

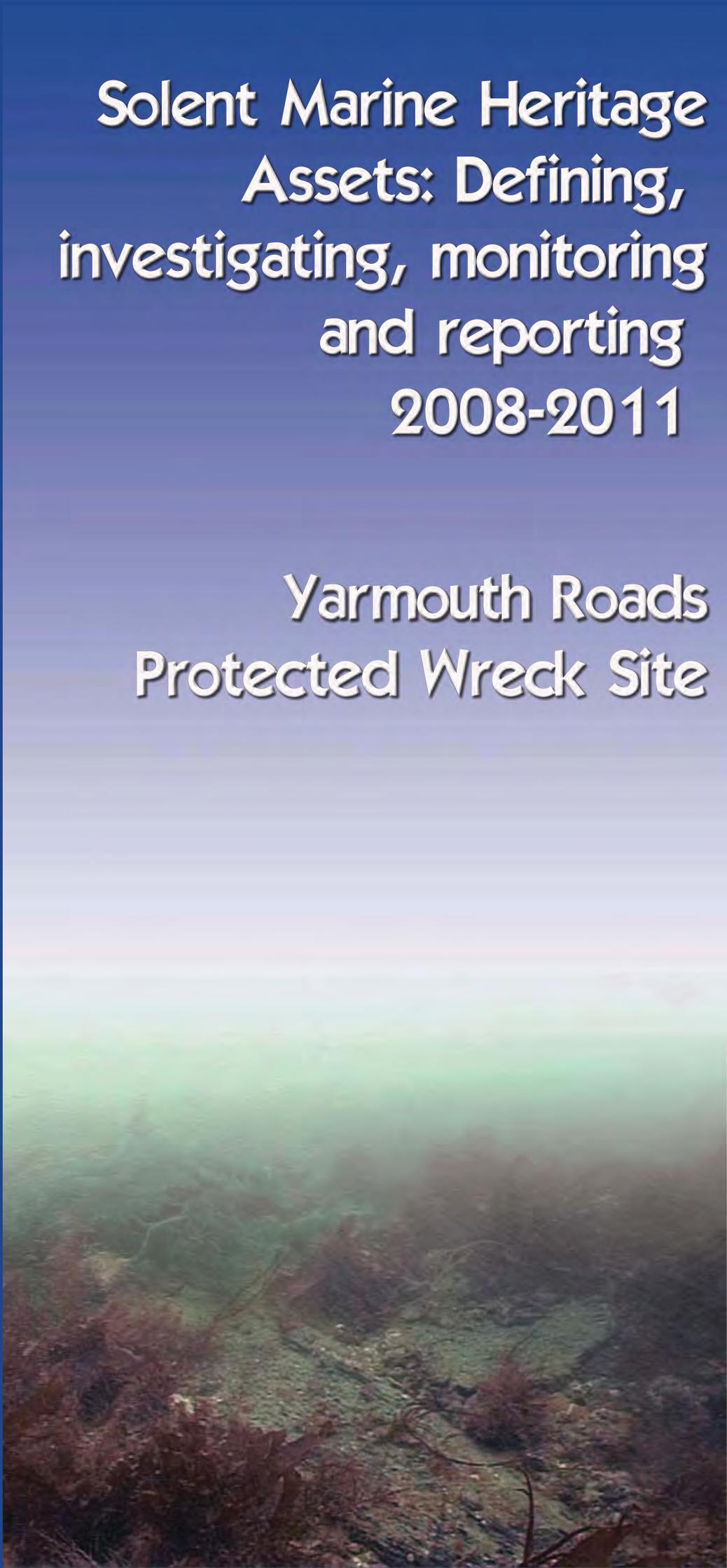


ENGLISH HERITAGE

Solent Marine Heritage Assets: Defining, investigating, monitoring and reporting 2008-2011

Yarmouth Roads Protected Wreck Site

March
2010



CONTENTS

TABLE OF FIGURES	2
i. ACKNOWLEDGEMENTS.....	3
ii. COPYRIGHT STATEMENT	3
iii. SUMMARY	3
1. PROJECT BACKGROUND.....	5
1.1 Introduction.....	5
1.2 Site Location.....	5
1.3 Solent Heritage Assets Protect: Aims & Objectives	5
1.3.1 The Yarmouth Roads Objectives	6
2. THE YARMOUTH ROADS SITE.....	6
2.1 Site History and Significance.....	6
2.2 Site Environment	7
2.3 Site Ownership	9
2.4 Licensing History	9
2.5 Summary of Archaeological Investigations.....	9
3. MONITORING METHODOLOGY	14
3.1 Diving.....	14
3.2 Survey	15
4. SURVEY RESULTS.....	15
4.1 Diving Conditions.....	15
4.2 Archaeological Features.....	16
5. CONCLUSIONS.....	18
5.1 Survey Assessment.....	19
5.2 Historic Wreck Site Risk Assessment.....	20
5.3 Potential for Further Work	21
6. BIBLIOGRAPHY	22
APPENDIX I – DIVE LOGS.....	23

