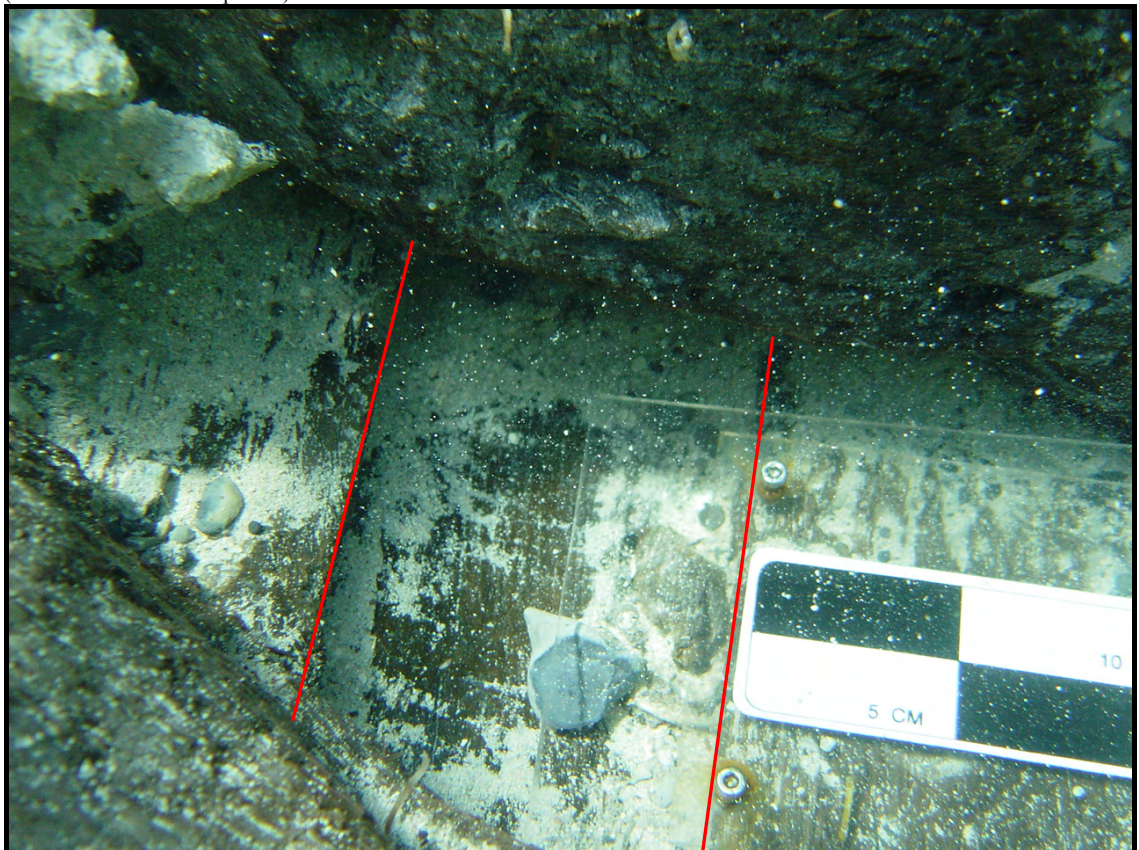


Illustration 67: Limber channel on the port side shown by the red lines of *The Button Wreck*, in Sq: E3. The port side was 10cm wide. There appeared not to be any limber holes cut into the underside of the floors (© ADMAT Archives - Spooner).

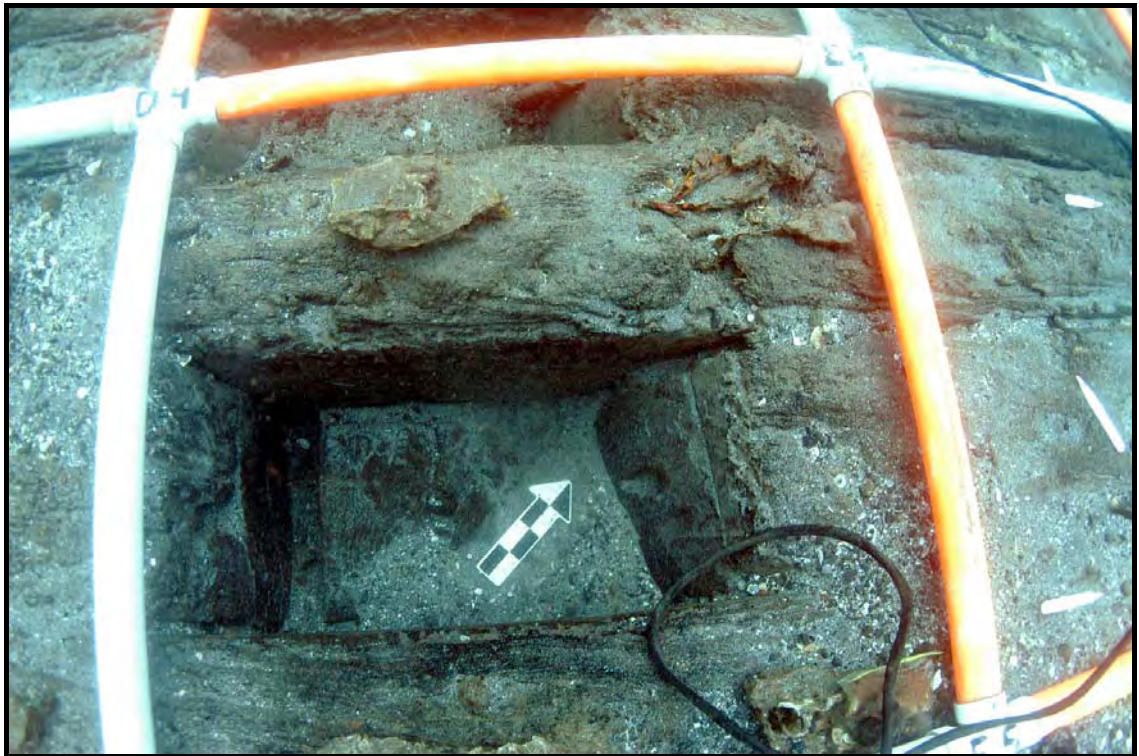


Illustration 68: The limbers on the port side on *The White House Bay Wreck*, in St. Kitts for comparison (© ADMAT Archives - Schomberg).



Illustration 69: Close up of the port side limbers on *The White House Bay Wreck*, in St. Kitts for comparison, shown by the red arrow. The starboard side has not been cleared in this picture (© ADMAT Archives - Schomberg).



The Limber Board is the planking which goes from the top or side of the keelson down diagonally to the limber board, is usually in smaller sections. It is removable so that an inspection of the bilges and limber channels can be made and cleaned if necessary (like a modern day hatch). It also keeps small ballast from falling into the bilges and blocking the limber channels and limber holes. Whilst archaeological dredges were not used and therefore the over burden of sand and grass could not be removed, it appears that the limber board and Limber strakes are still in situ on the wreck, from 5 metres down the keel line from the stern to the bow. In the uncovered section the limber boards and limber strakes were not found, and it appears that they had not survived.

5.2.10 The Gudgeons

The Gudgeons, whilst it is an important artefact in its own right, will be discussed in this ship's construction chapter. The gudgeons braces and their assembly was located 3.05 meters from reference point AO on the corner of the grid and 5.8 meters from the end of the exposed keel/deadwood on a bearing of 60 degrees. The gudgeon assembly has created a very scenic reef, full of fish life. The Gudgeons are the hinges which the rudder hangs from. Two iron gudgeons were found, concreted to iron sheeting which we assume went around the sternpost for additional strength. The sternpost is the end of the ship, to which sheeting on this wreck was wrapped around the edge and then the gudgeons were affixed to that, (by way of 6 iron bolts which went through one side of the gudgeon, the sheeting, the sternpost and then through the sheeting and the other side of the gudgeon).

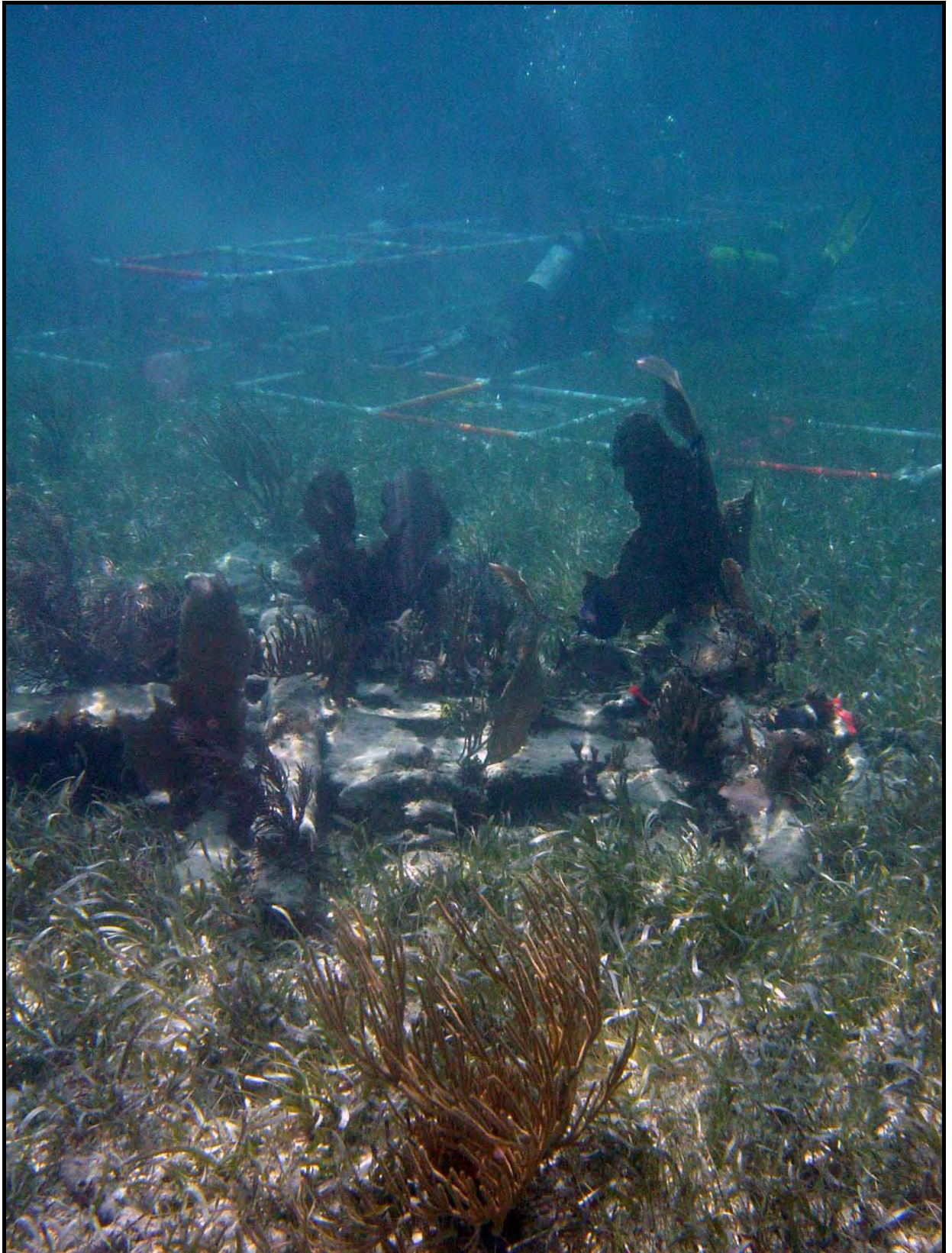


Illustration 70: The Gudgeons with *The Button Wreck* grid in the distance (© ADMAT Archives - Spooner).



Illustration 71: Close up of the east gudgeon and the concreted iron box which possibly connected the missing gudgeons (© ADMAT Archives - Nielsen).



Illustration 72: Close up of the east gudgeon and the concreted iron box which possibly connected the missing gudgeons (© ADMAT Archives - Nielsen).



The two gudgeon braces were described as east and west. The west gudgeon was clearly defined. The bolts were spaced at 150 mm intervals and were 110 mm wide and 70 mm deep. The whole piece was protruding out of the sand but the hole for the pintle was buried in the sand. The gudgeon was 1,200 mm long (inc concretion) and 260 mm wide (inc concretion) at the widest part. Concreted to the eastern side was the remains of the box iron sheeting which was 1,030 mm wide to which the second gudgeon, the East gudgeon was concreted.

The east gudgeon was 220 mm (inc concretion) wide at the widest part tapering to 140 mm wide at the other end (the nearest end from the pintle eye) and 1,700 mm long. This gudgeon brace was heavily concreted. The widths of the bolts vary from 170 mm height, 160 mm deep and 25 mm. wide. They were spaced at 110mm. to 160 mm. The pintle hole was visible although concreted; it gave a “D” appearance, flat on the inner side and round on the outer. The external dimensions are 100 mm. (inc concretion) by 350 mm. (inc concretion).

To the east of this was another iron box sheeting which had been bent at 45 degrees out of line. It is assumed that there must have been other gudgeon braces which are probably buried in the sand. Illustrations No:70 to 76 show the gudgeons and their reef.



Illustration 73: Both of the surviving gudgeons and their associated reef, on *The Button Wreck* (© ADMAT Archives - Nielsen).

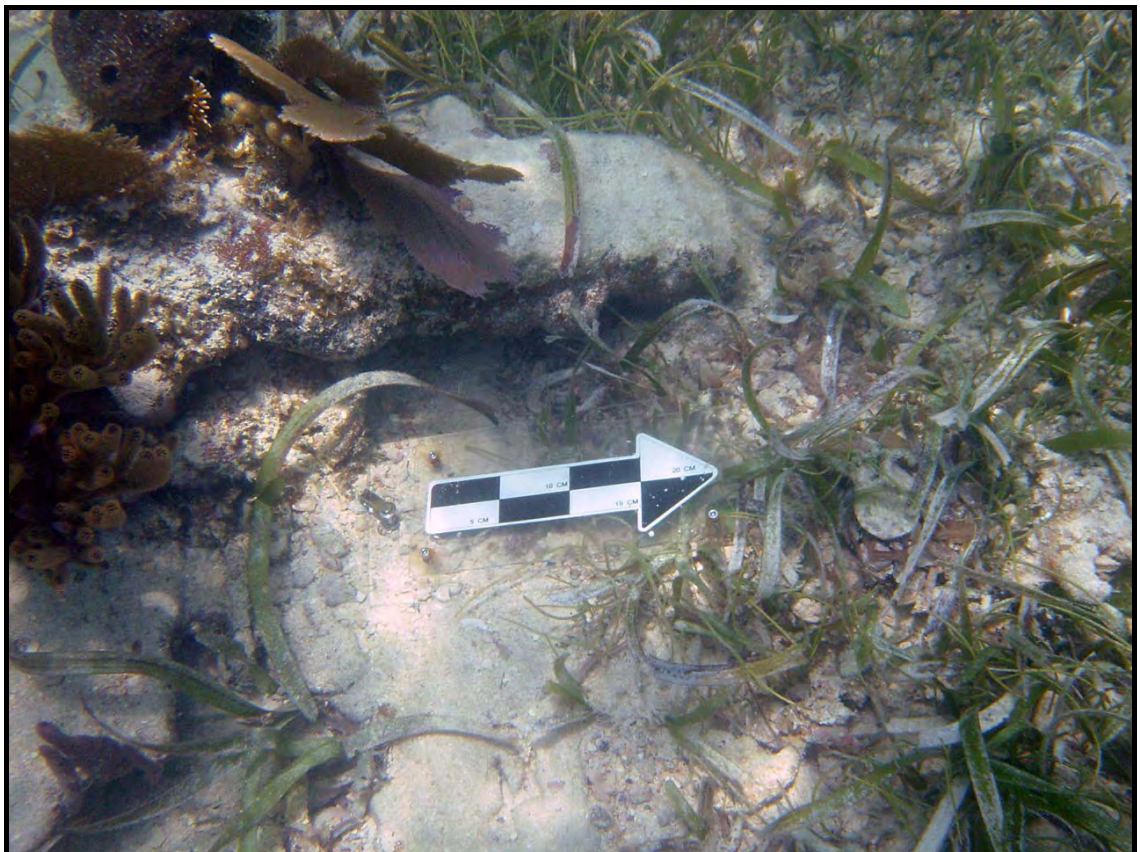


Illustration 74: The western gudgeon (© ADMAT Archives - Spooner).

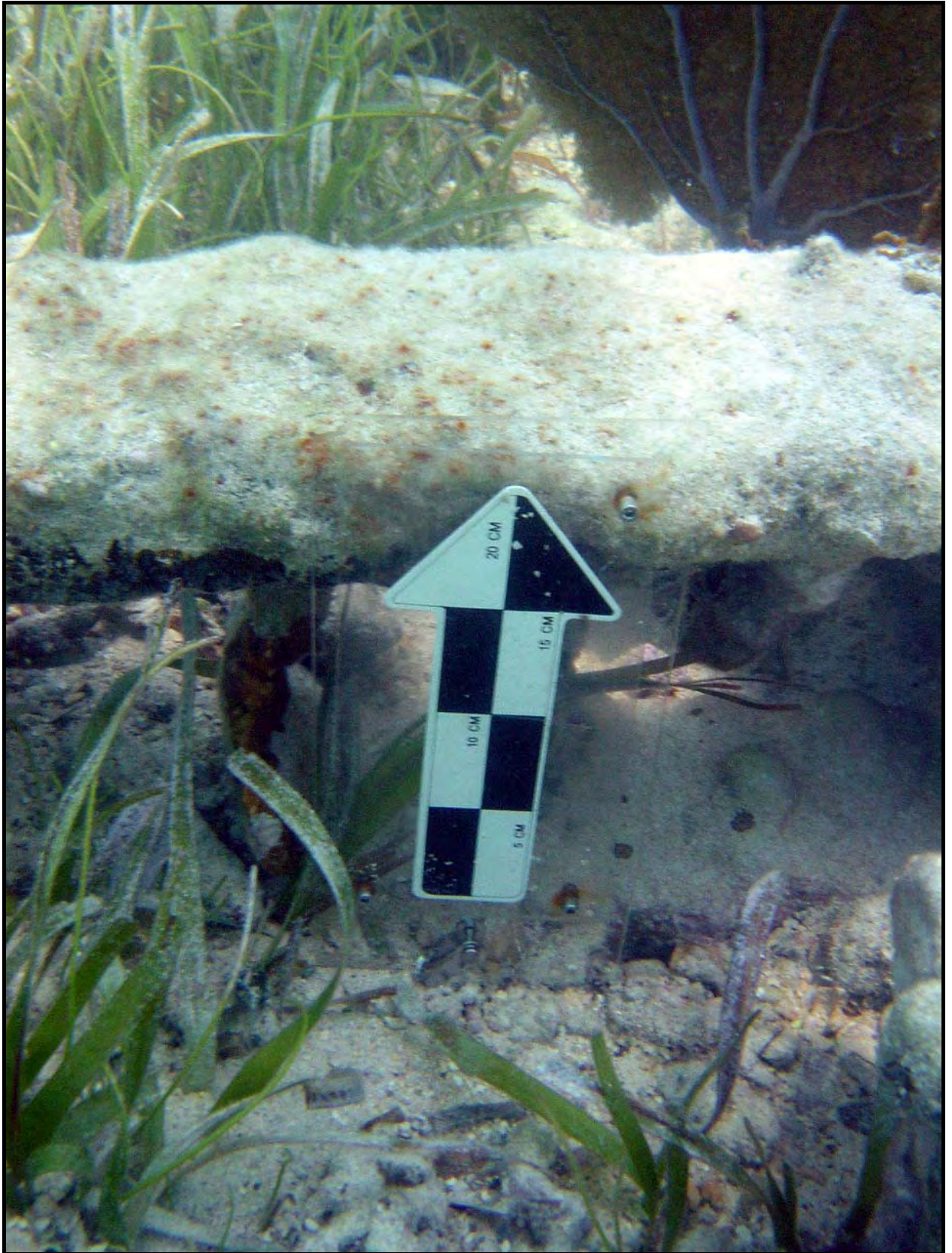


Illustration 75: Close up of the western gudgeon showing the concreted sides and bolts (© ADMAT Archives – Spooner).



