HMS Colossus Dive Trail

Project Report

Kevin Camidge

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Thanks are also due to Sarah McBride, Sean Lewis, Richard Larn, Luke Randall and Tania Weller who all gave time or assistance to the project.

Kevin Camidge
July 2009

Contents

Abbreviations

BSAC	British Sub Aqua Club
CISMAS	Cornwall and Isles of Scilly Maritime Archaeology Society
CPA	Coast Protection Act
FEPA	Food and Environment Protection Act
HER	Historic Environment Record
HES	Historic Environment Service (Cornwall)
IoS	Isles of Scilly
MSL	Mean Sea Level
PADI	Professional Association of Dive Instructors
POWA	Protection of Wrecks Act 1973
SSSI	Special Sites of Scientific Interest

Project Name

Colossus Dive Trail and Site Interpretation Guide

Summary Description

A dive trail has been installed on the stern section of the wreck of HMS Colossus. This consists of a number of seabed observation stations around the wreck and an underwater information booklet to guide divers around the site. The guide booklet explains the exposed remains and gives details of the background to the loss of *HMS Colossus*. A web page has also been installed for the dive trail on the CISMAS website where accounts and photographs from visiting divers will be posted. The dive trail has been promoted by a press release to diver magazines and posters in dive shops.

Background

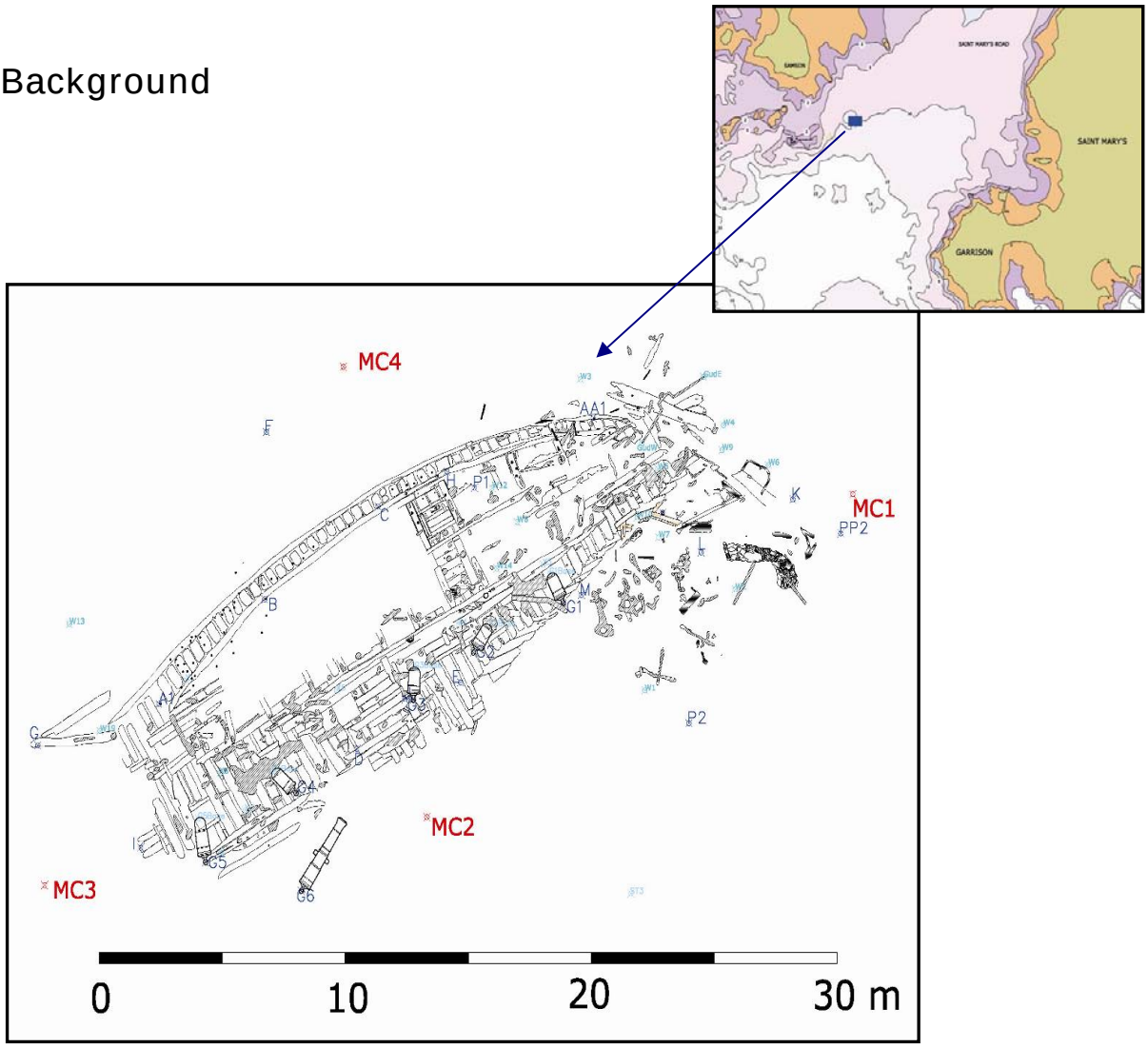


Fig 1
The stern of Colossus as drawn in 2003. The inset shows the location in St Mary's Roads, Scilly.

The Ship

HMS Colossus was a 74 gun warship built in 1787 at Gravesend and wrecked off Samson in the Scillies in 1798. These 74 gun ships were one of the most successful types of the period. They were typically about 51m (170 feet) in length and had a crew of over 600. During her relatively short working life (eleven years) *Colossus* saw action at Toulon, Groix, Cape St Vincent and Cadiz. She also took part in the capture of two enemy ships, *Le Vanneau* and *Vrai Patriot,* in 1793 (ADM 52 3006). She had no less than nine different captains during her relatively short career. She had a complete refit, which took six months, in 1796.