TABLE OF FIGURES

<i>Figure 1 - Yarmouth Roads wreck, site location</i>	<i>8</i>
<i>Figure 2 - Timbers revealed during the 1988 excavation.....</i>	<i>10</i>
<i>Figure 3 – Pottery jug recovered from the Yarmouth Roads wreck site.....</i>	<i>10</i>
<i>Figure 4 – Bronze pestle recovered from the Yarmouth Roads wreck site.....</i>	<i>11</i>
<i>Figure 5 – Bone comb recovered from the Yarmouth Roads wreck site.....</i>	<i>11</i>
<i>Figure 6 - Alberghetti minion</i>	<i>12</i>
<i>Figure 7 – 2005 image of sandbags covering the structure of the Yarmouth Roads wreck.....</i>	<i>13</i>
<i>Figure 8 - Amplitude map courtesy of Ruth Plets & Justin Dix, National Oceanography Centre.....</i>	<i>14</i>
<i>Figure 9 - Structure on seabed</i>	<i>16</i>
<i>Figure 10 - Diver highlighting structure</i>	<i>17</i>
<i>Figure 11 - Structure on seabed</i>	<i>17</i>
<i>Figure 12 - Image of sandbags at the Yarmouth Roads wreck site</i>	<i>18</i>

i. ACKNOWLEDGEMENTS

The Solent Marine Heritage Assets project was commissioned by English Heritage (EH) following a proposal from the Hampshire and Wight Trust for Maritime Archaeology (HWTMA). The project has been designed as a heritage partnership which promotes a mutually beneficial working relationship between EH and the HWTMA. The work undertaken, particularly the diving fieldwork is arranged in conjunction with other HWTMA research work, to allow most effective use of resources. The project also uses data and information gathered by the HWTMA over the past 18 years. The project results help fulfil the agendas of both EH and HWTMA.

The HWTMA would also like to acknowledge a range of funders who, through their support of work on the sites included within the Solent Marine Heritage Assets project and other complementary research have helped make this project possible. These include: Hampshire County Council, the Isle of Wight Council, Southampton City Council, English Heritage, Defra's Aggregates Levy Sustainability Fund, the Crown Estate, the Heritage Lottery Fund, the Gosling Foundation, Herapath Shenton Trust, Daisy Rich Charitable Trust, Aiken Foundation, D'Oyley Carte Trust, Roger Brookes Charitable Trust, John Coates Charitable Trust and the Charlotte-Bonham Carter Charitable Trust. Additionally we would like to acknowledge the help and support of the wide range of organisations and individuals without whose help the HWTMA would not be able to achieve the results it has obtained.

The assistance provided by Mark Dunkley (now Heritage Protection Team) and Alison Hamer of the English Heritage Maritime Team is gratefully acknowledged.

The HWTMA would also like to thank Trevor Jenkins and Andy Williams for their invaluable assistance during this survey.

ii. COPYRIGHT STATEMENT

This report has been produced by the HWTMA with the assistance of funding provided by English Heritage. Unless otherwise stated all images are copyright of the HWTMA. HWTMA provide EH permission to use images taken during the 2009 fieldwork, these should be recognised as 'HWTMA / Trevor Jenkins'. The report also contains images whose copyright is owned by other parties, these must not be reproduced without permission.

iii. SUMMARY

The Solent has long been recognised for the importance of its marine heritage. The diversity and density of sites makes it one of the highest potential marine areas of England. As a result, the Solent Marine Heritage Assets project has provided funding to enable the Hampshire & Wight Trust for Maritime Archaeology (HWTMA) to work together with English Heritage (EH) to target work on marine heritage assets to enable more effective regional management and also provide a possible model for cost-effective support for developing national structures.

This report particularly focuses on the site monitoring which was undertaken on the Yarmouth Roads protected wreck on 29th June 2009, in accordance with a Brief drafted by EH and agreed by the HWTMA. The site is located at a 50m radius from the point 50° 42. 31' North, 01° 29. 597' West (WGS84). The site is the wreck of a late 16th or early 17th century merchant carrack, possibly of Spanish origin. It may be the *Santa Lucia*, lost in 1567.

The survey methods used during the assessment of the Yarmouth Roads site were diver survey encompassing site photography and video. Taped measurements of observed archaeological features were not possible due to conditions on the site. Diving operations on site were undertaken during the HWTMA fieldwork within the Western Solent 29th June – 3rd July 2009.

The diver survey revealed that the Yarmouth Roads protected wreck site remains a relatively stable site. No noticeable changes were observed in this monitoring dive compared to the last HWTMA dive on site in 2005, with the sandbags covering the site remaining in a similar state of degradation. Only limited amounts of wooden structure are visible above the seabed but these are at risk of physical erosion. The installation of monitoring points may help with an assessment of the speed of erosion taking place on site. The threat to the general stability of the larger buried remains is minimal but the possibility of degradation of vulnerable wooden structure leads to the conclusion that the risk can be assessed as **MEDIUM**. The degraded state of the sandbags and the fact that vulnerable remains are situated above seabed level means that regular monitoring of this site is crucial as the level of risk can be subject to change.

During the survey, a yacht was observed to be moored close to the protected area sited on the visitor moorings for Yarmouth Harbour. A position for this vessel was gained, but further work is required to investigate whether the mooring tackle may be within the protected area. English Heritage are investigating this further with the owner of the moorings and HWTMA will endeavour to gain an accurate position for this during the 2010 diving season.

1. PROJECT BACKGROUND

1.1 Introduction

The Solent has long been recognised for the importance of its marine heritage. The diversity and density of sites makes it one of the highest potential marine areas of England. The HWTMA are well placed to respond on a regional basis to sites and finds which require investigation and monitoring whether these are underwater or are in the intertidal zone. The Solent Marine Heritage Assets project has provided funding to enable the HWTMA to work together with EH to target work on marine heritage assets to enable more effective regional management and also provide a possible model for cost-effective support for developing national structures.

This report particularly focuses on the monitoring that was undertaken on the Yarmouth Roads protected wreck site on 29th June 2009, in accordance with a Brief for Archaeological Services provided by EH.