Illustration 76: The gudgeon assembly, with the iron sheeting box, on *The Button Wreck* (© ADMAT Archives - Spooner).



5.3 Electronic Survey

During the field school a number of different types of electronic survey equipment were used. The students were trained in how to use this scientific electronic equipment and to understand how these tools are an integral part of a maritime archaeological project. ADMAT was fortunate to have a number of these expensive scientific equipment sponsored or loaned for the project, and are very grateful to Bob Williams and Aquascan International Ltd., Conleth McCallan and Datanet UK Ltd., Chris Roper and Roper Resources Ltd., Jeff Robertson and NIBCO John Gann and Chesapeake Technology Inc., Keith Forward and Forward Diving Services, Keith Forward and Explorer Cases Ltd., Peter Holt and 3 H Consulting, Callum Magee and AC-CESS. In addition these sponsors made them selves available in the Evenings (UK Time) to answer questions and give advice while we were on site, which provided a great technical backup.



Illustration 77: Dr. Spooner and Team ensure that all the necessary equipment is safely secured in Explorer cases, prior to going out on site (© ADMAT Archives - Nielsen).



5.3.1 Proton Magnetometer

During the field school, an AX2000 Proton Magnetometer made by Aquascan International Ltd, was used to survey the site. ADMAT owns one, and an additional back up proton magnetometer was loaned to the project by Aquascan International Ltd. Dr Spooner has been using this proton magnetometer for the last 10 years on projects world wide. This is one of the fundamental tools, and is designed to detect ferrous objects, whether they be on the surface or buried under the seabed. Items such as cannons, anchors and rigging can be detected and pinpointed.

A rectangular area of 500 metres by 600 meters was surveyed, as well as an area to the north of the site. In this survey area there were only two magnetometer hits. The first one was the gudgeons which gave an excellent sign wave.



Illustration 78: Patrick Enlow and Karen Terry operating the AX2000 Aquascan Proton Magnetometer while David Firm tends the “fish” cable on the stern of Capt. Hyatt Hodgdon’s boat *Trans Action* over *The Button Wreck* (© ADMAT Archives - Nielsen).



The second magnetometer target was on the wreck site. There was a large magnetic field on the starboard side, in-between the presumed bow section and the amidships position. Due to no archaeological dredges being used, this target has not been assessed. It could be the stove, as warships usually had the ships galley in the bow (to enable the best use of open gun decks and the reduction of possible flying splinters in battle) or it could be an anchor or cannon.

5.3.2 Metal Detector

The team used three Aquapulse 1b metal detectors, which were loaned by Aquascan International Ltd. These are probably the best marine metal detectors in the world and are very effective. A number of concretions were found on the wreck site, which were left in situ. The lead sheeting was found as well as the iron cannon ball.

5.3.3 Sidescan Sonar

ADMAT owns a Imagenex sidescan sonar. The sidescan sonar operates on two frequencies, 330 kHz and 800 kHz. The fish was deployed over the site, attached to a float to enable the fish to keep clear of the seabed and the wreck. However the water was too shallow to get any useful survey data. An area off the drop-off to the west of the wreck site was surveyed, and work on the reef drop-off will be continued hopefully in 2006.



Illustration 79: David Firm using one of the Aquascan metal detectors on *The Button Wreck* (© ADMAT Archives - Shrimpton).

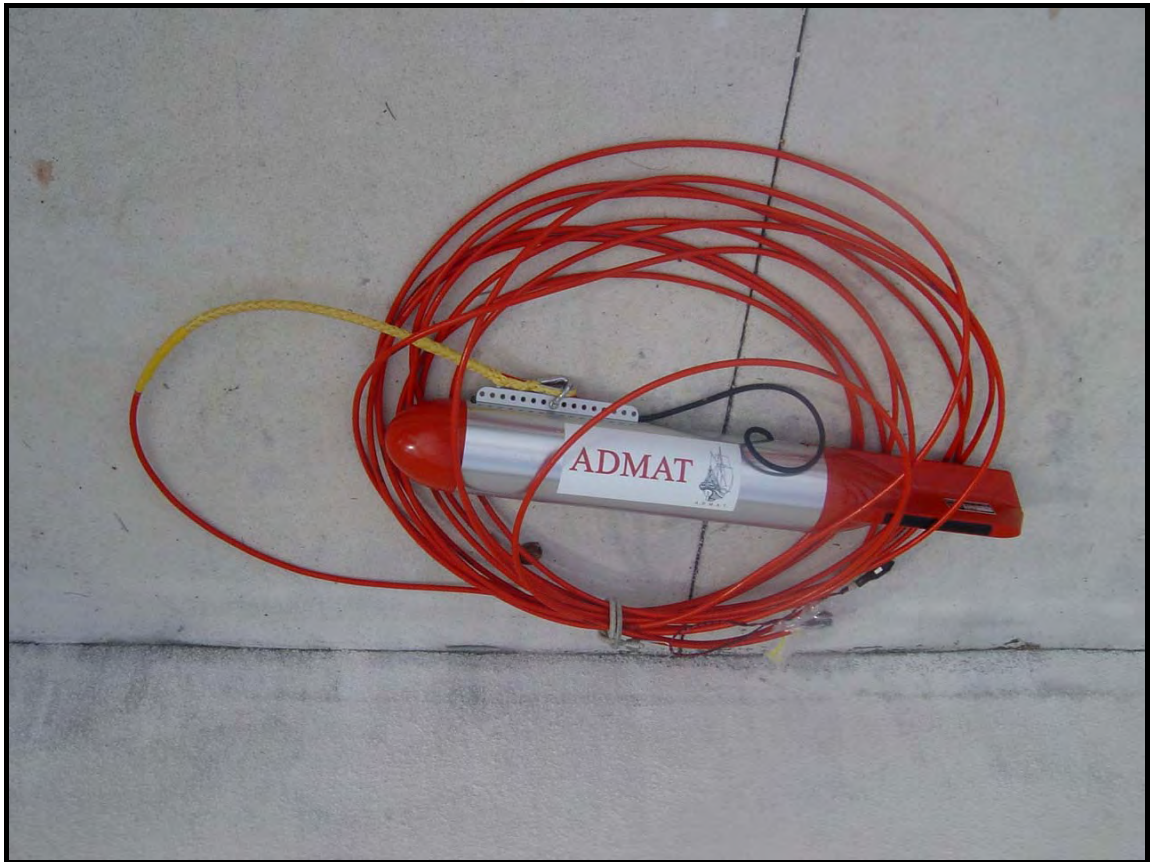


Illustration 80: ADMAT's sidescan sonar, which connects to the Tough Book computer (© ADMAT Archives - Spooner).

5.3.4 AC-CESS Inspection Mini ROV

AC-CESS the manufacturers of a new inspection ROV kindly lent us one of their inspection ROV (remotely operated vehicle) units for the field school. Courses were run for the students, in the basic operation principals of this mini ROV prior to the unit being taken to the site. On site the ROV, which was nicknamed the "Borg" after its square appearance, was deployed from *Trans Action* and spent its time over the site, filming ADMAT's archaeological work.

5.3.5 Site Recorder Software

The Site Recorder program was taught to the students, by Kathy Schubert. This program was developed by Peter Holt from 3 H Consulting, and is being used by ADMAT on some of its projects.

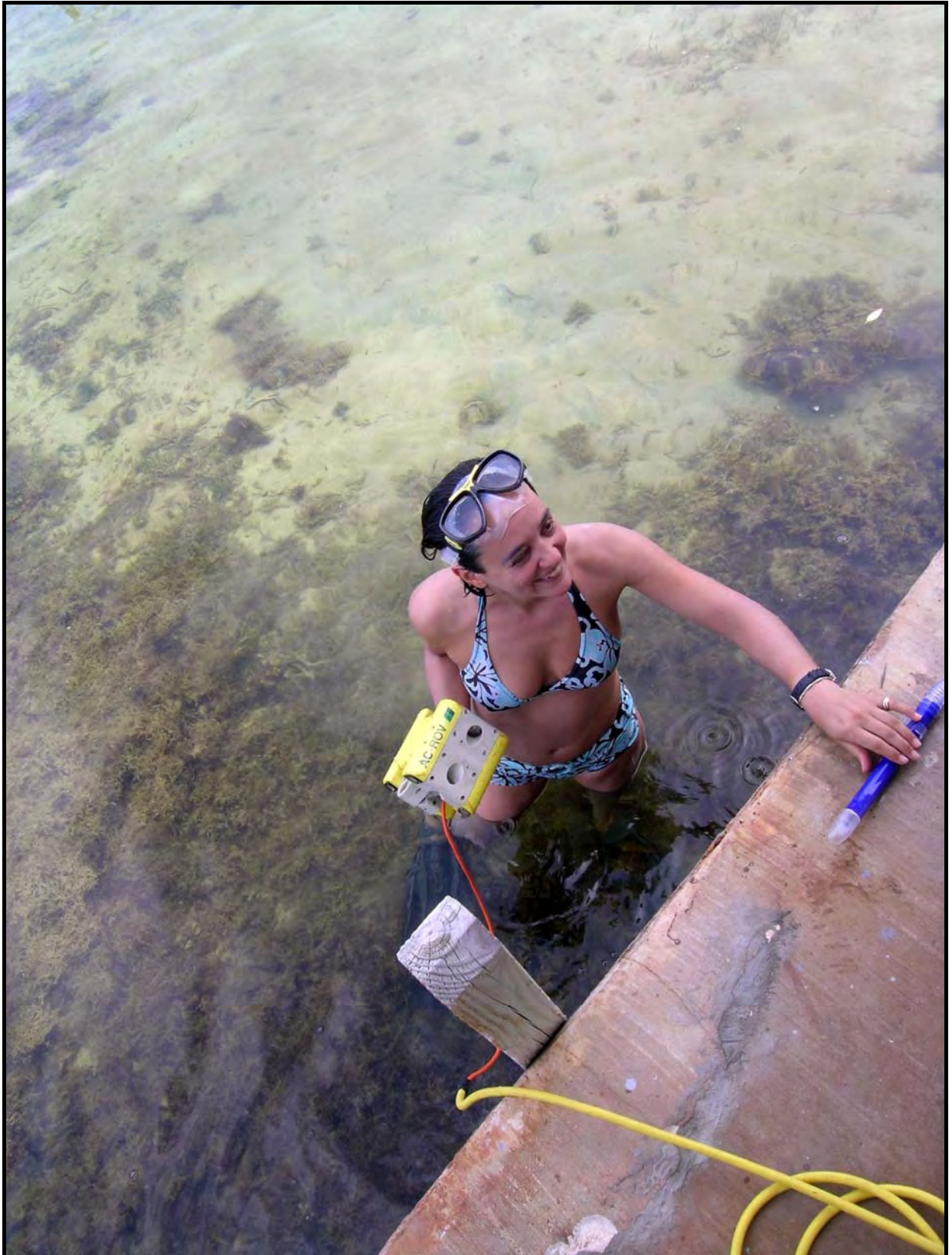


Illustration 81: Jessica Berry, deploying the ROV off the dock at the accommodation, during a training exercise (© ADMAT Archives - Shrimpton).



5.4 The Artefacts Recovered and the Information Derived.

During the field school, a few artefacts were discovered on the wreck site. Following the archaeological protocol as agreed within the permit from NOAA, the archaeological work was conducted on the basis that all artefacts would remain on site and would not be recovered. Permission was given by Cdr. Beckwith, Upper Keys Regional Manager, advised by Bruce Terrell, NOAA/NMSP Senior Archaeologist, to recover the silver coin which was found on site. Due to a miss understanding, Dr. Spooner was informed that no artifact could be moved from the site, it could only be photographed and measured. This was not what Bruce Terrell intended, as he wanted the artifacts to be documented on surface and then returned to site. This misunderstanding was rectified too late to effectively document the artifacts. The artifacts were collected and placed in a tagged zip lock bag and buried on site. Cdr. Stephen Beckwith - Upper Keys Regional Manager arranged for diagnostic buttons to be conserved. A full conservation report is due and ADMAT are looking forward to receiving it.

The artifacts found were as follows:

5.4.1 Musket Ball

The musket ball was located in Sq: F9 on a futtock as shown in Illustration No: 82 & 83. The diam. was 18 mm. and the musket ball was in excellent state of preservation. There was a small patch of concretion on one side. Normally musket balls are eroded or dissolved as is shown in Illustration No:83, of a musket ball from *The White House Bay Wreck* in St. Kitts.



By comparison 30 musket balls were found on *The White House Bay Wreck* in St. Kitts and 640 musket balls were found in one square meter surface area of the ballast section on *The Carron Wreck* (1802 sinking construction 1760-1780s) site in the Dominican Republic. The majority of the musket balls found on *The White House Bay Wreck* had diameters of 18 mm which matched the balls found on *The Button Wreck*. Research indicated that *The White House Bay Wreck* was English, carrying English troops during 1782 and before, so the date is very comparable.

According to PRO WO 55-1745 and the English Ordnance Stores Regulation of 1765, all English warships in Foreign Service should be supplied with 19 Cwt (1 Cwt or 1 hundredweight = 50.8020 kg. There are 2,240 lbs to 1 Long (English) Ton and 1 cwt = 112 lbs. Therefore 1 Tone = 20 Cwt) of musket balls for the marines. That is just under 1 ton of musket balls. This is just for “normal service” and it is expected that this number would greatly increase prior to a sea or land engagement.

The musket ball found on the site was inferior to the ones on *The Carron Wreck* and better to those found on *The White House Bay Wreck*. This may well be due to the time difference (1780s as opposed to 1802) and an increase in technology, although *The Button Wreck*, probably sunk in the 1760s. However it may also be attributable to the way they were made. Some of the musket balls were found on *The White House Bay Wreck* had sprues or the remains of the moulds. In the 18th Century nuckcracker moulds were capable of making a dozen balls at a time. They were made probably of brass and a rectangular channel extended along the top when the two sides of the mould were closed. This allowed the molten lead to flow easily into each of the holes.



Illustration 82: The musket ball, artefact No: BW/2005/Or/S/003 found on *The Button Wreck*, photographed in situ (© ADMAT Archives - Spooner).



Illustration 83: The musket ball, artefact No: BW/2005/Or/S/003, underwater close up which was found on *The Button Wreck*, photographed in situ (© ADMAT Archives - Spooner).



When opened the musket balls were joined together by the sprune which was individually cut off each ball and rounded. If the lead did not flow properly throughout the mould, air pockets would form within the balls, causing slightly inferior balls. This mass production method was improved with time, but produced inferior balls to the bullet moulds, which were shaped like a pair of scissors and only made one ball at a time.



Illustration 84: Artefact No: SK/WHB1/2003/NF/S/OR/278 showing the mild concretion and the erosion of the musket ball from *The White House Bay Wreck* in St. Kitts, for comparison (© ADMAT Archives).



5.4.2 The Silver Coin

The silver coin was found on the 24th July 2005 and was the first artefact located on the site. It was concreted and adjacent to a concreted iron bar. As it was an important diagnostic artefact, a call was made to seek permission to recover the coin from Cdr. Stephen Beckwith - Upper Keys Regional Manager who in turn discussed it with Bruce Terrell, NOAA/NMSP Senior Archaeologist. Permission was granted and the artifact was given the Artefact No: BW/2005/Cn/Si/001. The artifact was measured in to Sq: E2 and photographed as shown in Illustration No:86 to 89.



Illustration 85: The Principal Investigator, Dr. Simon Q. Spooner examining and recording the silver coin on *The Button Wreck* (© ADMAT Archives - Nielsen).

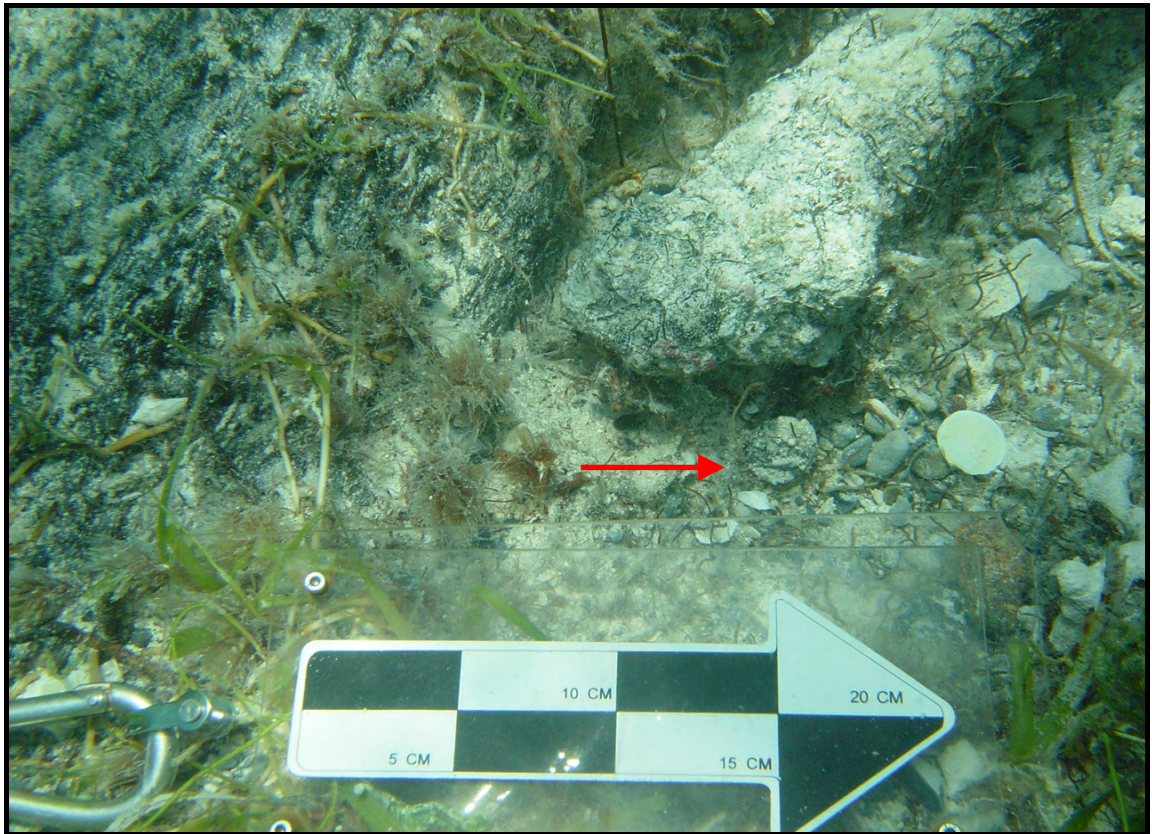


Illustration 86: The silver coin located in Sq: E2 on *The Button Wreck* is shown by the red arrow (© ADMAT Archives - Spooner).