In December 1798 *Colossus* was on her way home to England with wounded from the Battle of the Nile and a cargo including part of Sir William Hamilton's second collection of Etruscan pottery. She was sheltering from a gale in St Mary's Roads when the anchor cable parted and she was driven aground to the south of Samson. All but one member of the crew were taken off safely before *Colossus* turned onto her beam ends and proceeded to break up.

Vital Statistics

Length (MGD)	172' 3" (52.5m)
Breadth	47' 9" (14.6m)
Tonnage	1703 tons
Draught (hold)	20' 9½" (6.3m)
Standard armament	28 x 32lb main gun deck
	28 x 18lb upper gun deck
	14 x 9lb quarter deck
	4 x 9lb forecastle
Ballast	110 tons of iron ballast and
	250 tons of shingle
Ordered	13th December 1781
Laid down	October 1782
Launched	4th April 1787

Fig 2 Table showing dimensions of HMS Colossus (Lavery, 1983)

The Site

The wreck of *HMS Colossus* lies to the south of Samson in the Isles of Scilly. To date two main areas of wreckage have been identified, the bow and the stern. In 1975 part of the wreck (probably the bow) was designated under the Protection of Wrecks Act. This designation was revoked in 1984. The current site, the stern, was designated in 2001, and is located at Latitude 49˚ 55'.471N, Longitude 006˚ 20'.505W (260154.906E 5535593.077N UTM zone 30, WGS84).

Previous work

Salvage work took place on *Colossus* from the time of her loss until the early part of last century. Work included Braithwaite and Tonkin 1803-1806, the Dean Brothers in the 1830s and possibly Western Marine Salvage in the early part of last century.

Roland Morris, a marine salver and proprietor of the Penzance Maritime Museum, began searching for the wreck of *Colossus* in 1967 using a small team of divers. In August 1974 they located material relating to *Colossus*. The site was designated in 1975 under the Protection of Wrecks Act 1973 (Wessex Archaeology, 2003). A large quantity of pottery, remains of Hamilton's second collection of pottery, was recovered and deposited in the British Museum – where at least one of the reconstructed pots is now on public display. Once Morris' team had finished their work, the site was de-designated in 1984.