1.2 Site Location

The subject of this report is the Yarmouth Roads protected wreck site. The site is located within a distance of 50m of the point 50° 42. 31' North, 01° 29. 597' West WGS84. The site contains the wreck of a late 16th or early 17th century merchant carrack, possibly of Spanish origin. It may be the *Santa Lucia*, lost in 1567.

1.3 Solent Heritage Assets Protect: Aims & Objectives

The overall aim of the Solent Marine Heritage Assets project is for HWTMA and EH to work together to target work on marine heritage assets.

The project allows for the flexible targeting of site investigation, monitoring and reporting. It is supporting:

- Work on Solent Designated Historic Wreck Sites;
- Investigation and monitoring on non-designated wreck sites; and
- Investigation and monitoring of non-wreck sites.

The objectives comprise:

- To undertake investigation and monitoring of marine heritage assets to address specific management and/ or protection issues
- To involve students and volunteer divers in the investigation of marine heritage assets;
- To report on condition of a range of marine heritage assets to relevant regional and national curators and advisory bodies;
- To provide locally based, reactive, ability to investigate submerged heritage assets in fulfilment of aims and priorities of both the HWTMA and EH; and
- To assess the effectiveness of the project as a model for the support of locally based investigation, monitoring and reporting for marine heritage assets.

1.3.1 The Yarmouth Roads Objectives

The overall objective was to reach recording Level 2a as defined by EH in a Brief agreed with HWTMA prior to the site assessment.

Level	Character	Scope
2a	Non-intrusive	A limited record based on investigations that might include light cleaning, probing and spot sampling, but without bulk removal of plant growth, soil, debris etc.

The specific tasks were to:

- Undertake survey of the site, identifying and recording in detail any vulnerable elements of the structure, with particular emphasis on the conditions of the sandbags and any exposed material.
- Produce a structured record of field observations. Key elements are to be subject to detailed examination and recording (position by diver survey, taped measurements, photographs and video and written database entries).
- Undertake a Risk Assessment with reference to English Heritage's *Risk Management Handbook* (November 2008).

2. THE YARMOUTH ROADS SITE

2.1 Site History and Significance

The wreck site has been tentatively dated to the mid to late 16th century through artefact association. A range of artefacts have been recovered from the site, dating from as early as the mid 16th century up to the mid 19th century, due to an the accumulation of more recent objects. The excavation of 12 pieces of pewter in 1988, bringing the total to 15, provided a firm dating framework in association with ceramics which permitted all the finds to be placed in the 16th century (Watson & Gale, 1990). There is no date for the construction of the vessel but an early to mid 16th century date is probable. The site therefore encompasses the remains of a late 16th or early 17th century merchant carrack (Plets *et al*, 2007). No definite identity has been confirmed for the wreck, though reference has been found in the High Court of Admiralty Records to a petition in 1567 from a Spanish merchant, Antonio de Gwarras, seeking from the Captain of the Isle of Wight, Sir Edward Horsey, the return of wool salvaged from the *Santa Lucia*. The ship was sailing to Flanders when it wrecked 'thwart of Yarmouthe' (Fenwick & Gale, 1998).

The historic and archaeological significance of the Yarmouth Roads site has been illustrated through its designation under the Protection of Wrecks Act (1973), through which shipwrecks deemed to be of historical, archaeological or artistic importance are protected through restricting site activities. Although this legislation was not originally intended to be a long-term tool for heritage protection, the Act has remained the main piece of legislation for protecting underwater cultural heritage in England since its inception. The Yarmouth Roads site was designated due to the rarity and archaeological significance of the remains.

The Yarmouth Roads site can be considered by assessing its significance according to English Heritage's *Conservation Principles, Policies and Guidance* (2008). The statutory designation judges a particular value to be above a defined threshold of importance, but day-to-day management takes into account all the values that contribute to a sites significance. Heritage values as assessed by English Heritage's *Conservation Principles, Policies and Guidance* (2008) can include:

- evidential value;
- historical value;
- aesthetic value;
- communal value.

The artefact remains from the Yarmouth Roads site provide evidence of merchant shipping in the late 16th or early 17th century. Such evidential information is rare and provides an important insight into the cargo and personal effects that might be carried on a ship of this era. The structural remains themselves provide data regarding ship construction, and an example of the type of vessel used as a merchant vessel in this period.

The excavations on site in the 1980s have provided a significant archive associated with the site; this material is held and curated by the Isle of Wight Museums Service. The excavations constituted trenches which have investigated a relatively small area of the stern of the vessel, meaning that much of the seabed archive, which has been proved to be of high significance, remains buried in-situ. The excavations themselves also provided important evidence for the development of the practice and techniques of maritime archaeology within England.

As the project funding for the excavations came to an end, the site was left sand bagged for protection. The recovered archive was deposited with the IoW Museums Service, but to date, the full assessment, analysis and publication of this important collection has not been possible. This means the full research potential of the site, which is nationally and internationally important, has not been realised.

More recent geophysical and diver surveys have monitored the site and provided information on the situation of the remainder of the structure, illustrating the effect the seabed formation has had on the distribution of structural remains and the preservation potential of the area (Plets *et al*, 2007).

2.2 Site Environment

The wreck is located less than 200m from the shore of Yarmouth on the Isle of Wight (Figure 1) at a depth of 4 to 8m. The seabed comprises featureless clay beds with overlying mobile silty sand / shell / pebbles. Diving is best carried out at slack water on a neap tide. The tidal regime produces water movement of up to 3.5 knots across the area.