Illustration 87: Close up of the concreted silver coin artefact No: BW/2005/Cn/Si/001 on *The Button Wreck* (© ADMAT Archives - Spooner).



The coin was badly concreted and measured 30 mm. in diameter and 7 mm thickness, both measurements included the concretion. Unfortunately during the conservation process, which NOAA arranged and was sponsored by The Mel Fisher Maritime Heritage Museum, the coin proved to be a ghost coin. The silver inside the concretion had leached into the concretion, leaving a void in the centre. The conservator tried to make a latex mould from the broken pieces, but unfortunately no information other than the size was obtained.



Illustration 88: An out of focus underwater photograph of the silver coin, prior to recovering and sending to NOAA (© ADMAT Archives - Nielsen).



Illustration 89: An out of focus underwater photograph side profile of the silver coin, prior to recovering and sending to NOAA (© ADMAT Archives - Nielsen).

5.4.3 The Cannon Ball

A concreted iron cannon ball was found in the metal detector survey. The concreted cannon ball was located off the starboard side 15m (49.5 ft) from Sq: A 14. The cannon ball was uncovered by hand fanning. Following the archaeological protocol, that the artefacts should be left in situ, the cannon ball was not moved, and only the top half was exposed. Upon closer examination of the artefact in situ, the cannon ball gave the appearance of a 4 lb ball, with heavy concretion and additional unidentifiable items concreted to it. Only recovering and conserving the artefact would confirm the poundage and dimensions. The cannon ball was surrounded by small ballast chips, similar to ones already found along the central line in the bilges, and can be seen in Illustration No:90.

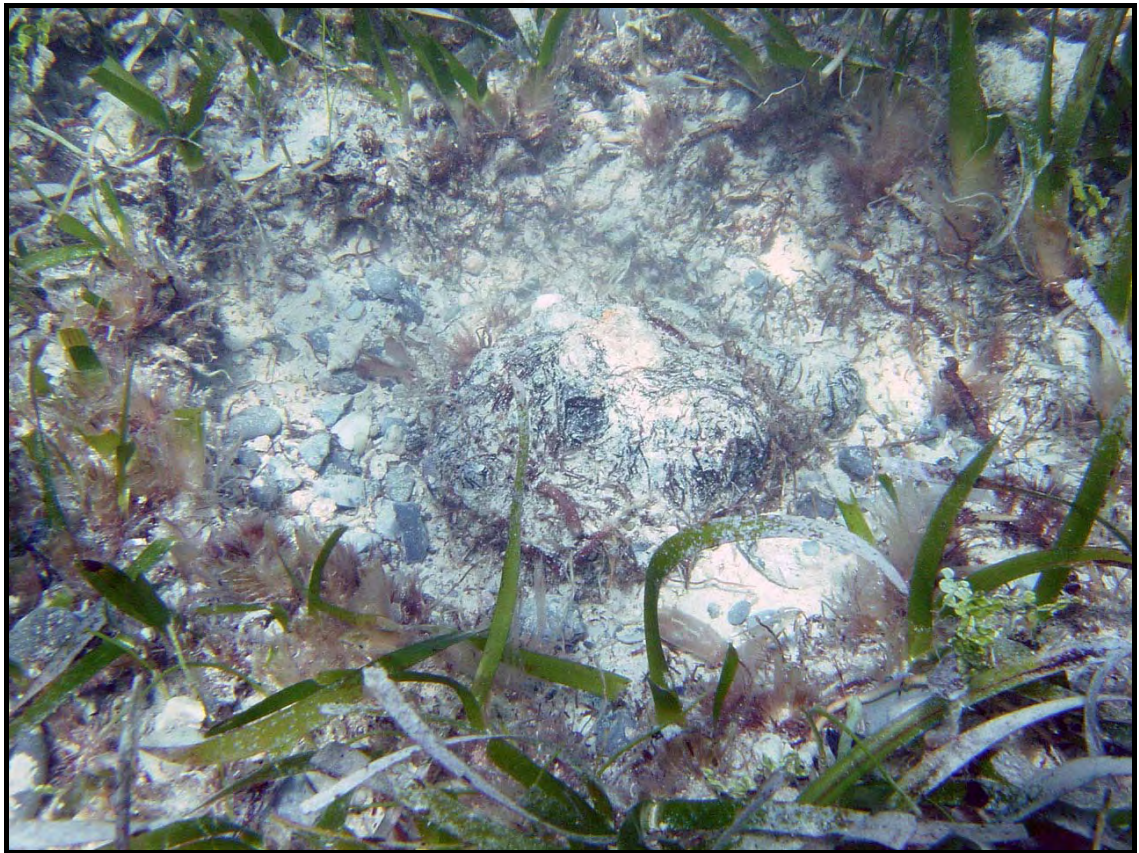


Illustration 90: The cannon ball in situ on *The Button Wreck* (© ADMAT Archives - Spooner).

5.4.4 Pottery

Two pieces of pottery were found on the site. Both were broken and no pieces which attach to them were found. One of the sherds was a diagnostic rim. It appears to be a bottle neck with a rich brown glaze to the interior and exterior. The glaze may be an iron-oxide lead glaze. Following the archaeological protocol for the site, the pottery was left on site undocumented with only photographs taken underwater. Kathy Schubert, one of ADMAT's pottery experts stated that the sherd might be Redishware, datable to the 1760s and definitely not made in the Americas. Further research on this artefact should be done when permission to recover it has been obtained. Illustrations No:91 to 94 show the piece from different angles. The second was a base rim sherd with a decorative pattern, possibly a plant design as shown in illustrations No:95 to 96. This was left in situ, unrecorded as per NOAA's instructions.



Illustration 91: The brown glazes bottle neck found on The Button Wreck (© ADMAT Archives - Nielsen).

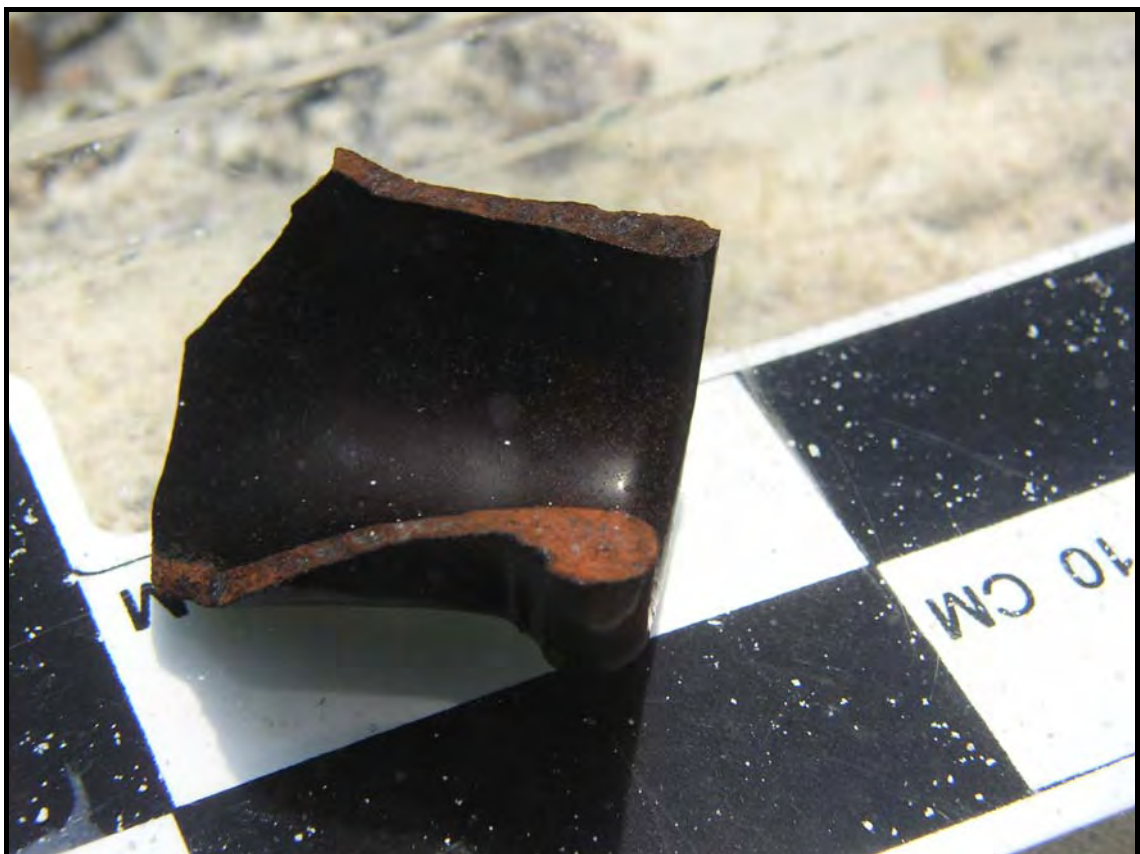


Illustration 92: The brown glazes bottle neck found on The Button Wreck (© ADMAT Archives - Nielsen).



Illustration 93: The brown glazes bottle neck found on The Button Wreck (© ADMAT Archives - Nielsen).



Illustration 94: The brown glazes bottle neck found on The Button Wreck (© ADMAT Archives - Nielsen).



Illustration 95: The second sherd found on The Button Wreck, photographed underwater (© ADMAT Archives - Nielsen).



Illustration 96: The underside of the base rim sherd found on The Button Wreck (© ADMAT Archives - Nielsen).



5.4.5 Buttons

During the survey, five non ferrous buttons were found on site. Four of the buttons were pewter and one made from brass. During the field school, Dr. Spooner requested permission to recover these buttons from Cdr. Stephen Beckwith - Upper Keys Regional Manager, so that they could be documented and conserved. It was hoped that there might be some military insignia which would provide further diagnostic clues as to the date and nationality. Cdr. Stephen Beckwith tried to contact Bruce Terrell, NOAA/NMSP Senior Archaeologist for permission, but unfortunately he was away on holiday. Permission to recover these diagnostic buttons was eventually given after the end of the field school. Cdr. Stephen Beckwith arranged for the buttons, which had been bagged and tagged and moved to a secure location on site, to be recovered and they were sent to be conserved. ADMAT awaits the full archaeological details from NOAA, but Brenda Altmeier kindly sent two photographs of the conserved buttons which are shown. Upon close examination by Brenda Altmeier, none of these had any military insignias. However one of the pewter buttons artefact No: BW/2005/NF/Pb/009, which was almost bent in half, had the inscription of “c” and either an “o” or a “0”.

Artefact BW/2005/NF/Pb/005 found in Sq: F11, a white metal which was after conservation confirmed as a pewter button had a slight raised crown. The lug was concreted and after conservation it proved to be missing. This was the largest of the buttons recovered having an approximate diameter of 20 mm. inc. concretions. Artefact No: BW/2005/NF/Pb/006 was smaller and BW/2005/NF/Pb/007 appeared to be a small spat button, possibly from a soldiers spats.

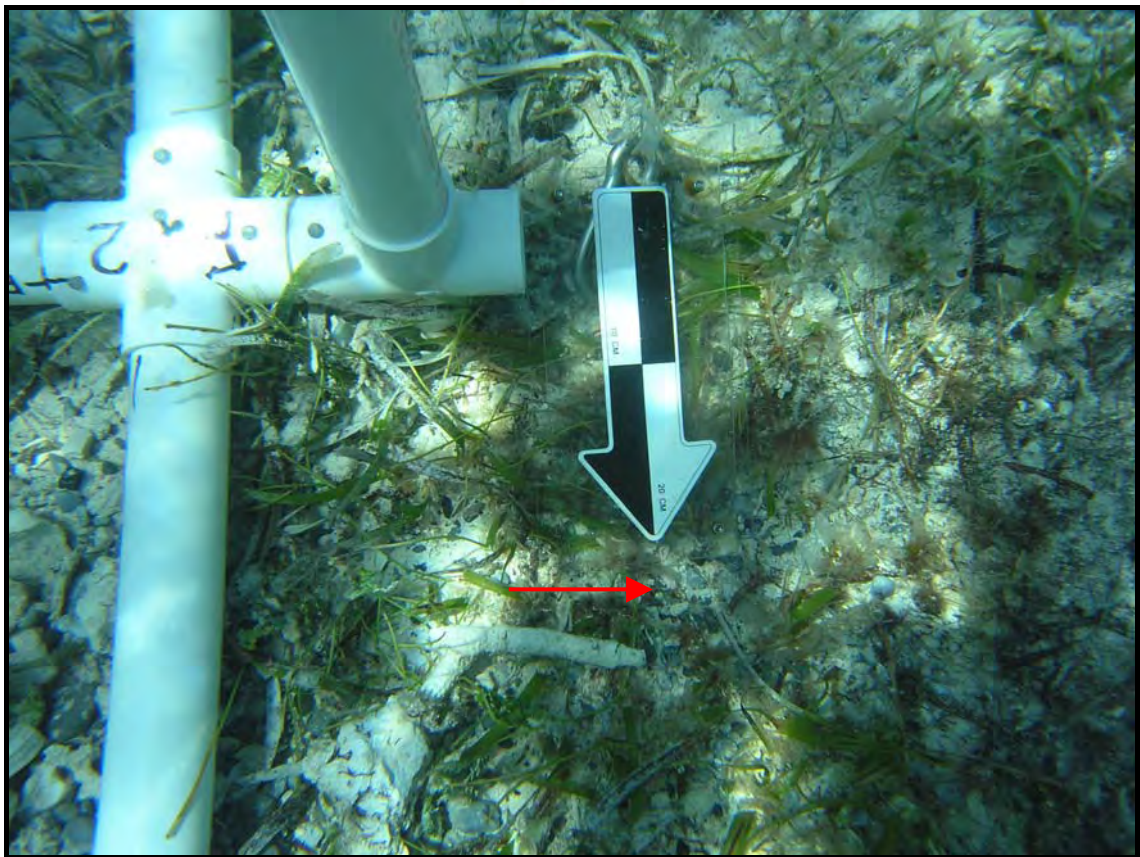


Illustration 97: Artefact BW/2005/NF/Pb/005, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck*, shown by red arrow (© ADMAT Archives - Spooner).



Illustration 98: Artefact BW/2005/NF/Pb/005, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck*, shown by red arrow (© ADMAT Archives - Spooner).



Illustration 99: Artefact BW/2005/NF/Pb/005, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck* (© ADMAT Archives - Spooner).

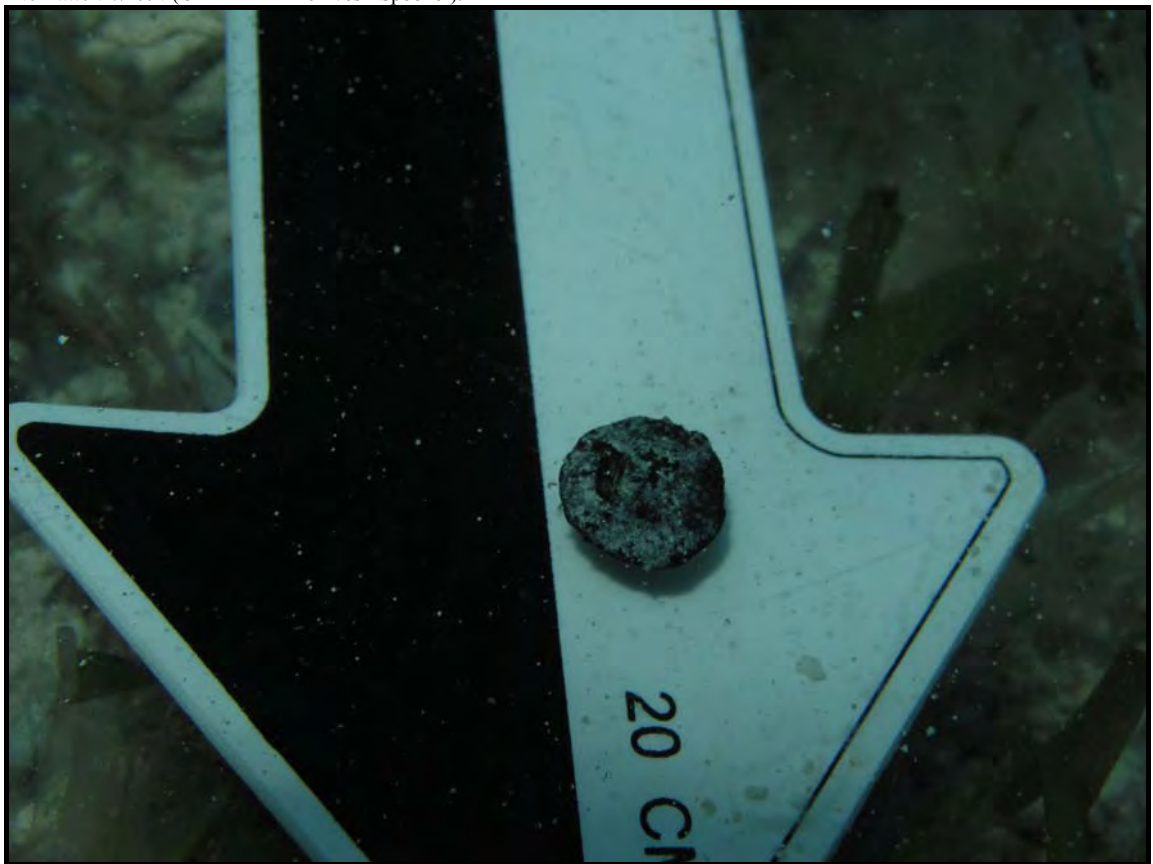


Illustration 100: Artefact BW/2005/NF/Pb/006, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck*, shown by red arrow (© ADMAT Archives - Spooner).