Areas of exposed timber and iron guns were discovered by local divers in 2001. This material was some distance to the east of the area worked by Morris and turned out to be part of the stern of *Colossus*. This was designated in July 2001. Late in 2001 the Archaeological Diving Unit (ADU) excavated at the stern of *Colossus* as well as around a piece of carved timber, which turned out to be one of the stern quarter-pieces of the vessel.

In 2002 a quarter-piece, part of the stern decoration of the vessel, was recovered from the site. This is currently undergoing conservation at the Mary Rose Trust. Later that year a small excavation was undertaken on the site to establish the nature and extent of the structural remains.

In 2003, a two-year site stabilisation trial was commissioned by English Heritage, to determine the most effective method of slowing down the deterioration of the exposed timbers on the seabed (Camidge, 2005a).

In 2004 and 2005, the Cornwall and Isles of Scilly Maritime Archaeology Society (CISMAS) carried out a survey of the debris field surrounding the wreck of *Colossus* (Camidge, 2005b).

From 2002 to 2007, the author carried out monitoring of the sediment levels on the site. This work demonstrated that the sediment levels around the stern section of *Colossus* had continued to fall throughout this period.

In 2008 a small area at the stern of the wreck was protected with a geotextile covering of Terram 4000. The efficacy of this type of protection on this site was established in the stabilisation trials commissioned by English Heritage (2003-2005). Timber sample blocks were installed beneath the Terram mat and on the seabed. A small seabed sign was also installed to inform visiting divers of the function of the Terram protection. Before the Terram was installed the area to be covered was recorded in detail, along with a control area, so that the long term effects of the stabilisation could be determined (Camidge, 2008).

Reports covering all the work on *Colossus* since 2001 can be downloaded at www.cismas.org.uk

Objectives

Since 2003, the *Colossus* stern site has been the subject of regular visits by recreational divers. Three dive charter boats take visiting divers to the site under a visitor licence issued by DCMS. The dive on *Colossus* is very popular with visitors – this project aimed to provide interpretative material to aid appreciation of the material exposed on the seabed.

Ongoing monitoring of the sediment levels around the wreck has shown that the wreck continues to expose. Once the timber of the wreck is exposed on the seabed it begins to deteriorate. Consequently, the exposed timber of the wreck has a relatively short life expectancy – all the more reason it should be properly appreciated by the visiting divers while it does exist.

The aim of this project was to install a number of observation stations around the wreck and provide an underwater information booklet guiding divers around the wreck by using the observation stations, explaining the exposed remains and detailing brief background information on the wreck. This has now been achieved.