Outside the archaeological deposits there is undisturbed Eocene bed rock. The local seabed environment is thought to be erosive, as suggested by the lack of recent deposition. The remaining structure of the Yarmouth Roads wreck has survived by becoming buried in hollows in the underlying bed rock. The lack of a scour pit at the site implies that these hollows were formed through abrasion between the hull fragments and the bed rock, rather than through erosive scour (Nicholls, 1986 cited in Watson & Gale, 1990). The archaeological material is contained within fine silts which are sufficiently stable and anaerobic to allow good preservation.

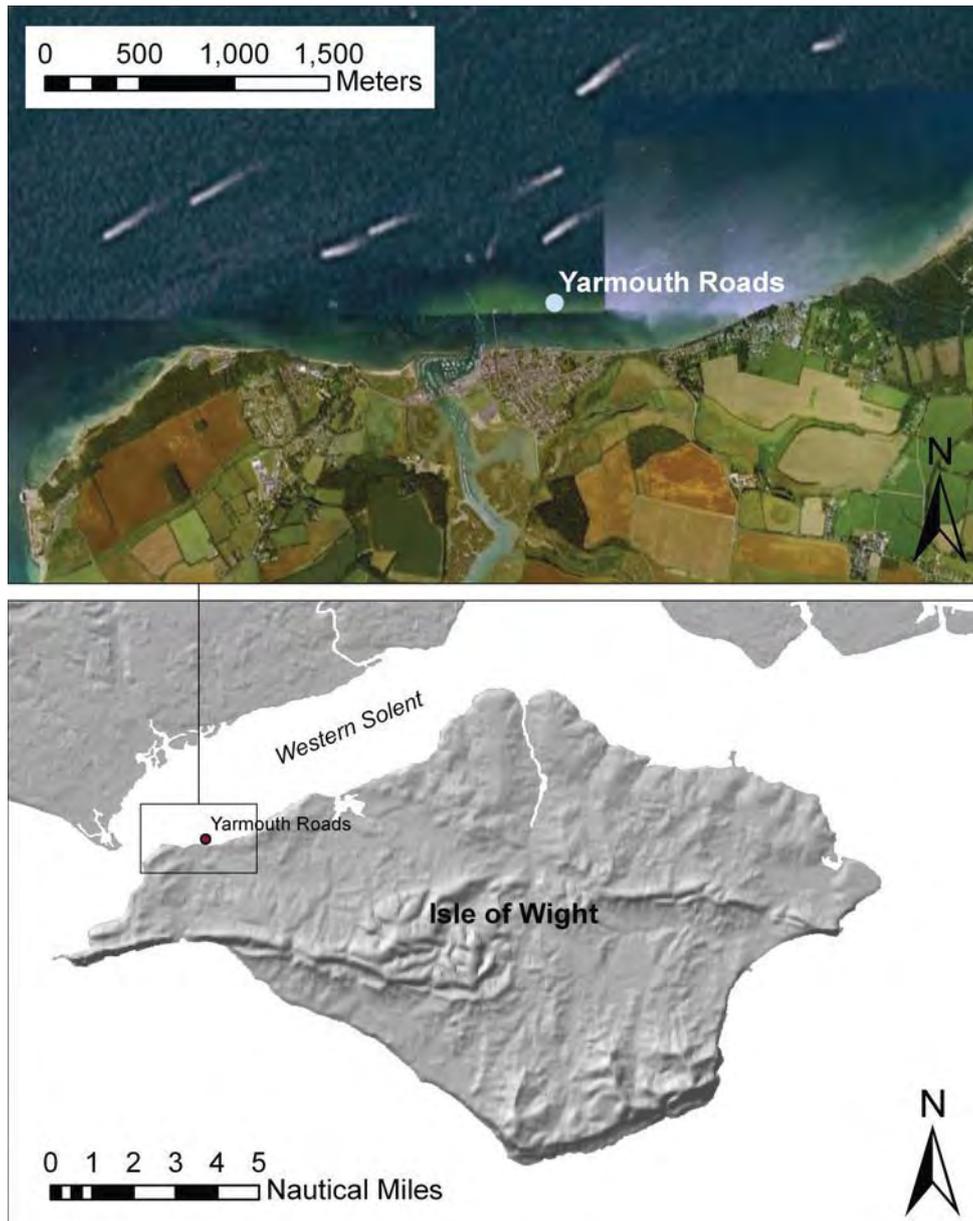


Figure 1 - Yarmouth Roads wreck, site location (HWTMA)

2.3 Site Ownership

The Yarmouth Roads site is designated under the Protection of Wrecks Act 1973 and as such requires a license from the Department for Culture, Media and Sport in order for anyone to access the site, or for any work to take place on the site. The HWTMA has acted as licensee for the Yarmouth Roads site since 2004, and prior to this has supported survey and investigation. The Crown Estate own the seabed on and within which the wreck lies.

2.4 Licensing History

The Yarmouth Roads site was first identified in 1984 and was investigated in the 1980's by the Isle of Wight Maritime Heritage Project (IWHMP). This project was one of the driving forces behind the formation of the HWTMA, and the HWTMA has acted as licensee for the site since 2004. Prior to this date the licence was held by Dr David Tomalin, while he was County Archaeologist for the Isle of Wight. Since 2004 the HWTMA has performed an active monitoring and investigation role on the site. In recent years access has been hampered by poor weather conditions which has reduced the frequency of visits.

