ARCHAEOLOGICAL SERVICES IN RELATION TO THE PROTECTION OF WRECKS ACT (1973)

CORONATION OFFSHORE, PENLEE POINT PLYMOUTH

DESIGNATED SITE ASSESSMENT: FULL REPORT

Prepared by:

Wessex Archaeology
Portway House
Old Sarum Park
Salisbury
WILTSHIRE
SP4 6EB

Prepared for:

English Heritage
Fort Cumberland
Fort Cumberland Road
Eastney
Portsmouth
PO4 9LD

January 2004

Ref: 53111.03i

ARCHAEOLOGICAL SERVICES IN RELATION TO THE PROTECTION OF WRECKS ACT (1973)

CORONATION OFFSHORE

DESIGNATED SITE ASSESSMENT: FULL REPORT

REF: 53111.03I

Summary

Wessex Archaeology was commissioned by English Heritage to undertake a designated site assessment of the *Coronation* Offshore: a designated wreck site located off Penlee Point, Plymouth. The work was work undertaken as part of the contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973).

The *Coronation* was a second rate, 90 gun, British warship that was built in 1685 at Portsmouth Dockyard as part of Pepy's restoration of the Navy. She took part in the Battle of Beachy Head in 1690, and was lost a year later in 1691 in a gale. The reasons for her loss remain unclear, though one possible explanation is that her crew failed to seal the gun-ports.

The *Coronation* Inshore site was discovered in 1967, but didn't appear to contain enough cannons to be the whole of the *Coronation*. Following eight years of searching the Offshore wreck site was discovered in 1977. The Offshore site was designated under the Protection of Wrecks Act in 1978 (SI 1978/321).

Between 1981 and 1984 an extended survey of the Offshore and Inshore sites identified a total of 83 cannons covering an area stretching for approximately 1000 metres off Penlee Point. Following this the Inshore site was designated under the Protection of Wrecks Act in 1988 (SI 1988/2138).

In 1996 Peter Holt undertook a magnetometer survey of both of the *Coronation* sites, and in 1999 an acoustic positioning 3D survey of the Offshore site was compiled. The sites are now in an on-going state of survey with the aim of producing a detailed plan illustrating both sites, and the undefined debris trail in-between. Peter McBride is in the processes of writing with the aim to publish all the work carried out on the *Coronation*.

Wessex Archaeology diving operations took place on the 27th September 2003. A Brief and corresponding Written Scheme of Investigation required Wessex Archaeology to undertake survey of the wreck to Level 3b. An additional objective - to assess the degree to which the site plan corresponds with a multibeam image - was generated following the completion of the multibeam survey in October 2003. The diving and multibeam assessments confirmed that the position-fixes of the majority of the cannons and anchors on the site were very accurate. The only feature that did not match was anchor A, and work is on-going to rectify this error.

New positional and descriptive data has been generated for the archive, and a video survey of some of the cannons and one of the anchors was carried out. Further work is required to establish the extent of the debris trail in order to produce a complete site plan. Attempts to identify some intermediate cannons in the multibeam data were unsuccessful.

ARCHAEOLOGICAL SERVICES IN RELATION TO THE PROTECTION OF WRECKS ACT (1973)

CORONATION OFFSHORE

DESIGNATED SITE ASSESSMENT: FULL REPORT

REF: 53111.03I

Acknowledgements

This investigation was commissioned by English Heritage as part of the contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973). The assistance provided by Ian Oxley and Annabel Lawrence of the English Heritage Maritime Team is gratefully acknowledged.

Wessex Archaeology would also like to thank the following people:

- Licensee Rob George, nominated archaeologist Alex Hildred and Dive Team: Pete Sieniewicz, Sam Sieniewicz, Ben Sieniewicz, Jon Parlour, Peter Holt and Peter McBride for their invaluable assistance during this survey;
- Duncan Mallace of NetSurvey Limited for providing WA with multibeam survey data for the site.

The WA fieldwork was carried out by Graham Scott, Simon Adey-Davies, Jenny Black and Frank Mallon. Paul Baggaley processed the geophysical data, the report was compiled by Jenny Black and Kitty Brandon prepared the illustrations. The project was managed for Wessex Archaeology by Steve Webster.