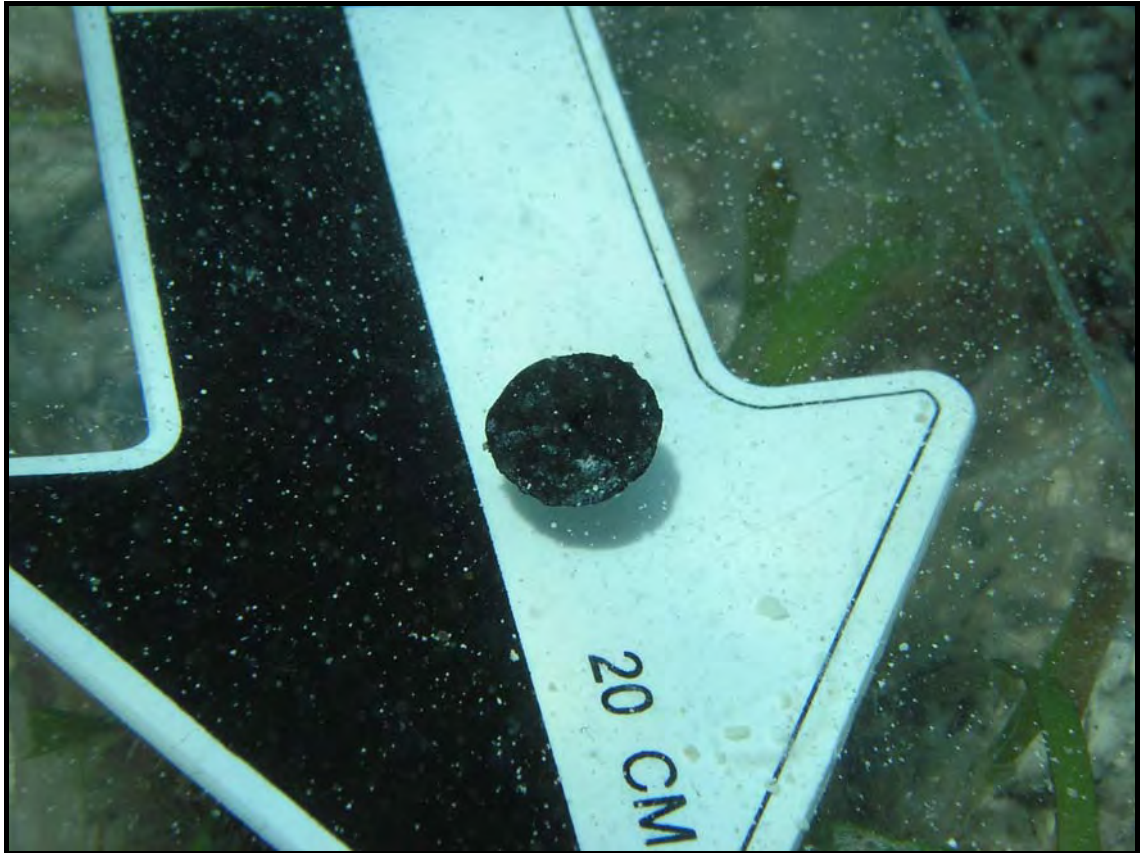


Illustration 101: Artefact BW/2005/NF/Pb/006, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck*, shown by red arrow (© ADMAT Archives - Spooner).



Illustration 102: Artefact BW/2005/NF/Pb/007, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck*, possibly a spat button (© ADMAT Archives - Spooner).



Illustration 103: Artefact BW/2005/NF/Pb/007, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck* (© ADMAT Archives - Spooner).

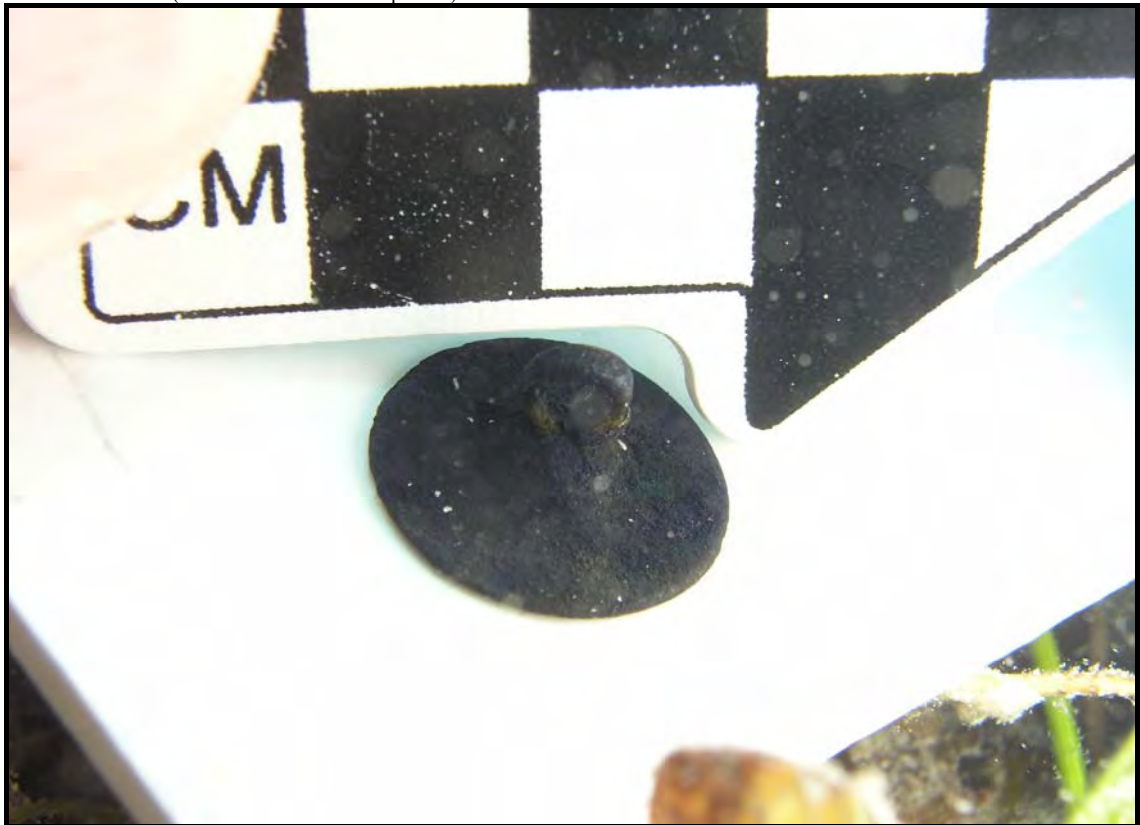


Illustration 104: Artefact BW/2005/NF/Pb/008, a copper alloy which was after conservation confirmed as a brass button found on *The Button Wreck*, (© ADMAT Archives - Spooner).



Illustration 105: Artefact BW/2005/NF/Pb/008, copper alloy which was after conservation confirmed as a brass button found on *The Button Wreck*, shown by red arrow (© ADMAT Archives - Spooner).



Illustration 106: Artefact BW/2005/NF/Pb/008, copper alloy which was after conservation confirmed as a brass button found on *The Button Wreck* (© ADMAT Archives - Spooner).

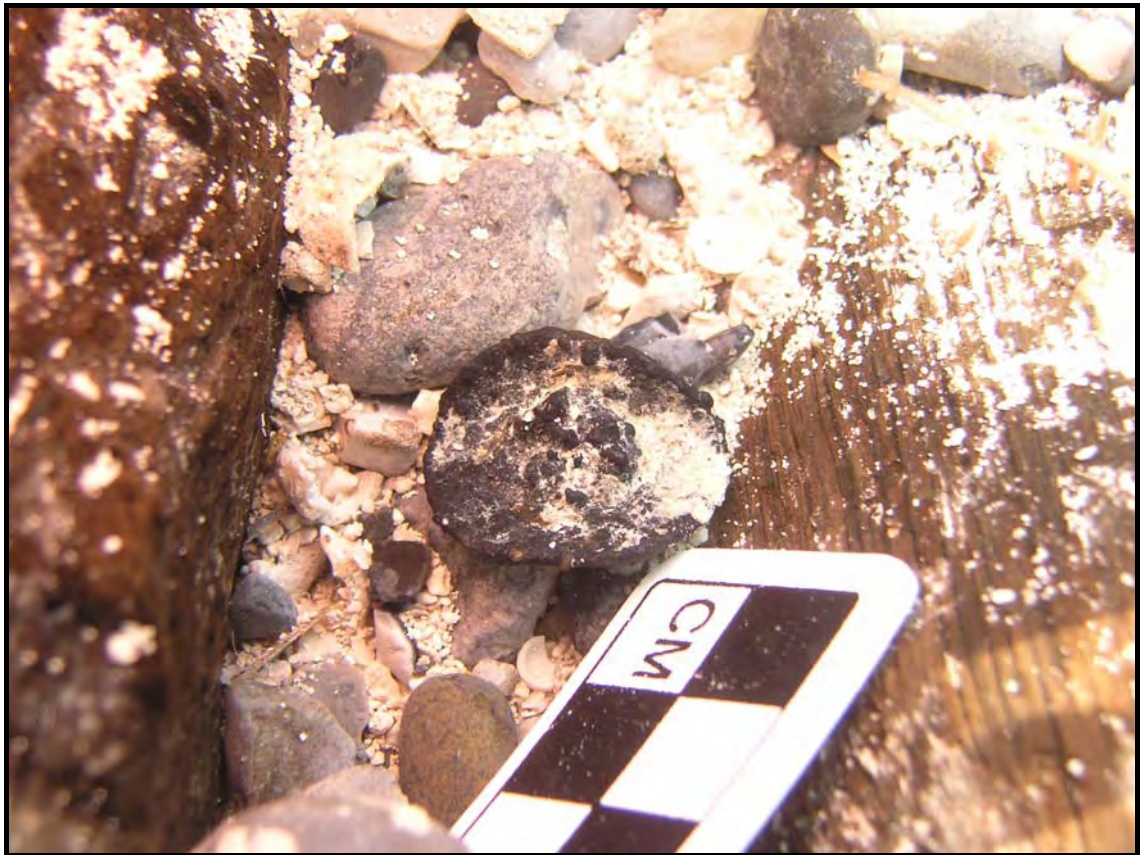


Illustration 107: Artefact BW/2005/NF/Pb/009, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck*, (© ADMAT Archives - Spooner).



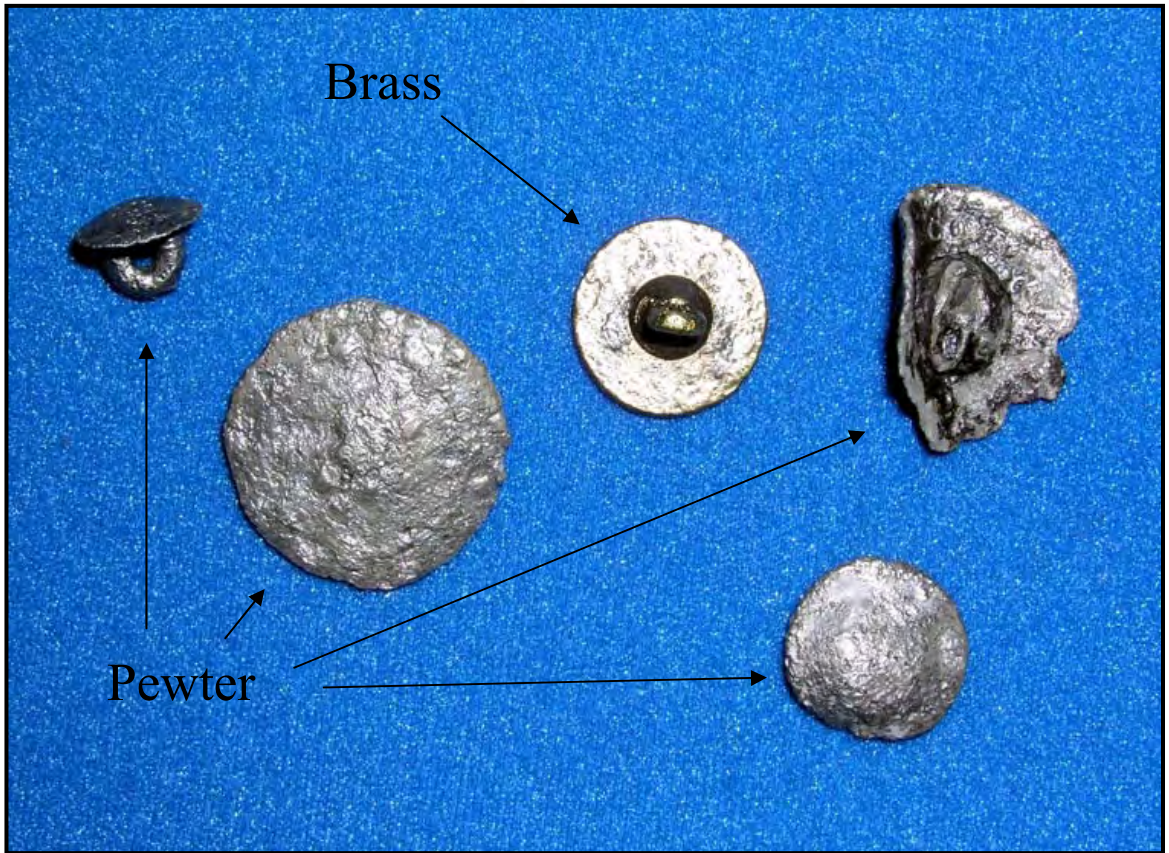
Illustration 108: Artefact BW/2005/NF/Pb/009, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck*, (© ADMAT Archives - Spooner).

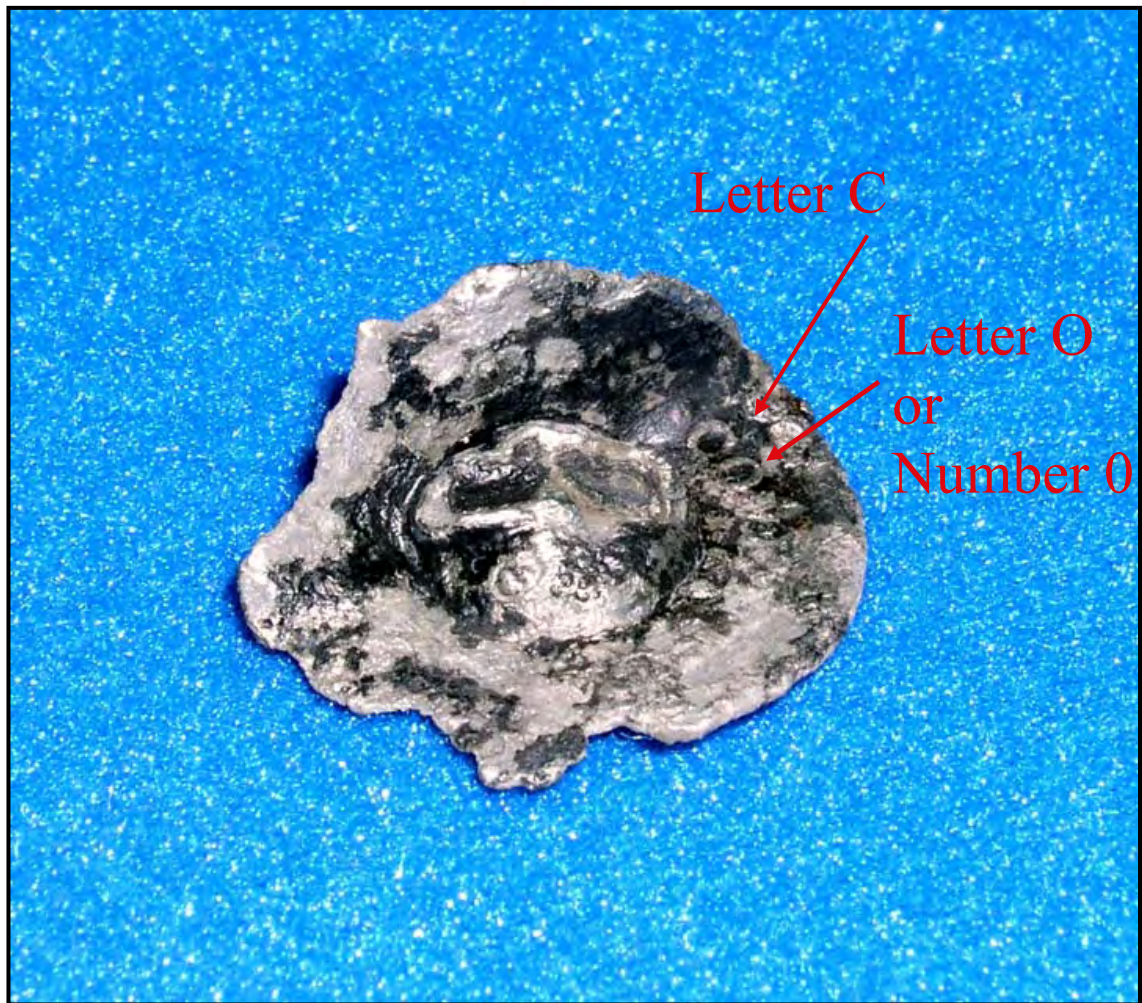


Illustration 109: Artefact BW/2005/NF/Pb/009, a white metal which was after conservation confirmed as a pewter button found on *The Button Wreck* (© ADMAT Archives - Spooner).

The absence of finding any more military buttons is disappointing, although it must be remembered that only about a third of the site was uncovered and documented. Along the central line in the bilges there are always collections of items that have been deposited there. Further surveys will probably find more buttons. The buttons found so far, are believed to be personal belongings and not cargo. This is due to the variety and lack of matching buttons found on site.

The next three illustrations are from a word document sent by NOAA, who took these photographs and illustrated them. Unfortunately there is no scale in the photographs, and therefore upon ADMAT's return in 2006, these conserved buttons will be fully documented.





5.4.6 Copper Alloy “Bronze” Slag

Along the central line in the bilges, unusual small stoned were found. These gave the appearance of being “bronze” slag, although it might be a natural deposit as one stone clearly has the bronze discolouration on the top as shown in Illustration No:110. A number of these bronze looking stoned were sent at ADMAT’s request and with NOAA’s permission to NOAA’s geologists for analysis. At the time of writing this report we are still waiting for clarification as to what these artefacts are. It is hoped that the analytical report will be forthcoming and will be published in the full report on the conclusion of ADMAT’s work on this wreck site in the future.



Illustration 110: One of the “Bronze Slag” stones found on *The Button Wreck*. Note the mixed nature of this stone with the “Bronze” effect. (© ADMAT Archives - Spooner).