2.5 Summary of Archaeological Investigations

The Yarmouth Roads wreck site was discovered in 1984 on the north-west coast of the Isle of Wight during the search for the source of Roman pottery brought to the surface by oyster fishermen trawling in the area. Following designation in 1984 two small test areas were excavated to permit a preliminary inspection of the ship structure. Following this in 1986 the Isle of Wight Maritime Heritage Project (IWMHP) carried out a pre-disturbance survey recording visible finds and structure and collecting finds and sediment samples from the seabed. A geophysical survey was also carried out utilizing a magnetometer; a side scan sonar and a sub-bottom profiler. In 1987 a trench was excavated along the western edge of the site, believed to be the stern (Watson & Gale, 1990).

The 1988 IWMHP project excavated the wreck site for the purpose of evaluation, the summary below of the work carried out in the 1980's is based on the report written by Watson & Gale: *Site evaluation for marine sites and monuments records: the Yarmouth Roads Wreck investigations* (1990). The investigation of the Yarmouth Roads site was aimed at placing it within a framework of an inventory of sites, rather than as a prelude to total excavation. The excavation focused on developing a methodology for evaluating the importance of seabed sites. To this end trial trenches were excavated stratigraphically as this appeared to be the most effective method of quickly retrieving data. The Watson & Gale (1990) report on the excavations states that the vessel remains consist of four substantial, well-preserved fragments lying around undisturbed hard clay seabed. The site plan relating to the 1988 excavations can be seen in the article by Watson & Gale: *Site evaluation for marine sites and monuments records: the Yarmouth Roads Wreck investigations* (1990, p.185).

The 1988 excavation revealed that all the excavated fragments lie with their outboard faces downwards, which suggested that they fell away from the

centre of the vessel (Figure 2). The vessel is of carvel construction and fastened largely with iron. The size of the site and individual elements suggest a vessel around 32m in length. Exactly how much of the ship remains buried within the seabed sediments is unknown.



*Figure 2 - Timbers revealed during the 1988 excavation
(copyright Isle of Wight Museums Service)*

Following the 1988 excavation the total number of artefacts retrieved from the site was 256. These include ceramics in the form of Italian pottery dating from 1590 to 1620 (Figure 3); lead and pewter artefacts such as a collection of spoons; copper alloy scraps; a bronze pestle (Figure 4); stone shot; a bone comb (Figure 5) and a wooden component of a lantern.



*Figure 3 – Pottery jug recovered from the Yarmouth Roads wreck site
(copyright Isle of Wight Museums Service)*



Figure 4 – Bronze pestle recovered from the Yarmouth Roads wreck site
(copyright Isle of Wight Museums Service)

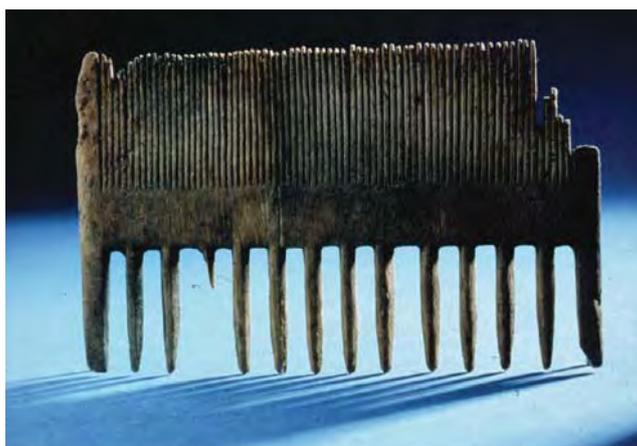


Figure 5 – Bone comb recovered from the Yarmouth Roads wreck site
(copyright Isle of Wight Museums Service)

In 1983, prior to the discovery of the wreck site, a 16th century bronze cannon bearing the initials Z A, presumed to be the work of the Italian bronze-founder Zuane Alberghetti, was lifted by members of the Portsmouth Royal Navy B.S.A.C. Special Branch under the direction of Commander John Bingeman (Tomalin *et al*, 1988). An association has been assumed between the Alberghetti minion and the Yarmouth Roads wreck, however the minion lay 150m to the east of the wreck site and, at the time of excavation in the 1980s, no immediate parallels between this loose find and those excavated from the site itself were determined (Watson & Gale, 1990). The Alberghetti minion is on display at the Underwater Archaeology Centre run by the HWTMA, located at Fort Victoria on the Isle of Wight.