Data Licences

The material derived from the UKHO is subject to licence 820/020220/11 and the conditions on End-Users and Third Parties contained therein. The following charts and wreck requests have been added to Schedule 1 Annex A:

- Digital use of Chart 1613

A copy of the report will be sent to UKHO.

ARCHAEOLOGICAL SERVICES IN RELATION TO THE PROTECTION OF WRECKS ACT (1973)

CORONATION OFFSHORE

DESIGNATED SITE ASSESSMENT: FULL REPORT

REF: 53111.03I

Contents

Figures

Plates

ARCHAEOLOGICAL SERVICES IN RELATION TO THE PROTECTION OF WRECKS ACT (1973)

CORONATION OFFSHORE

DESIGNATED SITE ASSESSMENT: FULL REPORT

REF: 53111.03I

1. INTRODUCTION

1.1.1. This document constitutes a Designated Site Assessment: Full Report for a programme of work undertaken as part of the contract for Archaeological Services in Relation to the Protection of Wrecks Act (1973). The document has been prepared by Wessex Archaeology (WA) for English Heritage (EH). It comprises an assessment of the *Coronation* Offshore: a designated wreck site located off Penlee Point, Plymouth (**Figure 1**).

1.1.2. The work was conducted in accordance with a Written Scheme of Investigation (WSI) prepared by WA, which was in turn produced as a response to a brief provided by EH. Diving commenced on the 27th September 2003 from the diving support vessel *Xplorer*. The field team personnel were WA archaeologists Graham Scott, Simon Adey-Davies, Jenny Black, Frank Mallon and boat skipper Dave Burden.

2. OBJECTIVES

2.1.1. The overall objective for the site as defined in the WSI was for recording to Level 3b.

2.1.2. This was further defined, specifying the following tasks:

- Carry out a general inspection of the site;
- Locate and position (by tracked diver survey) certain cannons / artefacts;
- Provide co-ordinates and database entries for all visible elements of the site, including outlying elements close in to the site;
- Take various check measurements on certain cannons / anchors;
- Conduct video survey of all visible artefacts;
- Attempt to establish whether the site is currently subject to erosion or deposition;
- Establish monitoring points within the site and plan a regime whereby sediment movement over time can be assessed;
- Produce a scheme of investigation for subsequent investigations on the site.

2.1.3. Following the compilation of the WSI an opportunity arose to collect some high quality multibeam data for the site. This resulted in the formulation of a supplementary objective as follows:

- Assess the degree of correspondence between the site plan and the multibeam data.

3. EXISTING SITE DATA

3.1.1. The position of the site as given in the brief was as follows:

Lat.	**50º 18' 34.2" N**
Long.	**004º 11' 58.8" E**
OSGB 36	

3.1.2. The Statutory Instrument number is 1978/321 and from the centre point (given above) the designated area comprises a circle with a radius of 150 metres. The current licensee is Rob George and the nominated archaeologist (at the time of the assessment) was Alexandra Hildred.

3.1.3. Other information available prior to the assessment comprised:

- The UK Hydrographic Office records for the site (No. 17646);
- The National Monuments Record entry for the site (No. 1082129);
- Various books and web sites (see bibliography).

3.1.4. Data made available by the licensee and his associates comprised:

- A geo-referenced plan supplied by Peter Holt, which included both inshore and offshore sites;
- Two folders of background research material were made available by the licensee Rob George, including site diaries detailing survey work;
- Site plans were also made available by Peter McBride (one of the original discoverers of the site);
- Licensee's reports from 2000-2003.

3.1.5. Following the diver assessment of the site, in mid October 2003, an opportunity arose to acquire some high definition multibeam data for the site. Duncan Mallace of NetSurvey Limited, who WA had worked with during the survey of the protected wrecks in the Solent, contacted WA to enquire whether there were any sites in the Plymouth area that would benefit from a multibeam survey, and the *Coronation* was selected.