The Dive Trail

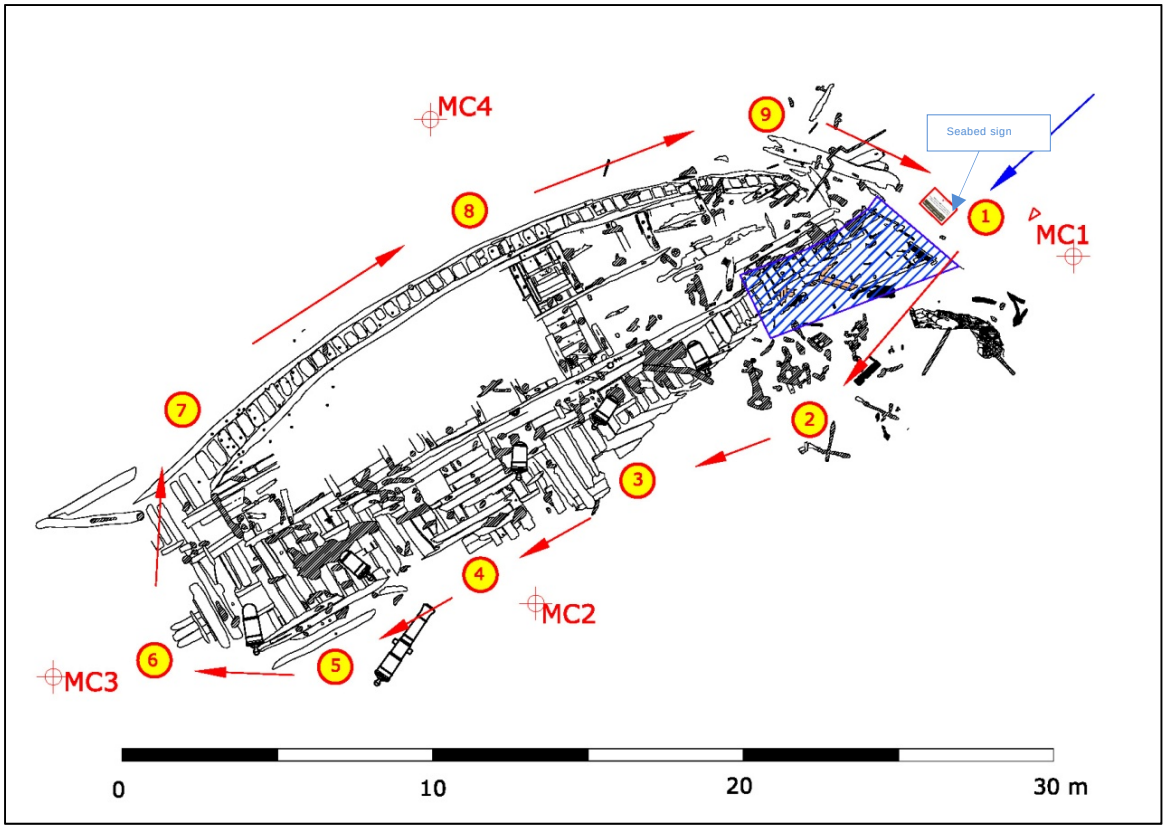


Fig 3

Layout of the numbered seabed stations (1-9), starting and ending at the existing seabed sign. The blue arrow shows where divers enter the site, and the red arrows show the circular tour around the site. A large (A3) laminated copy of this plan will be produced for each dive skipper to allow them to brief the divers before they enter the water.

Underwater Guide

Copies of the underwater guide booklets are held by the local dive boat skippers and are loaned to divers for their visit to the site. It has been constructed so that divers can take a copy underwater with them. Each dive skipper has eight copies of the guide. Three are held by the Isles of Scilly Museum (for loan to visiting divers) and three further copies are held by English Heritage Maritime. Ten copies will be retained by the author as replacements for lost or damaged copies. A copy of the guide is reproduced in appendix II of this report.

Angie Gall of the Isles of Scilly Wildlife Trust has indicated that the Wildlife Trust may be interested in authoring an addition to the site guide detailing the flora and fauna visible around the dive trail. The binding of the present dive guides is such that pages can be added to the underwater guides relatively easily. Hopefully a representative of the Wildlife Trust will dive on the site and assess its suitability to such a scheme.

Seabed Stations

The seabed stations (fig 4) were placed at points of interest around the wreck, as shown in fig 3 above. They consist of a numbered buoy floating one metre above the seabed, attached to a concrete sinker. Each station also includes a direction arrow indicating the location of the next station. The numbers on the stations correspond to descriptions in the underwater guide. They are also shown on the site plan on the back cover of the guide.

The concrete sinkers will be left in place on site. The floats and wires will be removed at the end of each dive season and replaced the following spring – avoiding damage in the winter storms. The local dive boat skippers have agreed to undertake this task. They have also agreed to clean the underwater sign at the same time. The author visits the site two or three times a year to undertake sediment monitoring measurements, and the condition of the seabed stations will be checked at the same time. The stations were deployed by a local, registered dive contractor – Dave Williams of Scavenger Diving Services. 12 seabed stations were manufactured; only nine of these were deployed on site. The remaining three will be retained as spares to replace any which become damaged.