Illustration 111: One of the “Bronze Slag” stones found on *The Button Wreck*. This stone appears to be complete “Bronze” (© ADMAT Archives - Spooner).



5.4.7 Bone

A small piece of bone, 85 mm. long and 38 mm. wide, was discovered in the lower rear deadwood, as shown in Illustrations No:112. This artefact was given the No: BW/2005/AR/004. The bone was broken at both ends and appeared to be a possible cow rib. It had a dark brown coloration (note these recordings were taken underwater and from an un-conserved state) and had black charring marks on one side and what appeared to be knife marks. It was located in Sq: E1. It is assumed that this was part of the cargo of food on board and once the sailor, soldier or passenger has finished his meal, discarded the bone which eventually found its way to its present locations. Who knows perhaps this was a sailor's last meal prior to the wrecking process?

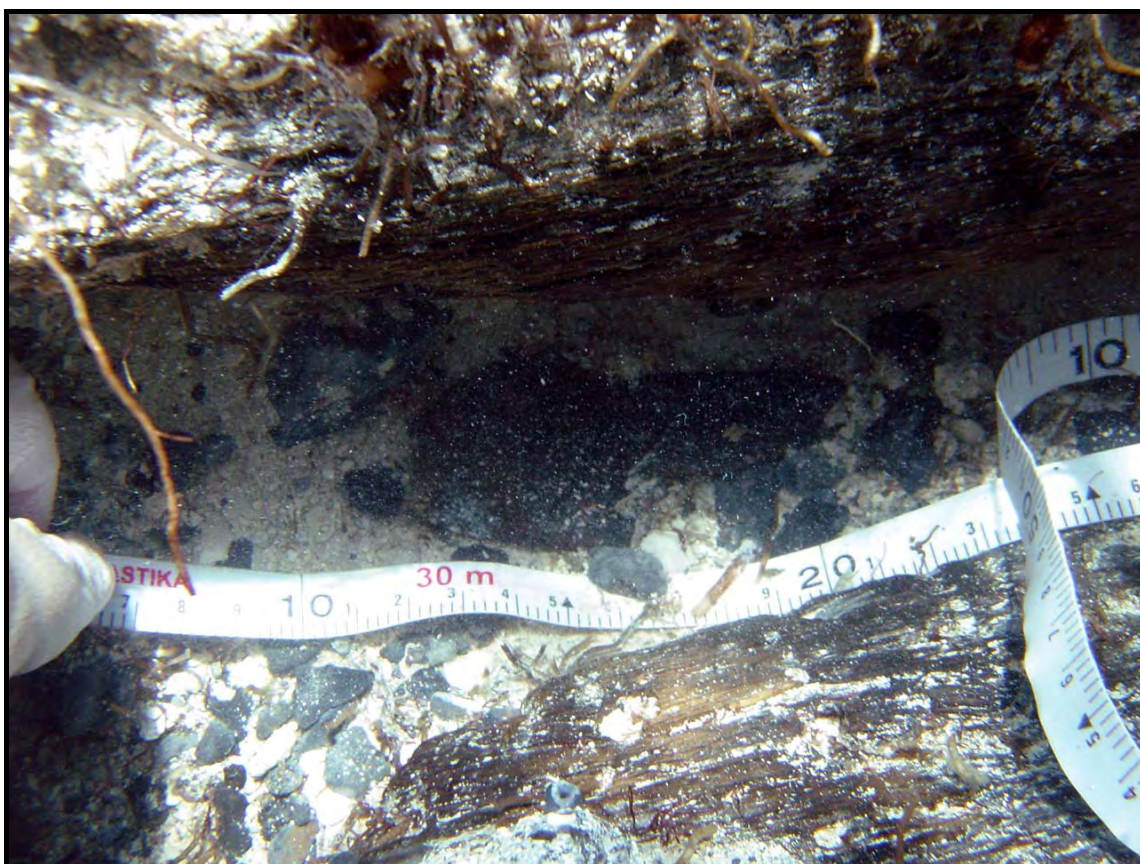


Illustration 112: Location of artefact No: BW/2005/AR/004 in the Aft Deadwood on *The Button Wreck* (© ADMAT Archives - Nielsen).

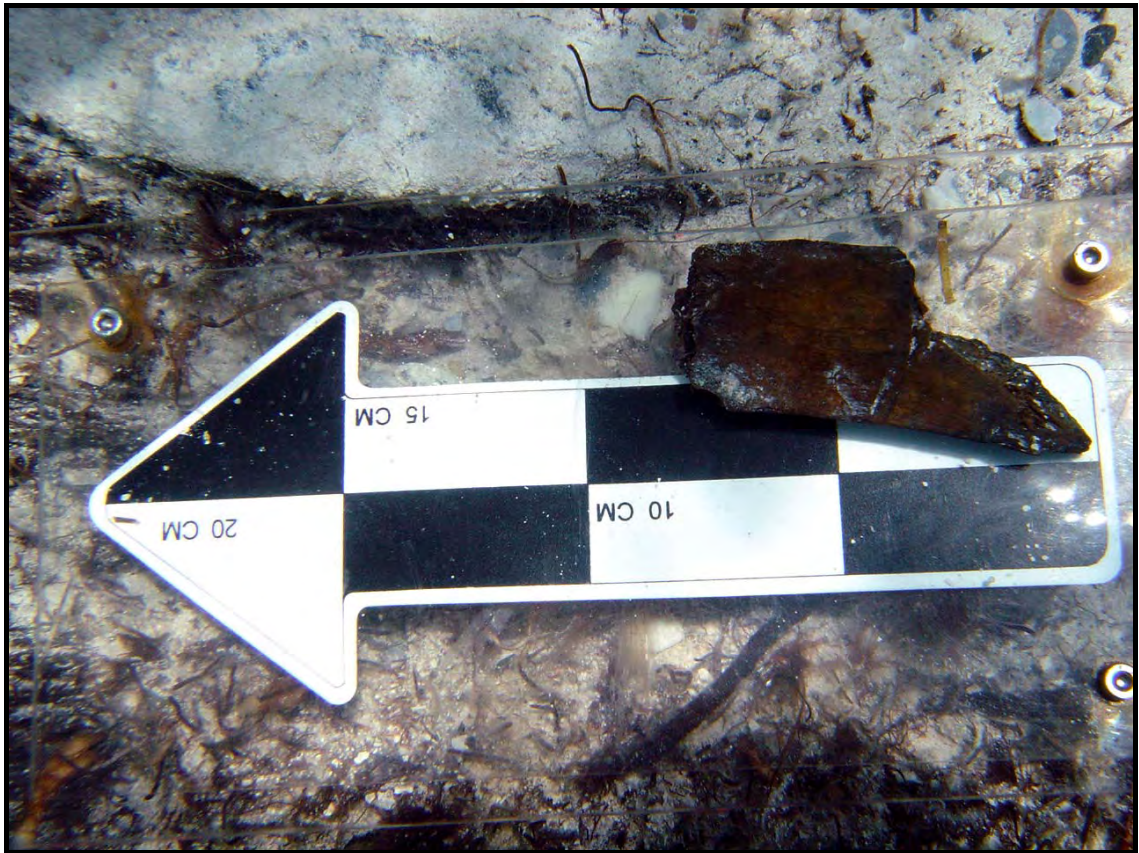


Illustration 113: Close up of artefact No: BW/2005/AR/004 in the Aft Deadwood on *The Button Wreck* (© ADMAT Archives - Nielsen).



Illustration 114 Artefact No: BW/2005/AR/004 in the Aft Deadwood on *The Button Wreck* with the knife marks clearly shown by the red arrow (© ADMAT Archives - Nielsen).



5.4.8 Charcoal

Charcoal was found in the bilges. Illustration No:115 shows one small piece. There is a high probability that charcoal might have been used in the galley to heat the stove. During the wrecking process and subsequent storms, this has relocated to the lowest part of the wreck.

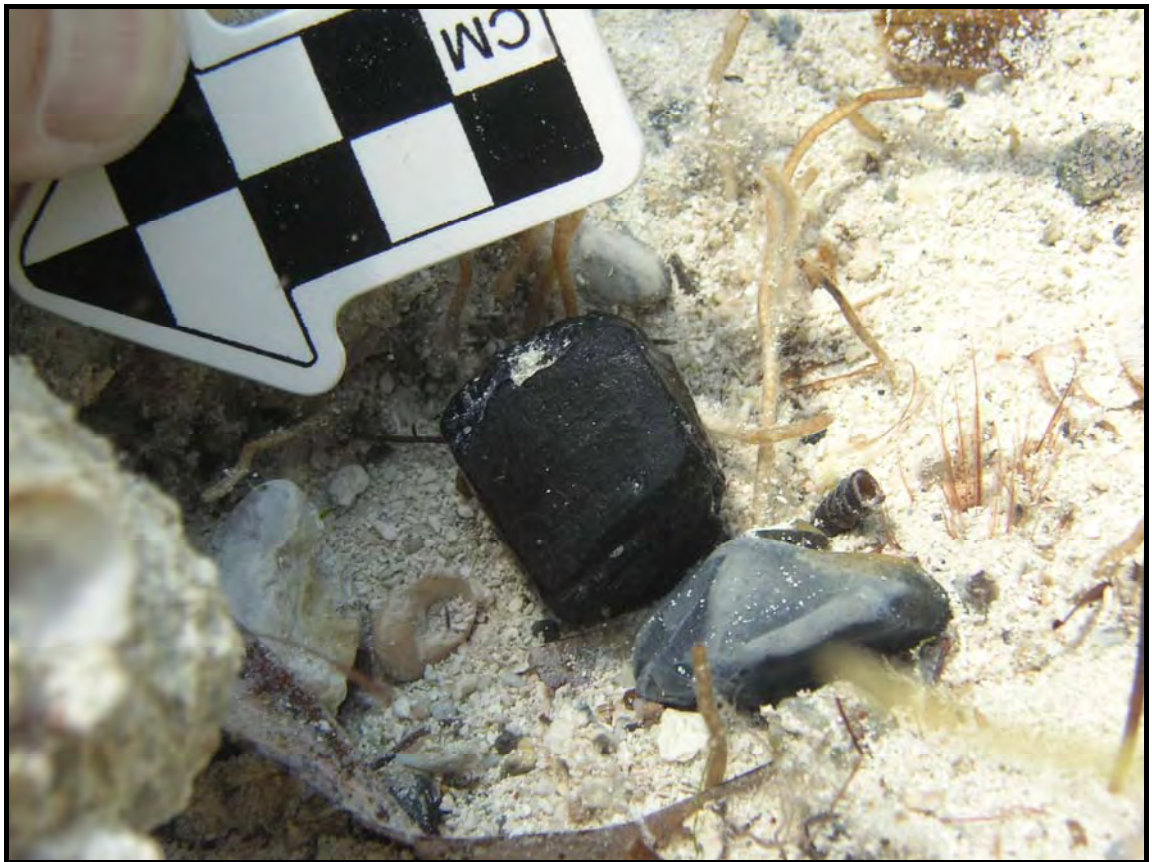


Illustration 115: A piece of charcoal found in the bilges on *The Button Wreck* (© ADMAT Archives - Nielsen).

5.5 Covering The Wreck Site

During the last few days of the Field School, the Team removed the grid and started hand fanning back the sand onto the wreck, which they had hand fanned off the wreck. This proved a slow task but the wreck was put back into the same condition as it was found. The artefacts found on site, as per ADMAT's archaeological protocol and NOAA's regulations were left on site. However, to prevent looting, the artefacts were



bagged and tagged and placed in a secure location on site. This enabled NOAA to recover the buttons, and for further scientific work to be undertaken in the future.

5.6 Possible Use and Type of Vessel

From the information gained during the Field School, we are close to confirming the type and nationality of *The Button Wreck*. At the moment we are in effect completing a three dimensional jig saw puzzle without the original picture to act as a guide. Normally the artefacts found on site, assist with the timing of the sinking and the nationality. However, apart from the few artefacts mentioned in this report, the site was void of artefacts. There is a high probability that more artefacts are on site, but they are currently buried.

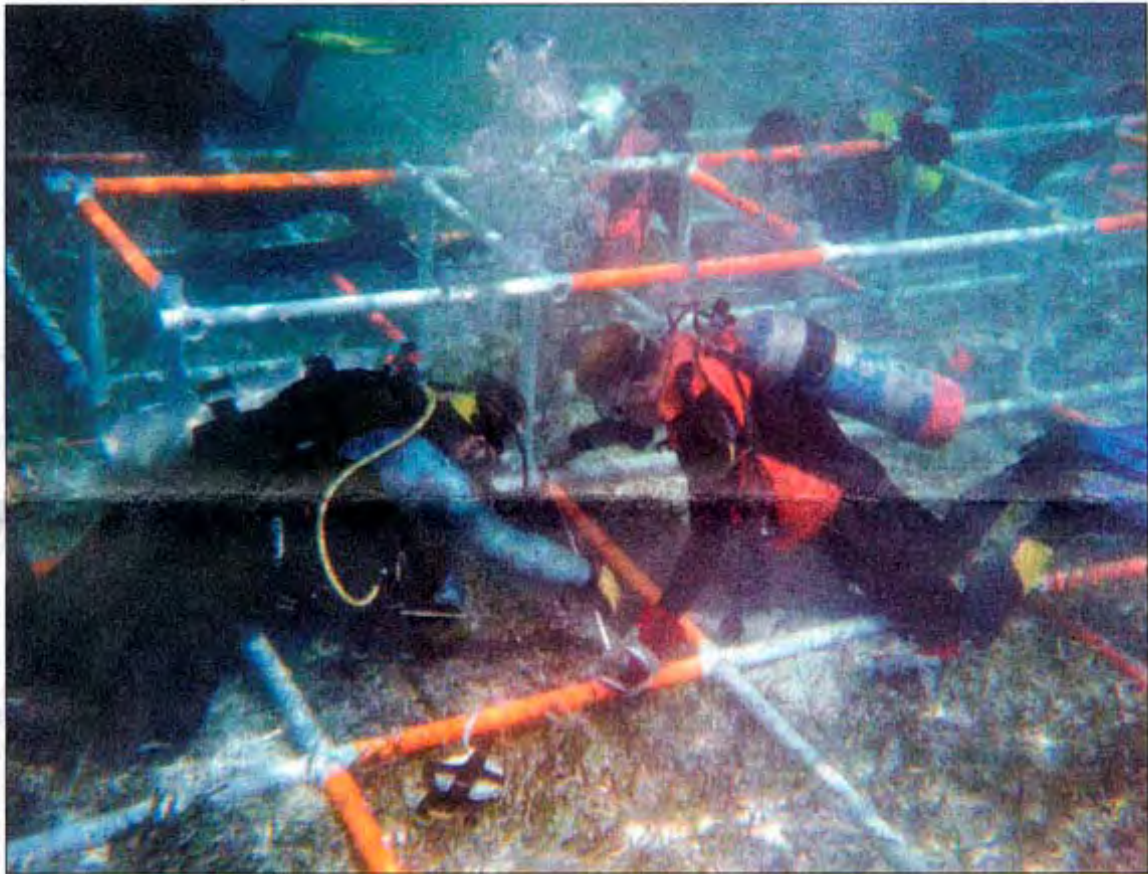
That means that it is the interpretation of the ship's construction, which will indicate the type and use of the vessel. At present, and it is noted here that at the moment we only have access to about one third of the surviving ships construction; the vessel appears to be a warship and not a merchant ship. The positioning of the frames and the strength of the construction prove this. We estimate the vessel was over 30 metres (100 ft.), and up to 10 metres (30 ft) wide. We estimate, from the construction that the vessel was constructed prior to 1760 possibly as early as 1745 and has a total absence of copper and non ferrous fastenings.

5.7 Media Visits To The Site

During the field school, NOAA arranged of the local press to visit the site. This was a very productive day and the local papers produced excellent PR for NOAA, FKNMS and the project. Copies of these articles are shown in Illustrations No:116 to 121.



BUTTON DOWN



STEVE GIBBS/The Citizen

Student volunteers from Europe and the U.S. work in seven feet of water to survey a wooden shipwreck, known as the button wreck, of unknown origin off of Key Largo. PVC pipes delineate the wreck site.

Archaeologists explore mystery ship

BY STEVE GIBBS
Citizen Staff

KEY LARGO — The ocean is often reluctant to reveal its mysteries, but archaeologists from both sides of the Atlantic are busy trying to unravel the secrets of an unknown wooden ship.

The ship once measured 25 meters long by 10 meters wide and, although it was a merchant ship — possibly a British packet



"It's like trying to piece together a giant, underwater, three-dimensional jigsaw puzzle without a picture of the finished product."

— Simon Q. Spooner
Anglo-Danish Maritime Archaeological Team

boat — it was fully armed with a cannon. Between 1740 and 1760, the ship crashed on the reef and foundered about two miles southwest of where

Carysfort Light Tower sits today.

Like many of the 1,000 or so shipwrecks off the Florida Keys, the name, nation and the details of its

final moments are lost. It no longer sports cannon. In fact, just about everything that could identify this ship has been looted or washed away by time and tide.

But the Anglo-Danish Maritime Archaeological Team, headed by co-founder and director Simon Q. Spooner, has laid out a grid along the wreck site where students of underwater archaeology

See SHIP, page 10A



A. D. M. A. T.

Ship

Continued from page 1A

have been surveying the bottom in an attempt to identify the ship.

They hope to solve the riddle of the "Button Wreck," so named because a number of silver and pewter uniform buttons have been found amid the wreck debris.

"It's like trying to piece together a giant, underwater, three-dimensional jigsaw puzzle without a picture of the finished product," Spooner said Wednesday morning, just before holding his dive mask and dropping backwards off a boat to dive the warm waters of the Atlantic Ocean, offering 150 feet of horizontal visibility.

Below, gathered in small working groups of two and three divers, archaeology students from Europe and the U.S. survey the wreck site under the direction of Spooner, who also teaches at Bristol University's Centre for Maritime Archaeology and History in England.

Young archaeologists come to the Upper Keys for two weeks at a time and local residents house them. For many of the student volunteers having their lodging costs covered makes the trip financially possible.

A grid of two-inch white and orange PVC pipe, coupled at the corners to form three-foot connected squares like a checker board, covers the bottom between anchored boats, all flying dive flags.

On the bottom, divers gently brush away sand from

between heavy timbers that have been recently exposed. The work is slow and the volunteers are meticulous, recording measurements on white, underwater slates.

Spooner holds up a piece of bone that bears two knife marks.

"Perhaps some sailor's last meal," he said.

A long orange marker delineates the keelson of the ship. Spooner points out a lower bow assembly and the pump well. Later he inspects a gudgeon, one of three steel fixtures that once connected the rudder to the ship.

"We suspect this was an American vessel captured by the British and manned by a British crew," Spooner said. "We have found no diagnostic artifacts that would help identify it. Apparently local leeches [looters] have paid a visit."