3.1.6. The survey took place on the 16th and 17th of October. It encompassed an area that straddled the Offshore site and ran as far inshore as the edge of the Inshore Site. The data was made available to WA in digital form, and selected images were extracted using Fledermaus software.

4. METHODOLOGY

4.1.1. The survey methods used were diver survey [area search], diver survey [artefact positioning and recording] and diver survey [video].

4.1.2. Details of the methodologies used during the 2003 PWA survey are detailed in a separate document (WA 2003b).

4.1.3. The multibeam data was received in a processed form from NetSurvey. In order to get the best possible image of the Offshore site that area of the data was gridded at a smaller cell size. Also a small number of obviously erroneous readings, that were distorting the image, were deleted.

5. RESULTS

5.1. SITE POSITION

Lat.	**50º 18.928" N**
Long.	**04º 12.074" W**
WGS84	

5.1.1. The position stated above is from the crown of Anchor A. This anchor lies within the southern area of the Offshore site. It has a buoy attached to it that is used as a mooring, and remains underwater. The position-fix was obtained by tracked diver survey using a ROV-trak positioning system. It was converted from National Grid to WGS84 (degrees and decimal minutes) using Grid Inquest 6.0.7.

5.2. DIVING CONDITIONS

5.2.1. The location of the Offshore site is near one of the main sailing routes out of Plymouth. This resulted in small pleasure craft passing very close to the diving vessel, with the attendant risk of snagging the divers umbilical. Thus extra vigilance was necessary on this site.

5.2.2. The Penlee Point area is subject to strong tidal currents particularly on springs. The Off shore site is over 684 metres further south than the Inshore site, with the result that the tidal windows are considerably shorter. During the 2003 visit the visibility on the site was very good, averaging approximately eight metres or more.

5.2.3. The WA team was operational on site for a total of one day with no time lost due to bad weather. One dive was undertaken on the site, which had to be cut short due to increasing currents. The average depth achieved during the dive was 17 metres, with a total of 16 minutes bottom time.

5.3. TASKS UNDERTAKEN

5.3.1. A general condition survey was conducted over the site, which located Anchor A and cannons 8, 9, 10, 11 and 12. Subsequently, position-fixes were obtained for cannons 9 and 10 and anchor A, by means of tracked diver survey.

5.3.2. The position-fixes were supplemented with database entries and video survey of the artefacts. Diver tracks and observation points (together with error margins) are shown in **Figure 2** and are listed in **Appendix II**.

5.3.3. A number of observation points were selected as monitoring points. It is intended that these points will form the basis of a longer-term programme of monitoring of sediment levels on this site.

5.4. GEOLOGY, TOPOGRAPHY AND FLORA

5.4.1. The seabed in the survey area is composed of undulating natural rock with small pockets of sand. Seaweed is attached to the rocks on the site but does not obstruct the artefacts from view.

5.4.2. The multibeam data (illustrated in **Figures 3, 4** and **5)** shows that the Offshore site lies upon a raised area of rocky seabed that is separated from the Inshore site by a deeper 'channel' that is in places covered in sand.

5.5. ARCHAEOLOGICAL FEATURES

Main Site

5.5.1. The Offshore site (**Figures 2, 3** and **4**) is considerably smaller than the Inshore site, although it does have outlying artefacts circa 148 metres north east of the main area outside both designated circles that form part of the debris trail (**Figures 3** and **5**). WA covered an area measuring 10 by 10 metres, which is only a fraction of the Offshore site that overall covers an area measuring 40 by 20 metres (main site only).

5.5.2. A general condition survey was conducted over the site, which located cannons 8, 9, 10, 11 and 12 and anchor A (**Figure 2** and **Plates 1** and **2**). Subsequently, position-fixes were obtained for cannons 9 and 10 and anchor A, by means of tracked diver survey (**Figure 2**).

5.5.3. A multibeam survey of the site was conducted after the WA visit (see section 3 above). The survey covered an area measuring approximately 252,993 m^2. It encompassed the majority of the Offshore designated area and the debris trial leading up to the Inshore designated area (**Figures 3** and **6**).