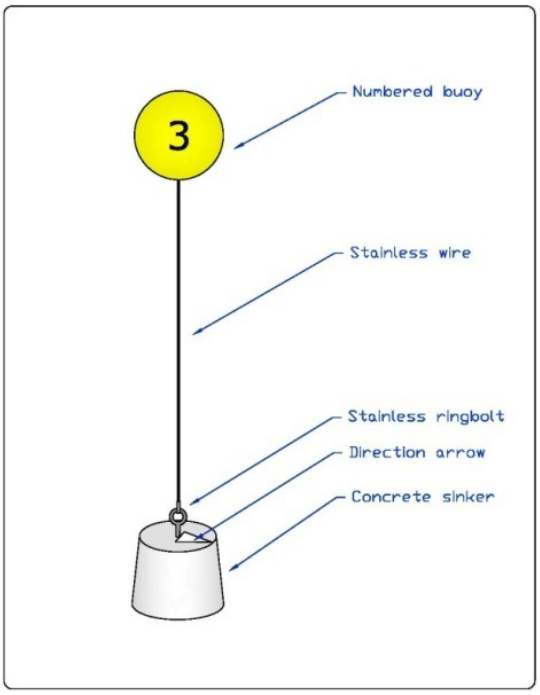
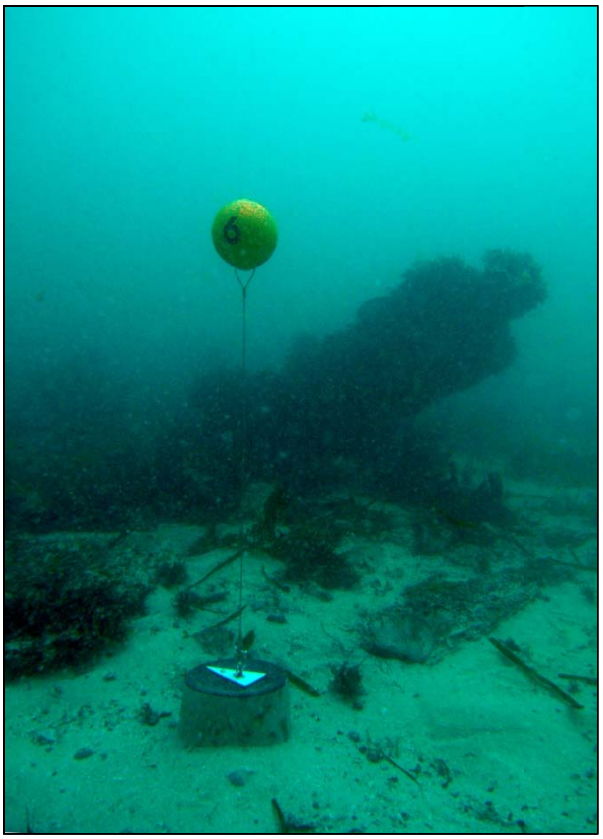


Fig 4

Design of the seabed station

The concrete sinkers are approximately 0.25m in diameter and 0.25m deep (they were cast in a small bucket). They were embedded 0.10 – 0.15m into the mobile surface sediment of the seabed. This was accomplished by digging a small hole using an archaeologist's pointing trowel, an excavation licence having been granted by DCMS to allow this to take place. A licence from the Marine and Fisheries Agency under the FEPA/CPA was not required for the installation of the seabed stations.



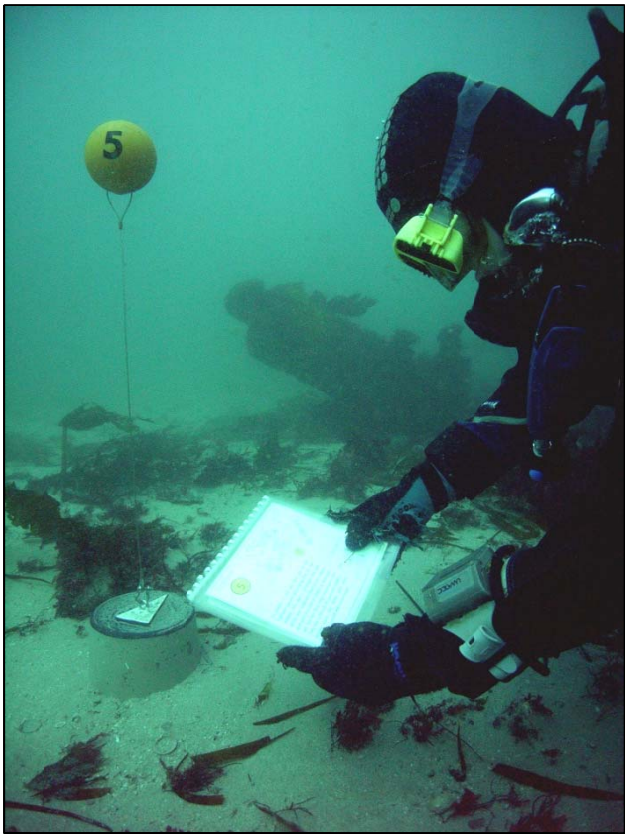


Fig 5

Views of dive trail stations 4, 5 and 6

Promoting the Dive Trail

Posters

Posters advertising the dive trail were circulated to thirty two dive shops around the country. A copy of the poster is reproduced in appendix II.