But Spooner said teaching budding maritime archaeologists is his primary educational purpose.

"We find that archaeology students were not getting the hands-on experience that they really need, so we started a non-profit [organization] in order to try to identify these historically precious artifacts and encourage the next generation," he said. "Just because they're British or French or Spanish ships doesn't mean they are not an integral part of your American historical heritage. After all, they wrecked in your waters."

Spooner praised local volunteers as well, saying his programs are funded through grants alone. He noted the

efforts of J.J. Kennedy, a retired airline pilot who was familiar with the wreck site and volunteers his time and his boat to provide support for the project.

When the study has concluded Spooner will report his findings to the Florida Keys National Marine Sanctuary.

He said ADMAT will provide interim reports before a final report is issued in about two years. He said those reports will be provided to the Florida Archives so that future students would be able to read them.

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Terrell is responsible for issuing permits to survey wreck sites in the sanctuary

and said he fully supports Spooner's work.

"Not only do we want to preserve the natural resources within the sanctuary, it is important to also preserve the archaeological resources such as the great wrecks off our coasts," he said. "Part of our Marine Heritage Program is to manage historical resources such as the Button Wreck.

"People are fascinated by archaeology and history, so we want to bring in new people who want to read the past."

Terrell said the wreck was found in the 1960s by treasure hunters. It was lost again until Jimmy Longendyke located it in the 1970s.

Terrell said sand shifts in the wake of storms and can bury shipwrecks for many years until they are uncovered once more.

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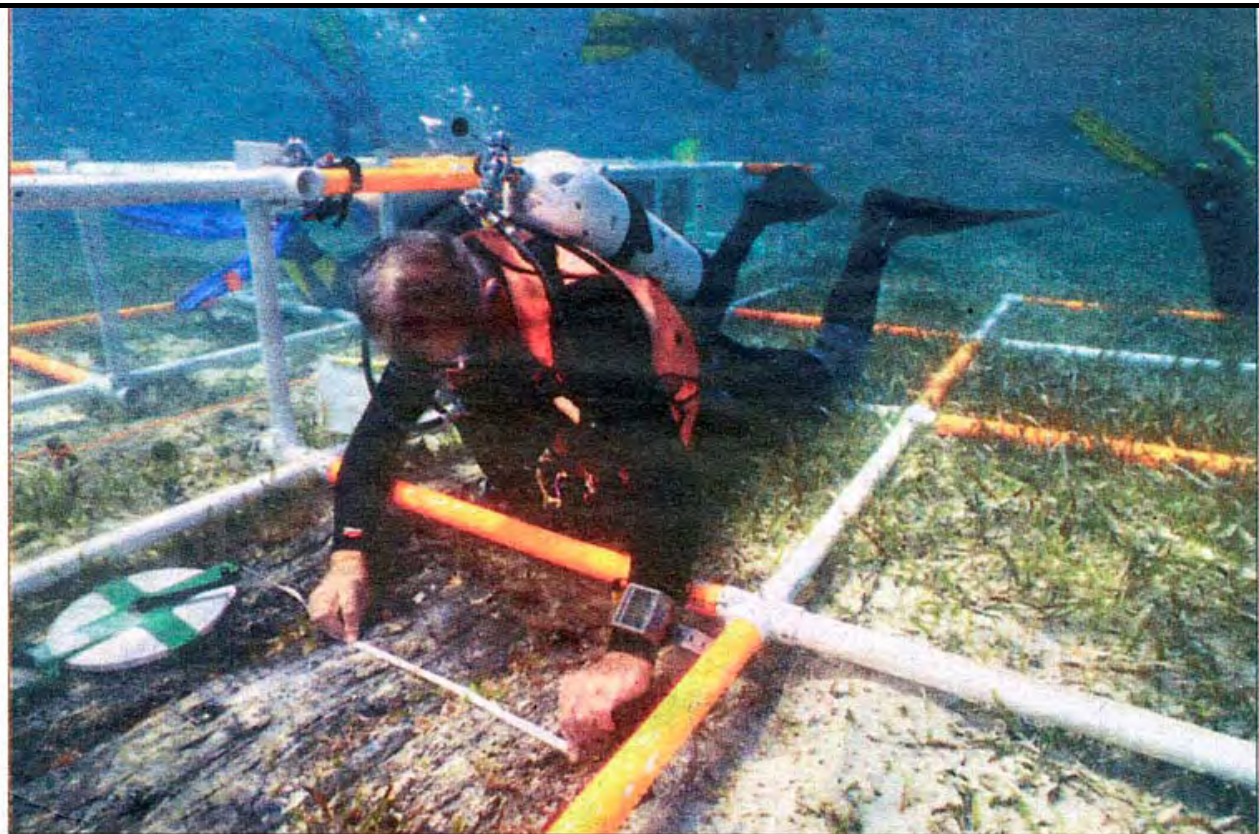


Illustration 117: The second page from The Citizen article.



Keynoter photo by KEVIN WADLOW

A diving researcher with the Anglo-Danish Maritime Archaeological Team carefully measures one of the exposed timbers from a shipwreck that ran aground off Key Largo in the mid-1700s. Efforts to catalog Keys shipwrecks are increasing.

Archaeologists comb site

Key Largo wreck still a mystery

By KEVIN WADLOW
Senior Staff Writer
kwadlow@keynoter.com

Waters near the three anchored boats seemed still, human activity apparently suspended in the August-morning heat.

HISTORY

Below the surface was another scene entirely. A dozen scuba divers lay prone on the sand-and-seagrass bottom, spread across a hopscotch-like grid nine feet below the surface.

Divers used their hands to carefully fan sand away from the timbers of a nearly forgotten shipwreck. They paused frequently to measure, record and

photograph.

At the "Button Wreck" site off Key Largo, no one expects to find treasure or museum-quality artifacts.

"It's literally been licked clean by salvors," said Dr. Simon Spooner, founder of the Anglo-Danish Maritime Archaeological Team.

The richness of the Button

See **WRECK** / 9

Illustration 118: The Keynoter article.



A.D.M.A.T.

Archaeologists comb Button Wreck

WRECK / From 1

Wreck lies in its history, still a mystery despite tantalizing clues.

"There aren't too many shipwrecks from 1740 lying around," said J.J. Kennedy of Key Largo, a volunteer on the Florida Keys National Marine Sanctuary effort to record the estimated 1,200 historic shipwrecks in local waters.

The Anglo-Danish Maritime Archaeological Team, known by the "ADMAT" acronym, is hosting about three dozen student archaeologists during two week-long research programs.

The effort is endorsed and approved by the national marine sanctuary, and supported by corps of local residents who volunteer their time and boats to transport the teams.

"These people have been fantastic," Spooner said. "Boat space is the biggest problem in this type of project. We had to turn students away."

Spooener said unlike many ships salvaged by the early Spanish treasure-seekers or Keys wreckers in later years, the hull of the Button Wreck was not burned to the waterline, a practice which both simplified salvaging and concealed the location.

"All the timbers and the keel are still in place. That's highly unusual in a location with so many storms," he said.

Remove the survey grid made of plastic pipe and small orange flags denoting spots of interest, and scant evidence of a shipwreck appears to the untrained eye. Great care is taken to protect the sea grass and soft corals that grow on and around the wreck.

Sea fans cover the only remains that protrude above the sea floor, part of the rudder assembly. Timbers that lie beneath the sand tell part of the story.

Spooener grinned as he lapsed into the arcane nomenclature of 18th century shipbuilding, using his hand to show the sweeping arc of the ship's "futlocks," or curved wooden ribs.

The archaeologist pointed to timbers showing the strokes of a workman's hand tool, chiseled three centuries ago. He described how the two-masted vessel almost certainly was caught by a storm off Key Largo and blown into the shallows.

As the rudder ran hard aground, the crew "would have been helpless" to prevent seas from rolling the ship over, Spooner said. Exactly when that happened, and the fate of the crew, is unknown. No accounts that fit the known facts of the

wreck have been found.

A salvor named Jimmy Longendyke worked the shipwreck about 30 years ago, according to a report by researcher Denis Trelewicz. The most notable artifacts Longendyke removed from the wreck were a handful of metal buttons, which gave the site its name. The buttons apparently once adorned uniforms of a British regiment.

This much is known about the Button Wreck: The ship appears to have been about 90 feet long with a 30-foot beam. It probably sank sometime between 1740 and 1760, but may have gone down as late as the American Revolution, around the 1780s.

Spooener believes the craft was American-built, citing the lack of construction techniques he expects to find on British vessels of the period. But it could have been sailing in support of an English military mission, even crewed by British.

"The English had a habit of capturing as many vessels as they could," he said. "What we don't know yet is if it was carrying troops or supplies."

Spooener speculated the sailing ship was armed with cannons, possibly nine to each side. None have been found, but they could have been raised centuries ago. "We have found one grapeshot ball," Spooener said.

Lead sheeting that once covered the hull, and the absence of brass artifacts, leads Spooener to believe "it's an early wreck."

Such information could further define the Button Wreck's origin, and give researchers a starting point to seek accounts of a ship lost off the Florida Keys.

The Anglo-Danish Maritime Archaeological Team has received sanctuary permits to survey a 13- by 3-mile tract in an effort to learn more about the shipwreck sites — perhaps 40 — believed to be in the area.

Florida Keys waters hold "a significant national collection" of shipwreck sites that are part of the nation's cultural heritage, said senior sanctuary marine archaeologist Bruce Terrell.

Efforts like the ADMAT program will allow the sanctuary to identify sites "that need immediate attention," said Terrell.

"The sanctuary is not really in the business of recovering artifacts for exhibit," Terrell said. "But if there is something that is threatened, we will recover it so it doesn't 'grow fins and swim away.'"

Sanctuary volunteers have compiled five volumes of material on Keys shipwrecks. A copy is



Student researchers (above) with the Anglo-Danish Maritime Archaeological Team record their findings during a two-week survey of the Button Wreck, on a flat off Key Largo. The remains of the rudder assembly (left) are concealed by a covering of sea fans and soft corals, which will not be disturbed. Local supporters of the research effort volunteer their boats (bottom) to carry the research teams to the site of the Button Wreck daily.

Photos by KEVIN WADLOW and BRENDA ALTMIEIER/FKNMS

available at the Key Largo Library.

"We're history buffs who love diving, so we put the two together," said Kennedy, a retired airline pilot. "These sites weren't important to salvors because there's no treasure, but they're

important to us."

"It's all about education and giving back to the public more information about the maritime history here in the Florida Keys," said Brenda Altmieier, a sanctuary staffer who works with the research program.

Spooener wants the ADMAT research teams to become a common sight. "We're the advance party," he said. "We see this as a five-to 10-year project, so we plan to come back as often as possible."

Illustration 119: The second page of the Keynoter article.



Button down

Archaeologists survey mystery wreck — Page 10



ANDY SHRIMPION/ADMAT

Researchers with the Anglo-Danish Maritime Archaeological Team study timbers from a mystery shipwreck near Carysfort Light.

Illustration 120: The Key Largo Free Press article



A. D. M. A. T.

Mystery

Continued from page 10

Young archaeologists come to the Upper Keys for two weeks at a time and local residents house them. For many of the student volunteers having their lodging costs covered makes the trip financially possible.

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ANDY SHRIMPION/ADMAT

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"People are fascinated by archaeology and history, so we want to bring in new people who want to read the past."

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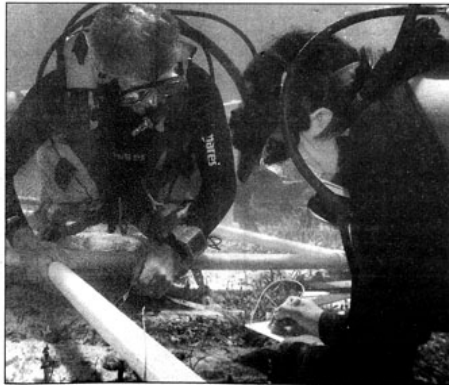
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ANDY SHRIMPION/ADMAT

ADMAT researchers have laid out a grid along the wreck site where students of underwater archaeology have been surveying the bottom.

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Illustration 121: The second page of The Key Largo Free Press article.



5.8 Artefact Recording At NOAA

During the field school, training, instruction was given on artefact recording and documentation. Usually on ADMAT field schools, artefacts are recovered and recorded in accordance with modern archaeological practices. However on this project as no artefacts were being recovered in accordance with the Permit, other plans had to be made.

NOAA had confiscated a number of artefacts which has been looted from historic sites in the Florida Keys. ADMAT volunteered to record and document these artefacts as examples for the training. Kathy Schubert and Christine Nielsen were conducting the training.



Illustration 122: Archaeologist Kathy Schubert on the left, training Sarah Chamlee, one of the ADMAT students, in artefact documentation at NOAA (© ADMAT Archives - Nielsen).



Illustration 123: Some of the ADMAT students, recording the artefacts NOAA rescued (© ADMAT Archives - Nielsen)

5.9 ADMAT's Educational Lectures

One of ADMAT's main aims is education. ADMAT after the project conducted a number of local lectures at schools, organised by Dr. Duncan Mathewson III. These lectures were well received, and plans were created as a direct result, for the local classes to take part in the survey. Mr. David Makepeace one of the teachers at Coral Shoals High School, runs an excellent biological laboratory and teaches marine sciences. Dr. Duncan Mathewson III suggested that his classes should join the project and assist with a biological assessment of *The Button Wreck*, which he and ADMAT agreed with. Dr. Spooner drew a special version of the site plan for Mr. Makepeace to print onto underwater slates. ADMAT is delighted to be able to support continuing education programs like this and looks forward to working with Dr. Duncan Mathewson III and his school network.



Illustration 124: Dr. Duncan Mathewson III, Mr. David Makepeace and Dr. Simon Spooner, during the ADMAT Educational lecture on The Button Wreck at Coral Shoals High School (© ADMAT Archives - Nielsen).



Illustration 125: Students from Coral Shoals High School, watching The Button Wreck presentation by Dr. Spooner (© ADMAT Archives - Nielsen).



- Protection of Underwater Cultural Heritage Lectures

ADMAT has conducted a number of lectures on The Button Wreck since the field school. One of the lectures was arranged by Brenda Altmeier from NOAA, promoting the preservation of Underwater Cultural Heritage, and ADMAT's work on the documentation of The Button Wreck. This lecture was to the Historic Preservation Society in the Upper Keys, and was well received. A number of questions and issues were raised at the lecture and ADMAT looks forward to an opportunity in returning to the Society and giving an update on the findings in this Interim Report.

In November 2005, NOAA sponsored its first-ever Maritime Heritage Education Conference at the Nauticus National Maritime Center in Norfolk, Virginia. This three day conference consisted of lectures and seminars promoting maritime heritage and was attended by educators, marine specialists and archaeologists from all over the country. The subject topics ranged from maritime history, technology and current events, to public education and outreach programs, diving and cultural resources.

Originally Dr Spooner, was asked to present a paper on ADMAT & ADMAT USA work on *The Button Wreck*. Unfortunately, Dr. Spooner was unable to go to the conference due to his work in the Dominican Republic for their Government.

Kathy Schubert therefore was the best choice to represent ADMAT & ADMAT USA as a guest speaker at the conference and presented a lecture on the ADMAT 2005 Florida Field School as well as the results of the investigation into *The Button Wreck* to date. The lecture as well as the conference was very well received, with highlights being the



presentation given by the keynote speaker, Dr. Robert Ballard, and the dinner cruise around Norfolk.

Shortly after the MHEC conference, Kathy was a guest speaker at the Rancocas Valley Regional High School in New Jersey, speaking to the honours history classes about the conservation of Underwater Cultural Heritage. The students were extremely interested in the connection between the cultural remains and U.S. history.

In January 2006, ADMAT presented a paper on *The Button Wreck* at the SHA conference which was held in California. ADMAT will continue its archaeological lectures, and *The Button Wreck* will be added as a topic to “ADMAT’s Excavating Shipwreck Lectures” which are held around the world.



Illustration 126: Dr. Spooner giving his lecture on *The Button Wreck* to the Historic Preservation Society in the Upper Keys (© ADMAT Archives - Nielsen).



Illustration 127: *The Button Wreck* lecture was well received (© ADMAT Archives - Shrimpton).



Illustration 128: The Team, with “JJ” Kennedy, Hyatt Hodgdon and Dr. Duncan Mathewson III after the lecture at Historic Preservation Society in the Upper Keys (© ADMAT Archives - Shrimpton).



Illustration 129: The team conducting final recording, while the grid is being removed, prior to The Button Wreck being re covered (© ADMAT Archives - Shrimpton).



Chapter 6: Conclusions

6.1 The Wrecking and Taphonomic Process

When ADMAT conducts a survey of a historic shipwreck, one of the fundamental objectives apart from calculating the nationality and type of vessel, is to understand how the wreck arrived at its current position. To achieve this, a thorough understanding of the Taphonomic macro processes of the Shipscape is required. The whole Shipscape must be examined.

The definition of Shipscape is the total area of seabed, reefs and topographic variations from the centre of the shipwreck site, to the furthest extent or boundary in all directions, which the wreck and the taphonomic and wrecking process has influenced and affected (Spooner, 2004:26).

The study of Shipwreck Taphonomy and the understanding of how wreck sites have been formed from the initial sinking to discovery of the wreck site are important and complex. Dr. Spooner has spent a decade working on historic shipwrecks understanding and formulating these site formation principals. In shallow water sites, such as *The Button Wreck*, the importance of understanding the “reverse” shipwreck taphonomy as well as the normal taphonomic process is even more vital, as it is these wrecks located in 4-15 metres (13 ft. to 50 ft.) which are most vulnerable to the destruction and decaying process by non-cultural processes.

Reverse taphonomy refers to the calculation of the wrecking process taking the clues derived from the information gained from the taphonomic process of the destruction of the wreck from the time of initial sinking to the final deposition on the seabed. This information and taphonomic flow chart of events is reversed, showing the wrecking process from the seabed to the initial sinking and the course sailed prior to that. This is also called the wrecking process. The understanding of the wreck site will lead the archaeologist to understand the assemblage, position and dispersal of all the contents from the wrecks (Spooner, 2004: 23).

The definition of “Shipwreck Taphonomy” is therefore the whole wrecking process from the initial death throes of the ship as it sinks to the final resting place on the seabed and on to the eventual coverage by sand and silt. The wrecking process and the shipwreck taphonomy are intertwined and inseparable. For some sites the process ends



here with the wreck being totally buried and covered. It is in effect a “fossilized” very complex and fragile time capsule. This “fossil” with the abundance historic information is, for most parts, in a protected state of hibernation with the eventual taphonomic destruction being given a stay of execution.