5.5.4. The multibeam data shows both anchors A and B and cannons 1,2,3,4,7, 8, 9, 10, 11 and 12 (**Figure 4**). Cannons 13, 14 and 15 are only partially visible, possibly due to their location at the edge of a gully. Some features are easier to see in the data depending upon the part of the image that is 'selected' during processing. The image in **Figure 4** represents an average of these possible 'selections' and better images are available if the data is viewed digitally on computer.

5.5.5. When the licensee's site plan was overlain on the multibeam it had to be nudged 2.4 metres to the east in order to align the majority of features on the plan with the multibeam anomalies. Once this 'nudge', which was probably required due to differences in the dGPS systems used for the plan and multibeam surveys, the only feature which does not match is anchor A (see **Figure 4**). This may be because the anchor has shifted position slightly, or that the given position for that feature is 'old data' (Peter Holt pers. comm.).

Intermediate Site

5.5.6. To the north east of the Offshore site the licensee has reported a further 2-3 cannons and an anchor. These features, which lie outside of both designated areas, are termed

the Intermediate site. This covers an area measuring approximately 100 m^2, and is reported to contain Anchor F and up to three cannons (**Figures 3** and **5**).

5.5.7. The licensee provided co-ordinates for anchor F, but neither the anchor nor the cannons were visible in the multibeam data (**Figure 5**). The fact that the area is now covered in 0.2 metre high sand waves may suggest that the features are currently buried. The licensee reported that he last saw the cannon closest to anchor F at least two years ago, when it was in a partially buried state (Rob George pers. comm.).

5.5.8. The magnetometer survey carried out by Peter Holt in 1996 identified various anomalies within the debris trial and surrounding area that have yet to be identified by divers. The area covered by the multibeam does include some of these 'hits' which may help the licensee in his interpretation and future searches.

5.5.9. The Offshore site was first discovered because the team lead by Peter McBride found what they thought to be a cannon protruding from the seabed. This guided them to search further - leading to the discovery of the Offshore site. Years later when they went back to examine the cannon they discovered it to be a World War II bomb. The multibeam covers this area, however the position for the bomb is on the edge of a gully and is not clearly visible (**Figure 3**).

6. CONCLUSIONS

6.1.1. The site has been thoroughly acoustically surveyed, and subject to diver survey over many years. However, according to the licensee there are still some un-located elements. The existing site plan has been generated by acoustic survey, and the two large anchors and approximately half of the cannons have been drawn in detail. There are also a number of photographs of the site.

6.1.2. The WA diver survey and assessment of the multibeam data has confirmed that the site plan (with the exception of anchor A) is accurate. Therefore overall the recording of this site has been achieved to recording Level 3a, almost to Level 3b.

6.1.3. The NetSurvey multibeam in conjunction with the magnetometer data recorded in 1996 should greatly assist in the identification of new anomalies therefore helping to define the debris trial and the final extents of the site. This, combined with further detailed recording of some artefacts is required to bring the site record up to Level 3b. This detailed recording may include photographic mosaics of areas within the site.

6.1.4. Further detailed recording is required on some artefacts to bring the site record up to Level 3b. This may include photographs and photo-mosaics of individual artefacts, as well as detailed drawn records. Continued monitoring of the site would help to determine the nature of any environmental change.

6.1.5. The majority of the archive currently resides with Peter McBride. This report includes, in the form of **Figure 6**, an attempt to establish a 'catalogue' showing the areas covered by the various surveys on the site. This is obviously deficient in that it doesn't contain the areas covered by the diver searches during the 1970s or any work by the ADU. However, it is isuggested that this process be expanded to include all work on the site.

7. BIBLIOGRAPHY

Fenwick, V., and Gale, A., 1998, *Historic Shipwrecks, Discovered, Protected and Investigated*, Tempus.

George, R., 2001, *Coronation Offshore*, Licensee Report 2001

George, R., 2002, *Coronation Offshore*, Licensee Report 2002

George, R., 2003, *Coronation Offshore*, Licensee Report 2003

McBride, P., 1979, *Coronation (1691) Progress Report - 1979 season*, unpublished report.

McBride, P., 1981, *Coronation 1691 Progress Report - 1981 season*, unpublished report.