*Figure 6 - Alberghetti minion
(copyright Isle of Wight Museums Service)*

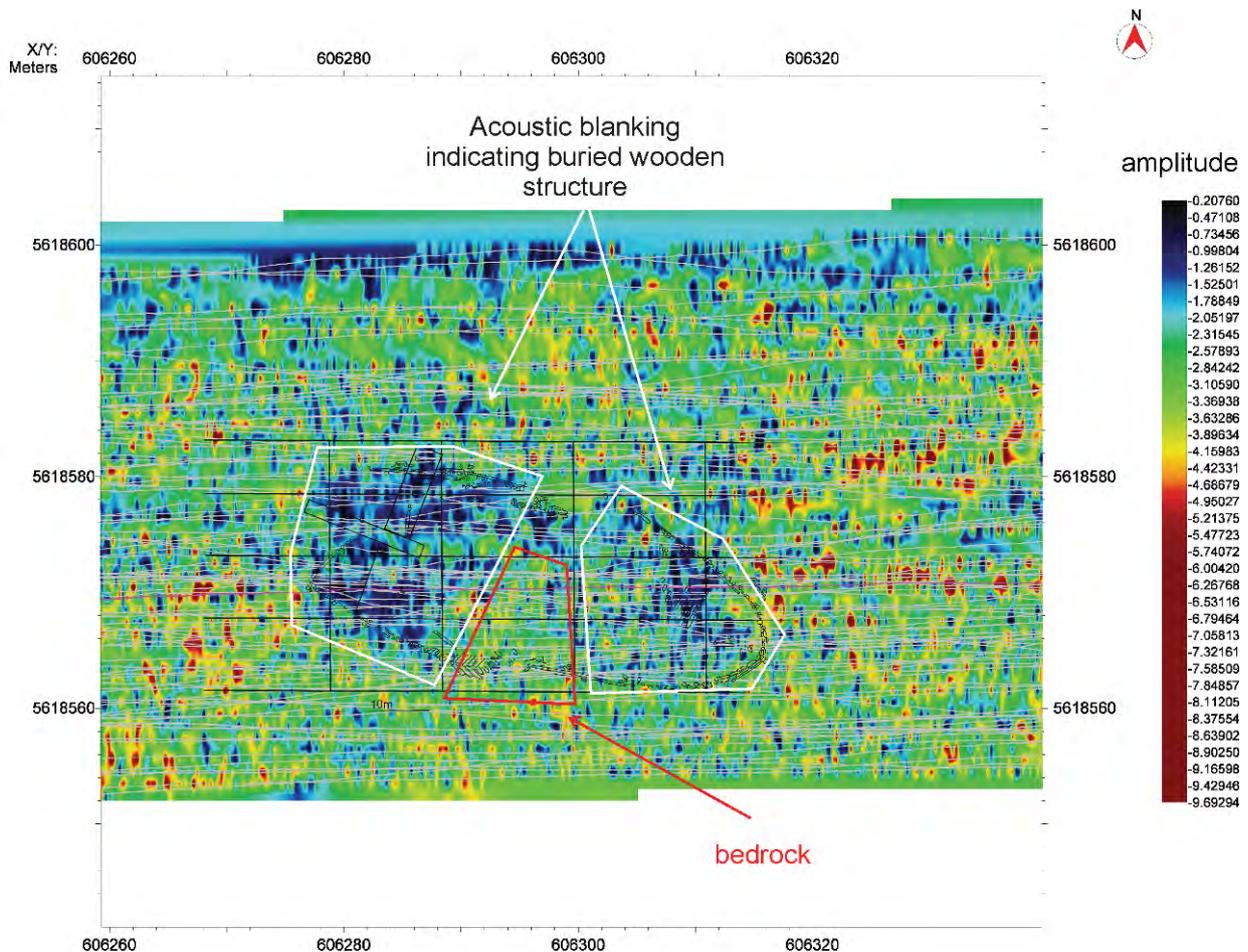
The frequency of certain types of objects within the ceramic assemblage and the relatively large number of copper scraps and pewter items are suggestive of cargo. The vessel is currently believed to be a late 16th or early 17th century merchant carrack. Although the type of trade is not clear, its cargo may have included pottery, pewter and/or scrap metal. Evidence of the cargo will be distorted by the bias of survival of certain types of artefacts and the fact extensive salvage is likely to have taken place on a vessel in shallow water close to shore. It has been suggested that the vessel may have been a Mediterranean ship engaged in some aspect of the triangular trade with England and the Low Countries (Watson & Gale, 1990).

On completion of the excavations in 1988 the structure visible on the seabed was sandbagged for protection, and these remain to date. In 2003 steps were taken to remove objects such as mooring lines and anchors which were illegally placed within the designated area and posed a threat to the wreck remains. The HWTMA became licensee of the site in 2004 and has been undertaking some work to identify all archive material related to the site. Contact with members of the 1980's excavation team has resulted in the collection of some paper and photographic material relevant to the site. An exhibit consisting of display boards presenting details of the site and a number of artefacts from the site was installed into Yarmouth Castle, an English Heritage property which overlooks the site, as part of an EH funded project in 2005. These items can still be viewed today. In the same year diving was undertaken with a mixture of professional and volunteer divers. Visual inspection revealed the sand bags covering the site were still largely in place; however they were beginning to degrade (Figure 8). Only very limited amounts of wooden structure were visible above the seabed, as recorded in the licensee report to the Advisory Committee for Historic Wreck Sites in 2005.



Figure 7 – 2005 image of sandbags covering the structure of the Yarmouth Roads wreck (copyright HWTMA)

In September 2005 a geophysical survey was undertaken of the site by Dr Justin Dix of the University of Southampton. The principle objectives for the survey were to gain data for use in monitoring the site and the surrounding area and to assess the potential for sub-surface imaging of the buried remains. The aim was to 'image' the buried hull structure to create a 3-D reconstruction. A single line of chirp seismic data was acquired over the site as poor weather conditions led to only a limited amount of data being acquired and this was of modest quality. A second geophysical survey was carried out in March 2006 using a chirp sub-bottom profiler. The results illustrated that the remains of the vessel were segmented and concentrated in the bow and stern sections, with bedrock situated in the middle of the wreck (Figure 9). The western stern section was demonstrated to be the most promising area for finding buried hull remains, remains do not appear to have survived in the amidships section. The geophysical survey suggested that the remains on the port side of the stern section were likely to extend further to the west than indicated on the original site-plan (Watson & Gale, 1990); and there appeared to be buried remains towards the bow section, mainly towards the port side (Plets *et al*, 2007).