For other sites the taphonomic process continues after a period with the uncovering by storms, looters or treasure hunters until the very carcass of the wreck is devoured by worms and destroyed by storms. The taphonomic process of events will apply not only to the ship’s hull and timbers, but also to the artefacts and content. Their original deposition on the seabed, whether in the remains of the wreck or in the artefact scatter pattern and the coverage by sand and silt, will be also affected by the scouring of the seabed by currents and the disturbance by cultural formation processes (looting) and other factors leading to the eventual removal from the site and into the world of black markets, or more preferable the world of museums, or the eventual destruction by the elements.

Spatial dimensions may influence the shipscape itself. Hollows on the seabed may cause eddies and vortexes which intern create scouring patterns increasing the changes to the shipscape. These scouring patterns can over time move artefacts and can create “artefact traps” which may create inaccurate information as to the original position of the artefact. The fact that *The Button Wreck* is situated on a reef crest, in an area of flat sand mixed with flat coral plate, will mean that as a whole the site will be scoured evenly and it is expected that artefacts will be located to the shore side of the wreck site in the sand.

Shipwreck taphonomy (unlike the geological process that is an occurrence that has



already happened and is a statement of fact), is a process that is occurring today. Large numbers of historic shipwrecks are being destroyed on a daily basis piece by piece as the taphonomic process evolves on each site. Each hurricane that passes the Florida Keys speeds up the process. The difference with shipwreck taphonomy being, that maritime archaeologists have (if action is implemented) an opportunity to intervene and protect the wreck site, halting the taphonomic process. In being pro-active, the historic context of the site and the archaeological data derived from surveys and excavations will be documented. The vulnerable artefacts found in the process of the survey should now be preserved, conserved and displayed in museums protecting them from otherwise being destroyed by the elements or looters. The survey of part of *The Button Wreck* has started the process of protecting the wreck site and its information on this important pre revolutionary shipwreck.

When each artefact (including the hull which may be seen as a single artefact) is examined in the shipscape or within the confines for the wreck, one has to consider the definition of “original position”. Was it deposited in this position as a result of the wrecking process, or subsequent movement of sedimentation caused by looters, currents and other non-cultural processes? On land there may well be high questionability as to the original position as a result of the cultural and environmental processes, which move artefacts during their lifetime. On a shipscape or in a wreck site, the artefact will have been deposited in its original location as a result of the wrecking process. It is one of ADMAT’s tasks to determine, by the association of this artefact with the assemblage of nearby artefacts, whether the archaeological context is indeed in its original position or not.



Artefacts are sometimes disturbed and moved as a result of wave action and storms, which clearly is the case on *The Button Wreck*. These items may have been moved numerous times since the wrecking process if they were on the surface of the seabed. However items actually in the wreck site are unlikely to move unless the wreck itself is physically moved by a hurricane and this wreck site is in an area affected by hurricanes on a regular basis. It is ADMAT's belief that the wreck is in its original position, and at present there is no evidence that the wreck has moved as a whole, since the original deposition on the seabed. The ballast is another story, as there is evidence by the absence of any ballast that this has been removed, probably by a combination of cultural and non-cultural processes.

In calculating the wrecking process, the "formal dimension" was also considered. The artefact may not be in its present condition as a result of the wrecking process, but may well be affected by a number of factors. The buttons might well have been thrown away because they were already missing their lugs and therefore of little use to the owner and ended in the bilges and the broken pottery bottle neck may well have been broken on board prior to the wrecking process, and not actually broken in the wrecking. The absence of numerous artefacts makes the understanding of when these artefacts were broken, extremely difficult.

It is important to look at the shipscape and see what is missing. Not only what has been destroyed in the wrecking process, the subsequent taphonomy but also the "De Facto Refuse" theory (Schiffer 1987: 89). The process states that whilst the artefacts were still usable (armament, cannons and anchors) or able to be reusable, they were abandoned at the time of wrecking as having little use to the original owners. They could not be used



for the original intention, as a direct result of the wrecking process. The “cultural processes and behaviour” states that these items were removed at a later time and transported elsewhere as they were reusable by other people (Binford 1973, 1976, 1979).

A question here is that *The Button Wreck* is missing a large quantity of items that would normally be found on the Shipscape. A good example of this is cannons and anchors. The wreck would have had at least six anchors of different sizes and purposes. In addition the ship, which we have proved to be at least 30 metres (100 ft. long) would have been armed with at least 18 canons, of possible poundage’s being 4 pdr. to 18 pdr. Apart from a possible starboard location, no large magnetometer hits were found in the vicinity of the wreck.

Therefore it is a scientific fact that these items are no longer on the wreck and must be elsewhere. The question being, were these heavy items removed from the wreck prior to the wrecking process (e.g. being thrown overboard) or after. From ADMAT’s experience in conducting other surveys, it is very unlikely that all of these heavy items would have been salvaged after the wrecking process. There is a high probability that all persons on board were rescued, either by escaping in the ship’s longboat or being rescued by another vessel later. During the 1760s to 1790’s, the priorities due to The Seven Years War with Spain and later the American Revolutionary War, would be to save the powder and shot, the water and food and their personal items.

If these items were not salvaged at the time or immediately after the wrecking process, they probably were covered by the sand and extremely difficult to relocate.



One other factor, is the issue of looting. Are these items missing because they have been looted. There are two types of modern looting, one the organised treasure hunters and the other the opportunist or locals. The greater the local area is populated with fishermen, divers and users of the coastal area; the greater chance of looting. There is a direct proportion, but unlike land where all people have the ability to loot, here not only do they have to frequent the area and know of the wreck but they have to dive. This means that if the items were looted it was since the use of Scuba and before the FKNMS was created.

Historic looting on the shipscape must also be taken in to account. If there are survivors of shallow water wrecks there is a high chance of salvage attempt at the time. If the wrecking process produced no survivors, and the location of the shipscape is in an unpopulated location, there is a high possibility that there will be no salvage attempts until such time as the wreck is uncovered and discovered.

The behaviour of the looters, regardless of when the occurrence took place, will also affect the site. If there is a large volume of intact artefacts, then these will be looted first, in preference to the sherds and broken items. In addition the behaviour of the looters, at times is influenced by the actual artefact size. Larger artefacts have a greater chance of protruding above the seabed and therefore are more likely to be seen (Schiffer, 1987: 166).

It is also important during the survey of the shipscape to look at the hardness of the seabed in section. On the wrecks examined, it was possible to see where looting had disturbed the site, by the lack of hardness and how compact the seabed substratum was.



However, calculating when the site had been interfered with was more difficult. Recent disturbances were easier to tell by the movement of coral, seabed growth and sometimes the colour and texture of the sand. Soft fine sand on the surface with sand and shell matrix below is the norm for some sites, so if it is reversed then it is visible by the contrast. What is more difficult is to analyse ancient looting, caused by divers (swimmers), as storms tend to cover the clues. The only major clue is coral growth. This takes time and if coral growth is on artefacts found below the surface, these must have been uncovered at some stage and left uncovered for some time for the coral to grow (*The Button Wreck* keel bolts).

In the case of shipscares there is often more which is buried in the seabed than is apparent from surface investigation. Often the buried wrecks, which may well be far greater in volume than exposed on the surface, are as vulnerable as the exposed. This is certainly the case with *The Button Wreck*.

6.2 The Wrecking Process Findings

The Button Wreck is certainly not the *Anna Thersea*, which was a packet ship. From the recorded timbers the wreck is that of a Warship, probably English. At the moment we are not able to confirm what type of warship the wreck is, as we need to uncover and document the amidships and bow construction to prove if it is a Schooner, a Sloop or possibly even a small 20 gun frigate.

Taking all the points discussed in section 6.1, it is ADMAT's belief that the anchors, rigging and cannons were not salvaged at the time and have not been salvaged since the wrecking process, and certainly not since the FKNMS and NOAA has been protecting



the area. Therefore the items must still be out at sea. They are not on the site so they must have been jettisoned during the wrecking process elsewhere.

The vessel is lying on an even keel, with no apparent damage to the lower hull. This supports the hypothesis that the wrecking process was to all extent, gentle and was not a high impact occurrence. Had the vessel arrived at its current location in a storm, the ship would have had the lower hull smashed which would result in very little remaining today. The mere fact that the hull is in such excellent condition and intact below the keelson, assists with its own preservation. Had the vessel been broken up and smashed in high seas, the timbers would be dispersed and scattered all over the reef.

The vessel is lying almost due south to south south west and the sternpost and gudgeons are off to one side at an angle. This is consistent with the vessel sailing in a south or south west direction and grounding on flat coral plate which ripped off the sternpost and rudder, which is the lowest part of the vessel. Once this had occurred the vessel would be doomed and grounded within 5.8 meters (19 ft). The depth is very shallow anyway and once flooded with the rear section of the ship exposed, it would have proved almost impossible to re-float.

However the wrecking process does not end there, due to the scientific fact of the missing items. If one follows a northerly to north north east direction for about a mile, the Bunn Cannon Patch Site is located. This is reported in detail by Denis Trelewicz who with the SRI Volunteer Team surveyed and reported on this site.

Here there are all the items associated with an English wreck site, without the wreck. 13



iron 4 pdrs, rigging and one anchor were located on the surface of the seabed. Extensive research failed to identify the wreck, but it did narrow the date of the artefacts to between 1740 and 1780, which fits the buttons found on *The Button Wreck*. The nationality was confirmed as English. No hull material and ballast was found, but the cannons were lying up side down in the sand, with their touch holes and aprons in the sand. This is consistent with jettisoned cannons, as when they are rolled over the side the wooden truck is lighter and will be facing upwards. Over time the carriages are eroded and get washed away leaving the cannons up side down.

In the SRI permit no: FKNMS 2002-055 report conclusions it states:

The ship that jettisoned the cannons onto the site was more than likely British and was either a two masted sloop or a schooner that was patrolling the waters off Southeast Florida. It is speculated that the grounding took place while Florida was held by the British, between 1763 and 1783. It is further thought that the ship was sailing from south to north and struck the reef at a bearing of about 300 degrees. (Trelewicz, 2002: 16).

This is an interesting observation; however ADMAT believes that this is not entirely correct. The anchor was decisive in enabling the direction of travel to be ascertained. The anchor itself according to their report is a small anchor of about 10 ft long, certainly not the main anchors, but one which may be used for kedging, a ship off a reef. The common practice was to deploy the anchor to the rear of the vessel and try to pull the vessel backwards at the same time as ensuring that the ship does not go any further onto the reef. The other scenario being that, once the vessel was grounded to reduce weight in the bows one of the anchors was jettisoned and then the cannons which accounts for the positioning if the ship is reversed on the SRI drawing shown in illustration No:130.

The Bunn Cannon Patch Site in 14 ft of water to the North, has all the missing items from *The Button Wreck*, it is also on the same sailing route and is in a direct line with *The Button Wreck*. At present, with the information available at the time of writing this



interim report, it is ADMAT's findings that the Bunn Cannon Patch Site is directly associated with *The Button Wreck*. The Bunn Cannon Patch Site is a grounding as the SRI team concluded, but it is the first grounding of *The Button Wreck*.

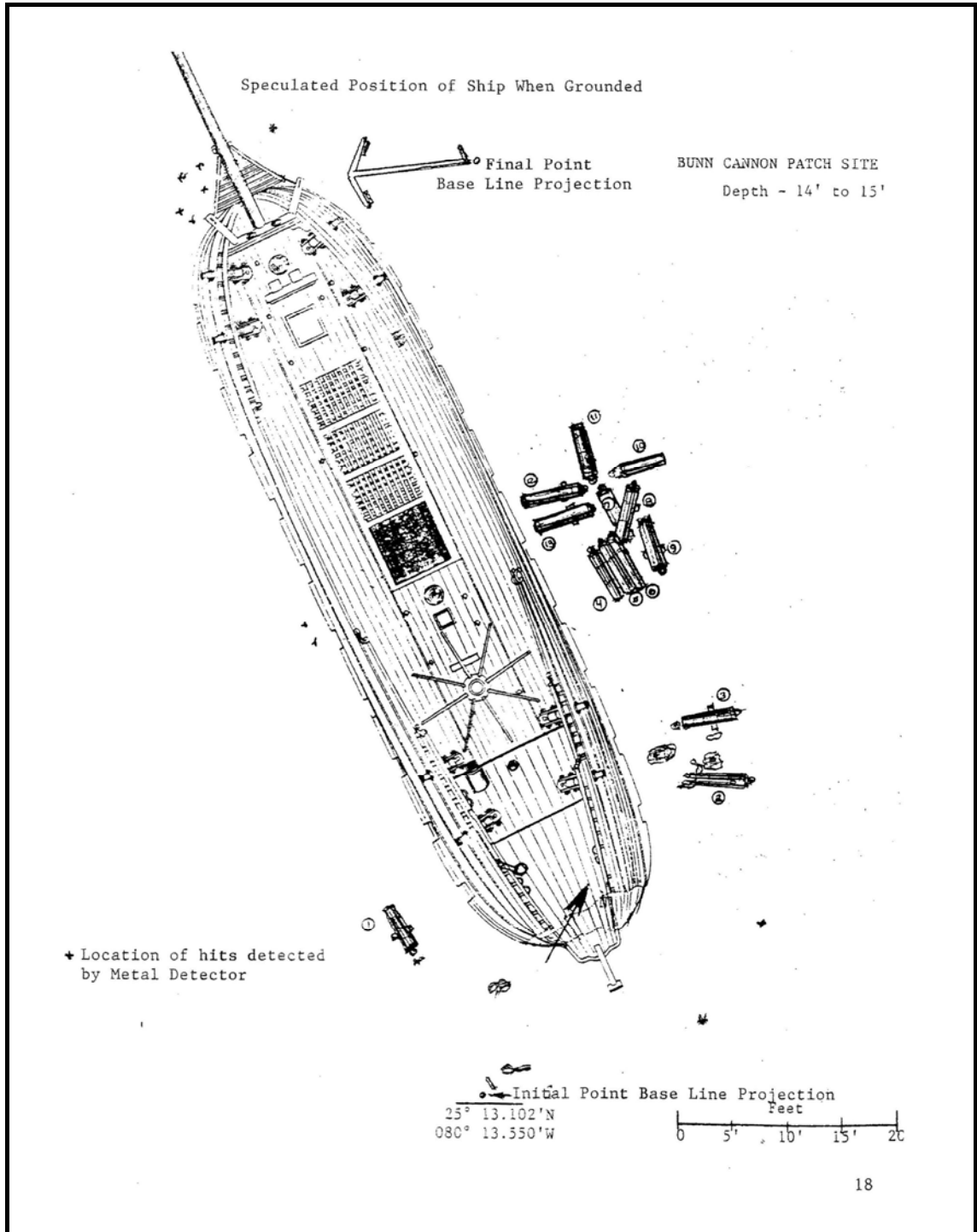


Illustration 130: The Bunn Cannon Site Grounding speculated position (© SRI Trelewicz).



Accordingly ADMAT's wrecking scenario for *The Button Wreck* is as follows:

At some time during or close of 1767 an English warship was travelling, possibly with some troops on board, from the north to the south at night. The night was calm which is why the lookout did not spot the reef, as there were no breakers. The Carysfort Reef was not visible and at this time was probably not charted. The ship grounded in 14 feet of water at the Bunn Cannon Patch Site approximately 0.85 nautical miles west of Carysfort Light Tower on an even keel, possibly damaging the rudder. To lighten the load an anchor was jettisoned and immediately afterwards as the vessel moved 10 cannons were rolled off the gangway on the port side, followed by two more from the port gangway and possibly some from the starboard side. One of the masts might have been cut away which also lightened the vessel.

Once off the reef, the captain continued sailing south but tried to sail off the reef into the channel which she did possibly hoping to reach the safety of deeper water to landward side, giving the Captain the possibility of running for the coast and a safe anchorage to assess his damage. However 1.8 nautical miles later she struck the corner of an even shallower reef (made possible by the lighter tonnage caused by the previous jettisoned items), see illustration No:131. This time the ship impacted a flat sheet coral reef which ripped off the rudder and the sternpost probably in one piece. With the sternpost gone the ship was immediately flooded and settled on an even keel. As the ship flooded after the wrecking, the ship was probably abandoned. It is impossible to calculate how the upper work was removed or when.



A.D.M.A.T.

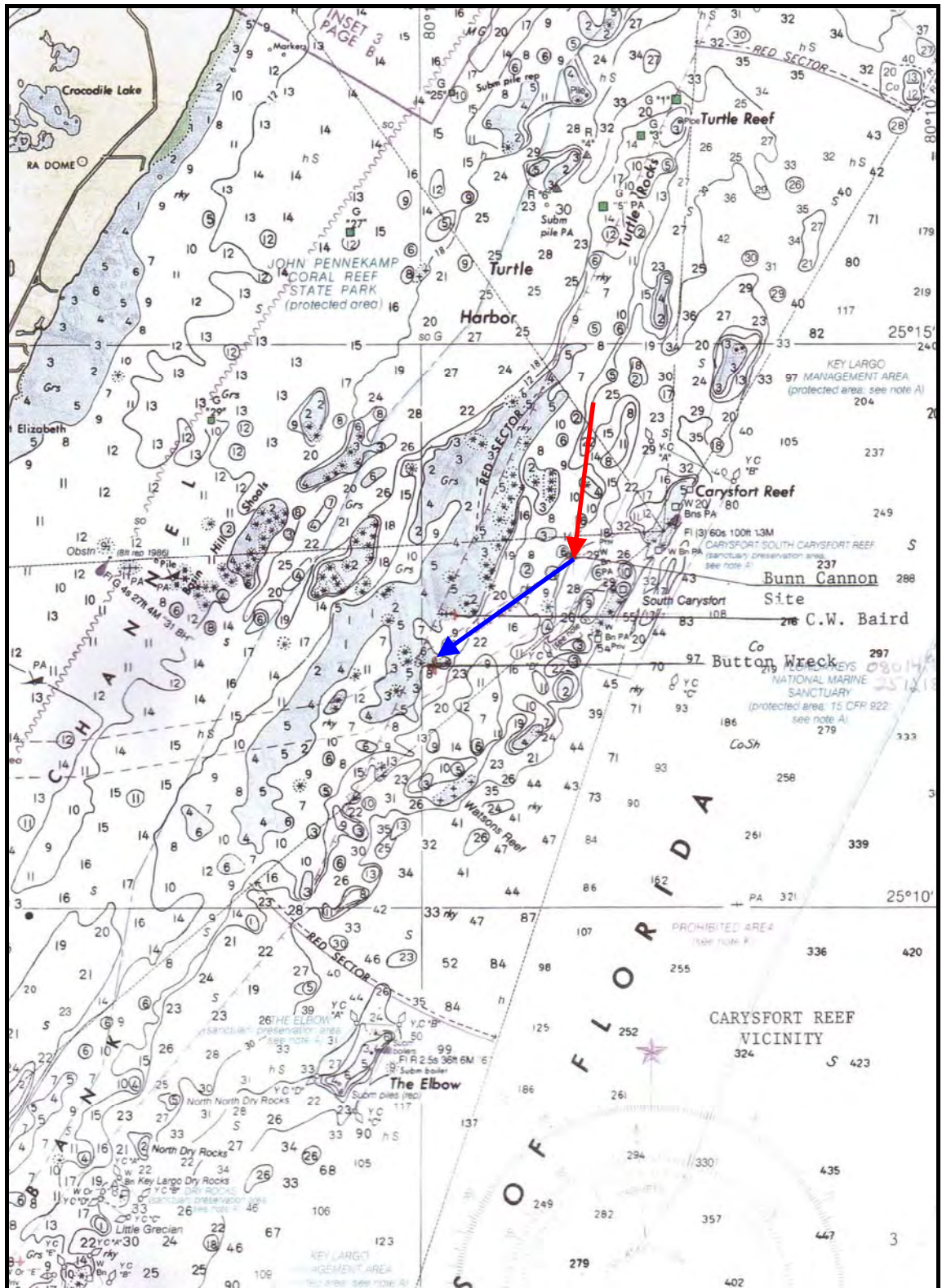


Illustration 131: Copy of a chart showing the Bunn Cannon Site and *The Button Wreck* site and a red arrow showing the estimated sailing direction before the first grounding, and blue arrow after the grounding and before the sinking.