McBride, P., 1983, *Coronation – 1691 Progress Report - 1983 season*, unpublished report.

Western Morning News 7th August 1969

Wessex Archaeology, 2003a, Archaeological Services in Relation to the Protection of Wrecks Act (1973) Undesignated Sites: Written Scheme of Investigation, Report ref: 53111.03i

Wessex Archaeology, 2003b, Archaeological Services in Relation to the Protection of Wrecks Act (1973): Recording Methodologies, Report Ref: 53111.04a.

8. APPENDIX I: NOTE ON THE *CORONATION*

The *Coronation* was a second rate British warship built at Portsmouth in 1685 as part of Pepy's restoration of the Navy. The programme encompassed thirty ships and the *Coronation* was one of nine second-rates with a 158 foot gun-deck enabling the ship to carry ninety guns on three decks (Fenwick & Gale 1998).

The *Coronation* was captained by John Mundon when she took part of in the battle of Beachy Head in 1690. She was then part of the fleet commanded by Admiral Russell who patrolled the French coast in 1691, trying to bring them to battle. However, bad weather forced the fleet to return to Britain to seek shelter in Torbay. In the late August of 1691 the fleet set sail from Torbay only to meet further strong winds and have to turn back for Plymouth (Fenwick & Gale 1998).

The wind was blowing from the south – south-west making the entrance to Plymouth Sound treacherous. Only a handful of ships attempted to enter the sound (all of which foundered), the rest choosing to ride out the storm between Rame Head and Penlee Point. The ship's log's of the vessels that rode out the storm indicate that the *Coronation* was with them, but do not give details or agree on the manner of her loss (Fenwick & Gale 1998). It has been suggested that the vessel sank because of a failure to seal her gun ports in time (Morning News 1969).

In 1969 the Inshore cannon site was discovered at Penlee and was investigated by a group of divers from the School of Nautical Archaeology at Plymouth (SNAP) (www.coronation1691.co.uk). The number of cannons on the site did not tally with records for the *Coronation*, and the site was also too shallow as the *Coronation* was reported to have been lost in 44 metres of water. However, the general consensus was that the site represented part of the wreck of the *Coronation*, which was assumed to have broken up during the wrecking process.

In 1971 Peter McBride continued searching for the rest of the site, starting with a documentary search before commencing with diver searches. In 1972 the team and search area expanded and a magnetometer was used. From 1972 to 1977 search methods improved and the team covered an area encompassing 13,000,000 m^2 of seabed. In 1977 sixteen cannons and several large anchors were discovered 800 metres south west of Lady Island. The site was positively identified as the *Coronation* by a pewter plate bearing the crest of the ships captain Charles Skelton (www.coronation1691.co.uk). The offshore site was designated in 1978.

In 1980 a three sword handles bearing the design carried by gun crews at the time and a copper cartridge used for loading 18-lb culverin chase cannons were discovered. From 1981 to 1984 various teams joined together to assist Peter McBride and John Smart in an extended survey of both sites, which unidentified 83 cannons spread over an area 1000 metres off Penlee Point (www.coronation1691.co.uk). The inshore site was designated in 1988.

In 1996 Peter Holt carried out a magnetometer survey of the *Coronation* sites and in 1999 an acoustic positioning 3D survey of the Offshore site was undertaken. From 2000 to present day the sites are under on-going survey, with the aim of producing a detailed plan illustrating both sites and the (as yet) undefined debris trail. Peter McBride is in the processes of writing with the aim to publish all the work carried out on the *Coronation*.

9. APPENDIX II: ARCHAEOLOGICAL OBSERVATION LOG

Dive Obs.	Easting	Northing	Obs. Type	Description
992	243366	047939	Made Bottom	Diver reaches seabed
993	243372	047938	Cannon 10? (cascabel)	Cast iron cannon
994	243372	047937	Cannon 10? (muzzle)	Cast Iron Cannon
995	243363	047932	Anchor A (Crown)	Large anchor
996	243364	047932	Anchor A (Shank)	Large anchor
997	243368	047934	Cannon 9? (cascabel)	Cast Iron Cannon