Press release

A press release advertising the dive trail on *Colossus* was circulated to the recreational diving press (*Dive Magazine* (BSAC), *Diver Magazine* (Independent) and *Sport Diver* (PADI) as well as to the local press. To date articles have appeared in *Dive* and *Diver* magazines and in the local paper (*The Cornishman*). The article from *Dive Magazine* is reproduced below in appendix III.

Web page

A web page for the Colossus dive trail has been posted on the CISMAS web site at www.cismas.org.uk . A copy of the dive trail guide is also available to download on the same web site.

General Site Issues

Stabilisation

During the installation of the dive trail a routine inspection of the Terram stabilisation mat (installed 2008) was made. The Terram and sandbags are all still in place. As predicted, the Terram and the sand bags securing it in place have become colonised by seaweed growth. Furthermore the Terram mat is now covered with a layer of fine, light grey sand to a depth of about 60mm. This accords well with the results obtained for the Terram mat in the stabilisation trials conducted on the site between 2003 and 2005. The depth of this sediment accumulation over the Terram will be monitored during the routine sediment monitoring on the site.

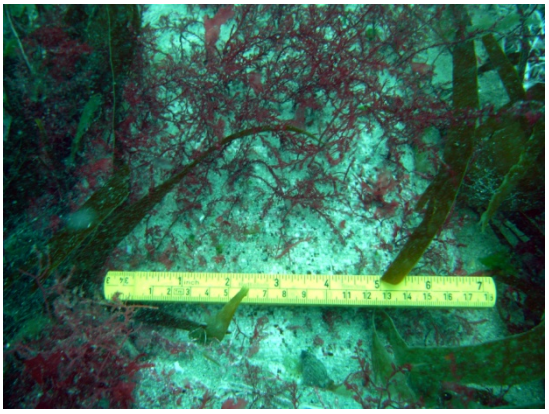
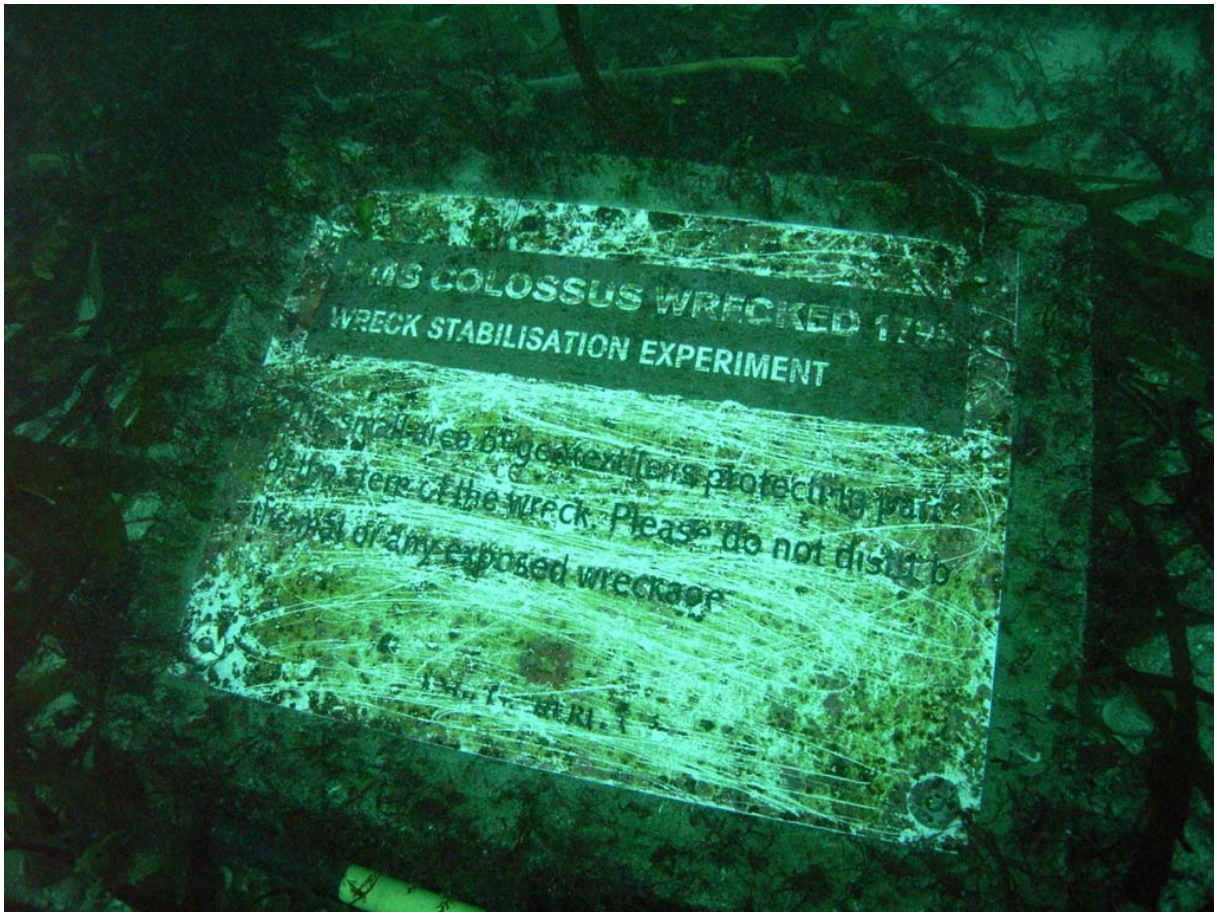