10/26/06 17:05:43

Figure 8 - Amplitude map courtesy of Ruth Plets & Justin Dix, National Oceanography Centre

During the 2006 to 2008 seasons diving did not take place on the Yarmouth Roads site due to unfavourable weather conditions during the HWTMA's fieldwork days in the Western Solent and the need to focus the available funding on sites which were under immediate threat. The diving carried out at the Yarmouth Roads site in 2009 in connection with the Solent Marine Heritage Assets project provided the first monitoring opportunity for a number of years.

3. MONITORING METHODOLOGY

3.1 Diving

The HWTMA is registered as a diving contractor with the Health and Safety Executive (HSE). Diving involving HWTMA staff was undertaken under the HSE Scientific and Archaeological Approved Code of Practice.

Prior to diving a Project Plan was developed which included detailed information on:

- Diving team composition

- Boat (including safety features and facilities, numbers allowed on board, etc.)
- Tides (times and strengths)
- Site Risk Assessment (this is a general assessment of potential risk, it is augmented by a daily risk assessment completed on site)
- Provisional daily operations plan
- Procedures for use of any archaeological survey equipment
- Daily supervisor check list

3.2 Survey

The survey methods used during the assessment of the Yarmouth Roads site were diver survey encompassing tape measurements, site photography and video. One day of diving was undertaken on the site.

Recording was based on the Molas recording system, on which the HWTMA recording sheets have been based. The main adaptation of the Molas system for work in the underwater zone is the addition of a 'Dive Log Sheet' and an 'Archaeological Record Sheet', the former are used as the primary numbering system and are used for logging individual divers. Each diver fills in an Archaeological Record Sheet which provides details of specific work undertaken on each dive and references any numbers utilised e.g. context numbers, feature numbers and artefact numbers.

In summary the principal record sheet system includes:

- Dive Log Sheet
- Archaeological Record Sheet
- Context Log and Record Sheets
- Drawing Index
- Finds Index and Record Sheets
- Sample Index and Record Sheets
- Timber Index and Record Sheets
- Photo Index
- Video Index and Log Sheets

4. SURVEY RESULTS

The survey of the site enabled the identification and recording of structural elements with particular emphasis on the condition of exposed material. This allowed a more comprehensive assessment of the site in terms of its vulnerability and risk (see **Section 5.2**).

4.1 Diving Conditions

The Solent Marine Heritage Assets is based on being able to undertake diving on sites in conjunction with other planned HWTMA projects. This allows necessary monitoring dives to take advantage of ongoing HWTMA diving fieldwork by including additional diving days within other work. During the week of diving undertaken by HWTMA in the Western Solent in 2009 the dive on the Yarmouth Roads protected wreck site took place on Monday 29th June 2009. The tasks undertaken were limited by the diving conditions, and the requirement for slack or near slack water. Taped measurements of observed

archaeological features were not possible in the available time frame. The visibility ranged from two to four metres allowing a video record to be made of the site. One dive with two waves of divers was conducted to a maximum depth of 7 metres with a total of 60 minutes bottom time (see Appendix II for dive logs).

4.2 Archaeological Features

The visible cultural material at the site consists of structural remains. The majority of material at the Yarmouth Roads wreck site lies in hollows in the Eocene bed rock where the archaeological material is contained within fine silts, and is either still buried or has been protected using sandbags. The diver survey carried out in 2009 recorded extant structure on the seabed, and the sandbags which cover the site.



*Figure 9 - Structure on seabed
(copyright HWTMA / Trevor Jenkins)*

The structure that is exposed lies close to the seabed as can be seen in Figures 9, 10 and 11. One of the aims of the monitoring dive had been to record measurements of the exposed structure and install monitoring points to help assess the speed of erosion at the site. Unfortunately tidal conditions on the day limited the tasks that were able to be completed. A video record of the site was created providing evidence of the current conditions of archaeological material on site.



*Figure 10 - Diver highlighting structure
(copyright HWTMA / Trevor Jenkins)*



*Figure 11 - Structure on seabed
(copyright HWTMA / Trevor Jenkins)*

The majority of the structure is covered by sandbags. The sandbags are in a degraded condition (Figure 12), but have not altered considerably since they were last surveyed in 2005 (Figure 7). As such the majority of exposed material is still protected, and is therefore assumed to remain stable.



Figure 12 - Image of sandbags at the Yarmouth Roads wreck site
(copyright HWTMA / Trevor Jenkins)

During the survey, a single-masted yacht was observed to be moored very close to the protected area; this was sited on the end of the visitor moorings for Yarmouth Harbour. Using the DGPS on the dive platform, *Wight Spirit*, an approximate location for the yacht was gained at the co-ordinates 50° 42. 73' North, 01° 29. 55' West (WGS84). This was a position for the yacht rather than the anchors for the moorings, which on the side scan sonar could be seen extending further towards the protected area. To establish whether the anchor chain from the mooring is laying within the protected area the exact GPS position of the mooring will need to be fixed. English Heritage is also investigating this further with the owner of the moorings.

5. CONCLUSIONS

The main aims of the survey of the Yarmouth Roads protected wreck site in 2009 were to undertake a survey of the site to Level 2a. This was to identify and record in detail any vulnerable elements of the structure, with particular emphasis on the conditions of any exposed material; and to undertake a Risk Assessment with reference to English Heritage's *Protected Wreck Sites at Risk: A Risk Management Handbook* (2008).

5.1 Survey Assessment

The diver survey revealed that the Yarmouth Roads protected wreck site remains a relatively stable site despite the relatively erosive environment within which it is located. The material remains which lie above the current seabed level are limited to structural components of the wreck, the majority of which remain covered by sandbags. As such, the main wreck site has not changed drastically from season to season throughout the HWTMA's involvement with the site. However, in the 2009 survey it was noticeable that the sandbags continue to degrade. As there are no monitoring points on the visible structure it is not known how quickly the seabed and the visible structure may be eroding. Regular monitoring of this site is crucial as the level of risk can be subject to change.