**6.3: Recommendations for The Continuation of The Archaeological Survey
And The Preservation of *The Button Wreck Site***

**Following ADMAT's initial and successful maritime archaeological survey, we
propose the following:**

These 3 pages are confidential at the request of NOAA and FKNMS.

Signed.....

Dr. Simon Q. Spooner, BSc, MRICS, PhD, MIFA.
Permit Holder: Survey/Inventory Permit # FKNMS-2005-006
President of ADMAT & ADMAT-FRANCE, Vice President of ADMAT USA



6.4: The Button Wreck Plan





Appendix I: Archival Location

All the information, measurements, photographs, research and video taken are kept in ADMAT's archives in their offices in the UK. The team took over 16 gigabytes of photographs and video footage. NOAA, FKNMS and SRI will receive copies of all the digitally enhanced and cleaned photographs. The originals and complete archive is available upon request.

All the sponsors and students received copies of over 500 photographs taken, and these are also published on ADMAT's web page www.admat.org.uk



Appendix II: Project Design – Index:

- 1: Non-Technical Summary
- 2: Site Location and Description
- 3: Context of the Project
- 4: Geological and Topographical Background
- 5: Archaeological and Historical Background
- 6: General and Specific Aims of Fieldwork
- 7: Reference to Relevant Legislation
- 8: Field Methodology
- 9: Post-fieldwork Methodology
- 10: Report Preparation (method)
- 13: Publication and Dissemination Proposals
- 14: Copyright
- 15: Archive Deposition
- 16: Timetable
- 17: Staffing
- 18: Health and Safety Considerations
- 19: Monitoring Procedures
- 20: Contingency Arrangements



Appendix II: Section 1: Non-Technical Summary

This is the project design for the archaeological survey of *The Button Wreck* an important wreck in the northern section of the Florida Keys in USA. The wreck was uncovered by the hurricanes and storms, and has disappeared and re-appeared numerous times over the last 30 years. Its location at the reef crest places the surviving ships construction in a vulnerable situation. Any direct major storm may well disassemble the remaining lower hull and scatter the timbers so that the historic information is irretrievably lost. This project design outlines all the procedures and plans required to implement a scientific archaeological survey of the site and to give recommendations to the NOAA and FKNMS for the continuation and implementation of a plan to protect this maritime archaeological site.

Appendix II: Section 2: Site Location and Description

The site of *The Button Wreck* is situated on a flat reef in 3 metres (9ft) of water, approximately two miles southwest of Carysfort Light Tower, about 5 miles off shore, and approximately 10 miles from the dock in Key Largo on the Atlantic side of the Florida Keys. The wreck is located in the northern arrear of ADMAT's permit and of the Florida Keys National Marine Sanctuary (FKNMS). The wreck appears to stretch for 30 metres (90 ft) on a NNE – SSW alignment with the bow section facing the south.

Appendix II: Section 3: Context of the Project

This will be the first maritime archaeological project, undertaken by ADMAT in the Florida Keys and therefore there are no other underwater maritime archaeological sites that ADMAT has surveyed in the Keys, to put it in context with. However in it will be compared with other sites in the area which were identified by SRI.

The global expansion of the French and English empires in the Caribbean created military skirmishes associated with the pursuit of dominance. This may have a context with historic battles during the Seven Year War 1762-1763 and The American Revolutionary War 1775-1783

This is the first phase of ADMAT's Florida Keys Maritime Archaeological Project, a 5 year project to assist NOAA and FKNMS in preserving their Underwater Cultural Heritage.

Appendix II: Section 4: Geological and Topographical Background

The site according to the chart and our site inspections has a sandy and plate coral bottom. The deepest part of the search and survey area is about 4 metres (12 ft.) The site is within the Florida Keys National Marine Sanctuary.



Appendix II:

Section 5: Archaeological and Historical Background

This wreck site has been visually surveyed by the SRI group. However due to its location on a reef crest and its position, it is anticipated that few artefacts remain, as result of salvage at the time of sinking, historic and modern looting and the weather. The surviving timber and ships construction will be extremely important in trying to identify the type, age and nationality of the wreck, and if possible its purpose and wrecking process. The fact that only hand fanning techniques can be used will probably hamper the archaeological work, and certainly the calculation of the Wrecking Process.

Appendix II

Section 6: General and Specific Aims of Fieldwork

The aims of the field school are to conduct an in depth electronic and non-intrusive diver survey of *The Button Wreck*. Archaeological hand fanning has been allowed by NOAA and FKNMS which will be used to dust down the surviving timbers for the survey. Once this has been completed, it will be possible to analyse the remaining hull structure and to be able to put forward recommendations as to further archaeological work required on this site.

Appendix II

Section 7: Reference to Relevant Legislation

Whilst there is general legislation in respect of heritage and archaeological sites, there is the rules and regulations which govern activity in the FKNMS which will be taken into account.

Appendix II

Section 8: Field Methodology

A summary of the methodology is as set out below in accordance with ADMAT's Archaeological Protocol which is based on the Code of Conduct laid down by the Institute of Field Archaeologists (IFA):

1. The site will be visually surveyed by divers to mark the parameters of the exposed site.
2. The boundaries will be marked and a 1 metre PVC grid will be constructed and fixed on site.
3. The loose surface layers are to be removed by hand fanning.
4. The site will be drawn, measured plank by plank, frame by frame. Video and still digital photographs will be taken.
5. Once the survey area has been drawn and measured the grid is to be removed and further photographs and videos will be taken.
6. Any artefacts found will be measured in and recorded *in situ*. Any diagnostic artefacts found will be reported to NOAA with our recommendations. The



- decision and responsibility for the protection of these artefacts will remain with NOAA.
7. No piece of hull construction is moved in any way.
 8. One week prior to the end of the field school, the survey will move to the reverse hand fanning to cover the wreck site and return it to the state we found it in.

Appendix II

Section 9: Post-fieldwork Methodology

At the end of the field school, the core ADMAT staff will correlate all the information derived from the ship's construction, artefacts, site and survey and if possible calculate the Wrecking Process and test the various hypothesis.

Appendix II

Section 10: Report Preparation (method)

The interim report will be prepared by qualified individuals and will be written in such a way, as non-archaeologically trained individuals can understand. Full use of digital images will be included as will the history behind the project.

Appendix II

Section 11: Publication and Dissemination Proposals

The maritime archaeological survey of *The Button Wreck*, which is Phase 1 of the Florida Keys Maritime Archaeological project, will be publicised in as many publications world wide as possible to promote the archaeological work being undertaken by ADMAT. Publications in Europe, America and the Caribbean are planned. Radio and Television interviews as well as lectures will be undertaken. The reports and photographs will be used in a newsletter, and web site created and run by ADMAT, which is one of the largest maritime archaeological sites in the world.

Appendix II

Section 12: Copyright

The intellectual rights, drawings, photographs, video and information researched for the project shall remain the property of ADMAT and the photographers who took the photographs. However full copies of all photographs, drawings etc made and taken during the field school will be freely given and made available to NOAA and FKNMS. This information will also be given to the sponsors.

Appendix II

Section 13: Archive Deposition

The information derived from the field school, shall be archived in ADMAT's archives. Copied of all data shall be given to NOAA and FKNMS. ADMAT's web site shall also



have PDF file of the interim report, which can be down loaded by interested parties. As requested by NOAA, the GPS location of the wreck will be omitted from the report.

Appendix II

Section 14: Timetable

The estimated field school timetable will be the following: The field school will be running during Mid July to Mid August 2005.

Appendix II

Section 15: Staffing

The ADMAT volunteer staff will run the field school and project.

Appendix II

Section 16: Health and Safety Considerations

Introduction

As ADMAT is a registered non-profit company in England and Wales, the laws of the United Kingdom concerning Health and Safety matters govern the company and set the standard for ADMAT USA. ADMAT's health & safety policy was written by Neil Cunningham Dobson and was implemented by ADMAT's health and safety advisor Jeremy Schomberg. This 98 page document "ADMAT Health and Safety Policy v2" forms part of ADMAT's requirements for compliance with the Health and Safety at Work Act 1974. This document is available for inspection upon request as a PDF file.

Formal Statement of Health and Safety Policy

"It is the policy of ADMAT to ensure, so far as is reasonably practicable, the health, safety and welfare, while at work, of all employees, students, volunteers and other contractors and members of the public who may be engaged in ADMAT projects"
ADMAT Health & Safety Document v2a.



A.D.M.A.T. Risk Assessment Form (© ADMAT 2001-2006).

Place of work: Florida Keys, America

Title of work activity: Archaeological maritime field school.

Description of work activity: Diving, recording, survey, boat handling and other activities consistent with a maritime archaeological project.

Description of significant hazards: (slipping, tripping, fire, work at height, pressure systems, electricity, dust, fumes, manual handling, noise, poor lighting, low/high temperatures, moving machinery parts, weather, vehicles, lifting equipment, chemicals).

- 1) Decompression Illness & Diving Illnesses and Disorders
- 2) Drowning
- 3) Equipment Failure
- 4) Trips & Falls
- 5) Cuts / Stings / Abrasions /Bites
- 6) Heat Injuries
- 7) Crush / Impact Injuries
- 8) Boat / Engine Injuries
- 9) Compressor Injuries
- 10) Sanitation / Hygiene
- 11) General Medical Occurrences
- 12) Transportation Injuries

Groups who may be at risk:

Archaeological staff	X	Conservation staff	X	ROV Crew	<input type="checkbox"/>
Media crew	X	Office staff	X	Ship crew	<input type="checkbox"/>
Technicians	X	Maintenance staff	X	MoD staff	X
Security staff	X	Contractors	<input type="checkbox"/>	Visitors	X
Members of the public	X	Others (please specify).....			



Risk Assessment Form continued

List the controls and decide whether these precautions are adequate or more are required:

Has adequate information and training been given?	YES
Are adequate systems or procedures in place?	YES
Check that	
- Standards set by legal requirements are being met	YES
- Generally accepted industrial standards are in place	YES
- Precautions represent good practice	YES
- Precautions reduce risk as far as reasonably practicable	YES
- Has duty of care been enforced	YES

1) Decompression Illness & Diving Illnesses and Disorders

Existing precautions in place.

- All diving is in accordance with standards publicised or directed by the Project Diving Officer and the Rules laid out in ADMAT's Code of Conduct and Archaeological Protocol, Principal 5, Rule 5.1 – 5.6.
- All diving is under the controls of the ADMAT Diving Safety Standards & Information Manual v2, as enforced by the Project's Diving Officer.
- All divers must be covered by 3rd party insurance and medical diving insurance.
- All divers must be qualified and have presented their qualifications to the Diving Officer prior to diving.
- All divers must have an in date medical, copied of which are presented to the Diving Officer prior to diving.
- It is a requirement under ADMAT's Code of Conduct and Archaeological Protocol, Principal 5, Rule 5.4, that "members of the project disclose to the Project Diving Officer any medical reason which could prohibit their diving activities."

Additional precautions to be taken out.

- No diving below 25 metres without prior written approval from the Diving Officer.
- Oxygen to be on site on each boat as well as sufficient oxygen to travel to nearest chamber.
- Pre Dive Briefings.

2) Drowning

Existing precautions in place.

- All divers must have passed a swimming test in order to achieve diving qualification.
- Life jackets or buoyancy devises (inc wet suites but not dry suites) must be used on the ADMAT's boats.

Additional precautions to be taken out.

- None envisaged as no further risk assessed.



Risk Assessment Form continued

3) Equipment Failure

Existing precautions in place.

- All diving is in accordance with standards publicised or directed by the Project Diving Officer and the Rules laid out in ADMAT's Code of Conduct and Archaeological Protocol, Principal 5, Rule 5.1 – 5.6.
- All divers trained to minimum qualifications.
- All equipment to be in date for service.
- All project members, volunteers and students are responsible for the maintenance and servicing of their own personal equipment.

Additional precautions to be taken out.

- All equipment to be checked daily.
- Normal rinsing after every dive.
- Pre Dive briefings.
- Training for unfamiliar equipment.

4) Trips & Falls

Existing precautions in place.

- First Aid kit on site.
- Trained First Aiders.
- Site preparation.
- Local Hospital.
- CASEVAC procedure.

Additional precautions to be taken out.

- Correct Footwear.
- Daily Briefings.

5) Cuts / Stings / Abrasions /Bites

Existing precautions in place.

- First Aid kit on site.
- Anti Toxin on site if required
- Trained First Aiders.
- Local Hospital.
- CASEVAC procedure.

Additional precautions to be taken out.

- Hard sole bootees to be worn.
- Daily Briefings.
- All briefed on any local dangers.
- Gloves and kneepads required and to be worn.



Risk Assessment Form continued

6) Heat Injuries

Existing precautions in place.

- Weather forecast. Capt. Hyatt Hodgdon to check the local weather forecast daily and use his radar on the boat to monitor the lightning storms.
- All persons briefed prior to deployment of sunscreen.
- Drinking water available.

Additional precautions to be taken out.

- Sufficient water on site daily.
- All personnel to have water bottles / head protection at all times.
- Regular checks by ADMAT personnel.

7) Crush / Impact Injuries

Existing precautions in place.

- BSAC & ADMAT Safe Diving Practices.
- Training in recovery and lifting procedures.
- First aid kit on site.
- Trained First Aiders.
- Local Hospital.
- CASEVAC procedure.

Additional precautions to be taken out.

- Correct Footwear.
- Daily Briefings.
- All lifting will be planned and rehearsed before execution.
- Sufficient instructors.

8) Boat / Engine Injuries

Existing precautions in place.

- First Aid kit on site.
- BSAC & ADMAT Safe Diving Practices.
- BSAC boat handling / Coxn rules.
- All boats handled by qualified handlers only.
- Trained First Aiders.
- Local Hospital.
- CASEVAC procedure.

Additional precautions to be taken out.

- No movements of boats in divers arrears.
- Divers away from the site will be required to use SMB's or DSMB's.
- All boats to moor where possible.



Risk Assessment Form continued

- Engines will be placed in neutral when deploying and recovering divers.
- Daily Briefings.

9) Sanitation / Hygiene

Existing precautions in place.

- Strict regime of cleaning coolers, water bottles and kitchen back at base. Emptied when required by SCHS/ Ministry of Tourism.

Additional precautions to be taken out.

- None envisaged.

10) General Medical Occurrences

Existing precautions in place.

- First Aid kit on site.
- CMT Medic on Team.
- Trained First Aiders.
- Local Hospital.
- CASEVAC procedure.

Additional precautions to be taken out

- All divers to have medical prior to diving.
- Sick parade held every morning.
- Diving Instructors and Boat Captains to monitor all members.

11) Transportation Injuries

Existing precautions in place.

- First Aid kit on site.
- Licences to be held by all approved drivers.
- No alcohol to be consumed by car / mini bus drivers on the day they are to drive.
- Trained First Aiders.
- Local Hospital.
- CASEVAC procedure.

Additional precautions to be taken out

- None envisaged.



Risk Assessment Form continued

List outstanding risks and the action to be taken where it is reasonably practicable to do more:

Give priority to those risks, which affect large numbers of people and/or could result in serious harm. Apply the following principles, if possible in the following order:

- Remove the risk completely
- Try a less risky option
- Prevent access to the hazard (e.g. guarding)
- Organise work to reduce exposure to the hazard
- Issue personal protective equipment
- Provide welfare facilities (e.g. first aid and washing facilities for removal of contamination)

Risks not adequately controlled

Further action to be taken

None envisaged. All Project members have a personal responsibility to use common sense. If something appears to them to be questionable, they have a duty to question it.

In accordance with the Health and Safety at Work Act 1974, employees, students and volunteers whilst at work have a duty to take care of their own health and safety and also that of other people who may be affected by their acts or omissions.

Signature of

Assessor.....**Date**.....

Name of Assessor: Jeremy Schomberg.....**Review Date**.....



Appendix II

Section 19: Monitoring Procedures

All work undertaken during the project will be monitored by ADMAT in conjunction with the Local Captains and NOAA. NOAA personnel are able to visit the archaeological site as often as they wish.

Appendix II

Section 20: Contingency Arrangements

The Button Wreck site has been chosen as a site which urgently needs maritime archaeological assessment and survey. Other sites in the near vicinity, such as the *Iron Bar Wreck* and the *HMS Winchester*, would not be suitable alternatives, as they are affected by the same weather patterns and currents. The alternative site is the *Dixie Shoals Cannon Wreck* site, to the south and one which is closer to the dock. Only a hurricane can stop the project, and the timing for the project has taken this into account.



Appendix III: Artefact Codes

ARTEFACT IDENTIFICATION CODES

SHIPWRECKS & SITES

BW = Button Wreck

FINDS CATEGORIES

AR = Animal Remains- Usually Bones
HR = Human Bones
Bal = Ballast
Or = Ordinance
Shi = Ship's Construction
BW = Bladed Weapons - Swords, sword hilts, daggers, scabbards etc
C = Concretion
G = Glass
NF = Non Ferrous, - Copper alloys, lead, pewter, tin
F = Ferrous
PB = Personal Belongings
Pt = Pottery- Includes glazed, unglazed, china, decorated, tiles, faience
S = Shot- Any size
Br = Brick
St = Stone
W = Wood
I = Ivory
Cn = Coins
Co = Corral
T = Tools
G = Gems
L = Leather
COK = Coke and coal
Pi = Clay Pipes
Mv = Medicine Phials
Dg = Drinking glasses
Org = Organic remains/plant remains
Ft = Floor Tiles



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