5.2 Historic Wreck Site Risk Assessment

Wreck/Site Name	SI Number
Yarmouth Roads	1984/1963

NMR / UKHO No.	EH Region	Restricted Area	Principal Land Use
	South East	50 meters	Coastland 1

Latitude (WGS84)	50° 42. 52' N
Longitude	01° 29.597' W

Class Listing	Period	Status
Carrack	Mid to Late Tudor/ Stuart	Protection of Wrecks Act 1973

Licensee	Nominated Archaeologist	Principal Ownership Category
yes	yes	other

Seabed Owner	Navigational Administrative Responsibility
Crown Estate	Yarmouth Harbour Master

Environmental Designations
None

Seabed Sediment	Energy
Silty sand / clay	high

Survival
poor

Overall Condition	Condition Trend	Principal Vulnerability
generally satisfactory but with minor localised problems	stable	seabed erosion / anchorage

Amenity Value: visibility
limited above bed structural remains and finds scatter with limited visibility and only 'legible' with further interpretative information

Amenity Value: physical accessibility	Amenity Value: intellectual accessibility
restricted: access subject to licence or other authorization	limited interpretation on or close to site with only one element

Management Action	no action required (routine monitoring by the licensee / archaeological contractor)													
Management Prescription	A	B	C	D	E	F	G	H	I	J	K	L	M	N
			✓									✓		
Notes	<p>The site lies at a depth of 4-8 metres. It is in an area of bedrock with hollows in which the structural remains are located. Some structural remains are visible on the seabed, others are covered with sandbags and some are as yet unexcavated. Smaller artefact items may also remain in the unexcavated areas.</p> <p>Not all remains are buried, and the site has in the past been affected by intrusive activity in the form of moorings and anchor chains. It is possible that there is a mooring currently encroaching on the protected area. Only limited amounts of wooden structure are visible above the seabed but these are at risk of physical erosion. The installation of monitoring points may help with an assessment of the speed of erosion taking place on site. The threat to the general stability of the larger buried remains is minimal but the possibility of degradation of vulnerable wooden structure leads to the conclusion that the risk can be assessed as MEDIUM.</p>													

Data Source	licensee	Date & Initials	
Date of previous assessment:		Has an ecological survey been undertaken? Y / N	

5.3 Potential for Further Work

HWTMA recognises the need to continue to monitor the site as the level of risk can be subject to change. Physical erosion is possible due to the location of vulnerable wooden remains on the surface of the seabed. The installation of monitoring points may help with an assessment of the speed of erosion taking place. Further monitoring work will be undertaken in 2010 to help establish the stability of the site. The condition of the remaining sand bags has been assessed and a more detailed survey of any wreck structure may now be undertaken.

The exact GPS position of the mooring that may be in the protected area should be fixed, and if it is found that the mooring is in the protected area this will be reported to English Heritage. The HWTMA may be able to combine this work with other planned fieldwork in 2010, through the Interreg IVA 'Archaeological Atlas of the 2 Seas' project.

The HWTMA has submitted a proposal to English Heritage to address the urgent need to progress the work undertaken on the site in the 1980s through archive audit, assessment, analysis and publication. The Isle of Wight Museum Service hold the archive for the site and the HWTMA are working with them to ensure this important collection is analysed and published, to release the full research potential of the site.

A further interesting avenue of research would be to ground truth the results of the 3-D seismic survey modelling, undertaken by the University of Southampton in 2006. Such a project could also add to a range of research related to in-situ preservation if areas excavated in the 1980s were re-opened for examination.

In summary, the Yarmouth Roads site is one of England's most important historic wreck sites. It has the potential to add considerably to a range of research areas, future work should be targeted to realise this full potential.

6. BIBLIOGRAPHY

English Heritage. 2008. *Conservation Principles, Policies and Guidance*.

English Heritage. 2008. *Protected Wreck Sites at Risk: A Risk Management Handbook*.

Fenwick, V. & Gale, A. 1998. *Historic Shipwrecks: Discovered, Protected & Investigated*. Stroud: Tempus Publishing Ltd.

Plets, R. M. K., Dix, J. K. & Best, A. I. 2007. Mapping of the Buried Yarmouth Roads Wreck, Isle of Wight, UK, using a Chirp Sub-Bottom Profiler. *The International Journal of Nautical Archaeology*, 37.2:360-373.

Tomalin, D., Cross, J. & Motkin, D. 1988. An Alberghetti bronze minion and carriage from Yarmouth Roads, Isle of Wight. *The International Journal of Nautical Archaeology and Underwater Exploration*, 17.1:75-86.

Watson, K. & Gale, A. 1990. Site evaluation for marine sites and monuments records: the Yarmouth Roads Wreck investigations. *The International Journal of Nautical Archaeology and Underwater Exploration*, 19.3:183-192.

APPENDIX I – DIVE LOGS

Location	Vessel	Supervisor
Yarmouth Roads protected wreck site	<i>Wight Spirit</i>	Julie Satchell

Log No.	Date	Diver Name	Duration (mins.)	Current	Visibility
01	29/06/2009	Andy Williams	22	strong	2-4 metres
02	29/06/2009	Trevor Jenkins	22	strong	2-4 metres
03	29/06/2009	Alison Hamer	8	strong	2-4 metres
04	29/06/2009	Victoria Millership	8	strong	2-4 metres