Fig 6
Seaweed growth on the sandbags

Seabed Sign

The seabed sign installed as part of the limited site stabilisation in 2008 has now become heavily covered in a marine growth (probably algae). This is likely to be due to the relatively shallow depth of the site, which allows high light levels to penetrate to the seabed. Previously this growth was removed from the sign by wiping with diving gloves. However, someone has now attempted to 'clean' the sign using a sharp object (probably a diving knife) – this has damaged the lettering of the sign, rendering it partly illegible.



plement.

The PVC sign can be removed from the concrete plinth – it is secured in place with four stainless steel screws. A new sign can then be fabricated. Whether a straight replacement is made or a more permanent solution is sought will need to be decided. Options include etched copper or stainless steel (likely to be expensive) or a plastic sign made of a different material (perhaps acrylic or Perspex) which may be more resistant to algal growth. Perhaps English Heritage has some expertise in signage which can be consulted?

Sediment Level Monitoring

The routine monitoring of sediment levels will continue on the site. The results of the sediment monitoring will be presented in the annual licensees' report. However it was very apparent during the installation of the dive trail that the sediment levels on the site have continued to fall, once again exposing previously buried timber. Some exposed timbers which were present in 2008 have now deteriorated and broken away from the seabed.

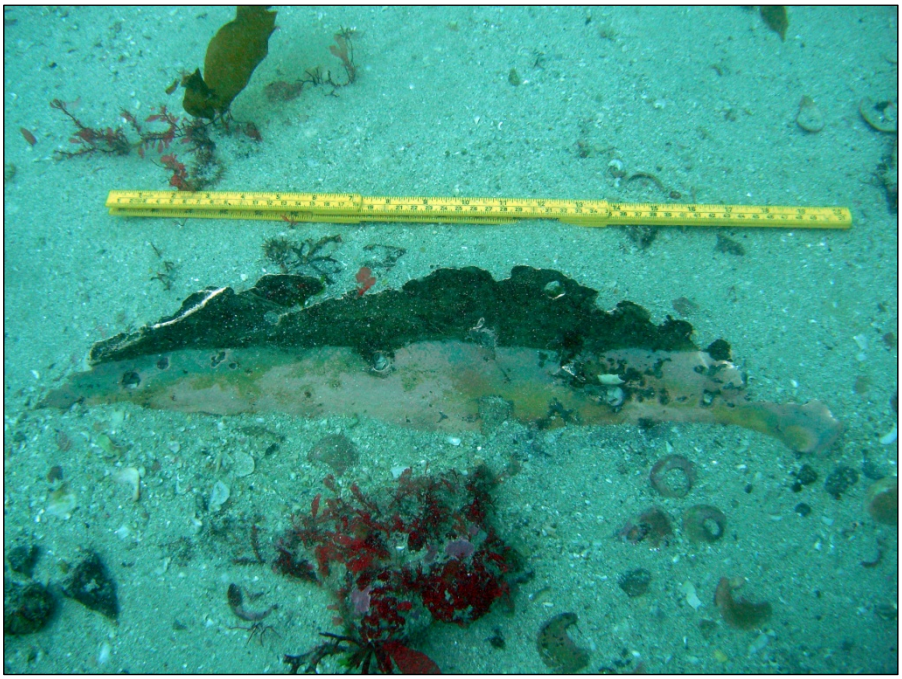


Fig 8

Copper sheathing.
Note the lighter coloured, newly exposed copper indicating recent sediment level change.

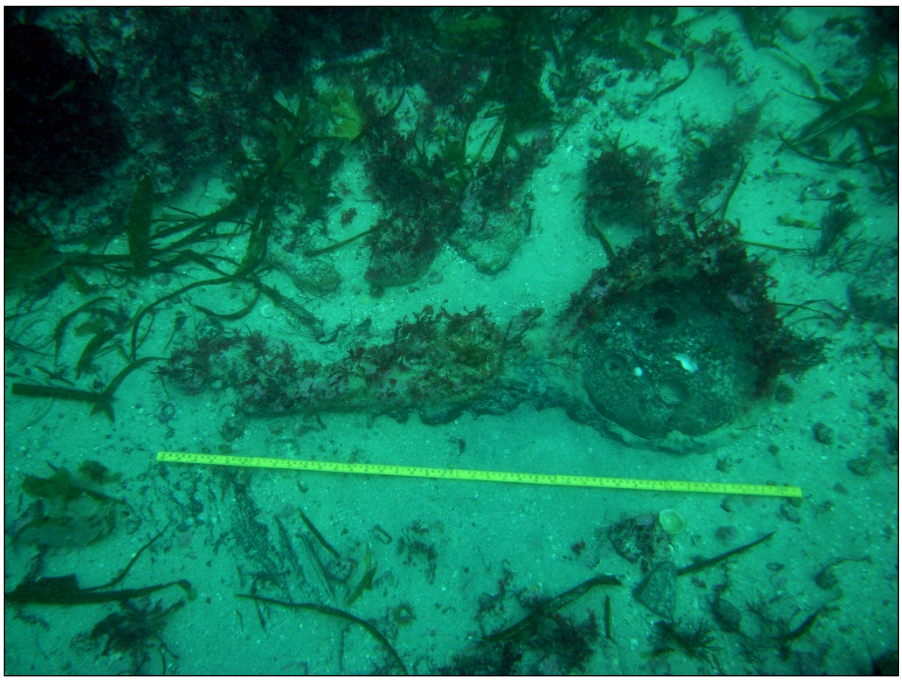


Fig 9

Newly exposed deadeye, still within the iron chain. Located to the south of gun 3

Monitoring of loose objects

There are a number of loose artifacts exposed on the seabed surface around the site. As the sediment levels around the site fall, more of these will inevitably be exposed. The question of raising these artifacts has been posed in the past. However, the presence of these objects greatly enhances the experience of visiting divers to the site and it can be argued that they are more useful as part of the dive trail experience than they would be in a museum display case. To this end I would like to propose that these objects are surveyed and recorded in position on the seabed. We would then have an accurate record of them and be able to monitor their condition and survival on the site. One concern often voiced is that these objects will be removed by visiting divers. Only by making a comprehensive record of the exposed objects will we be able to quantify any losses due to natural forces and visiting divers.

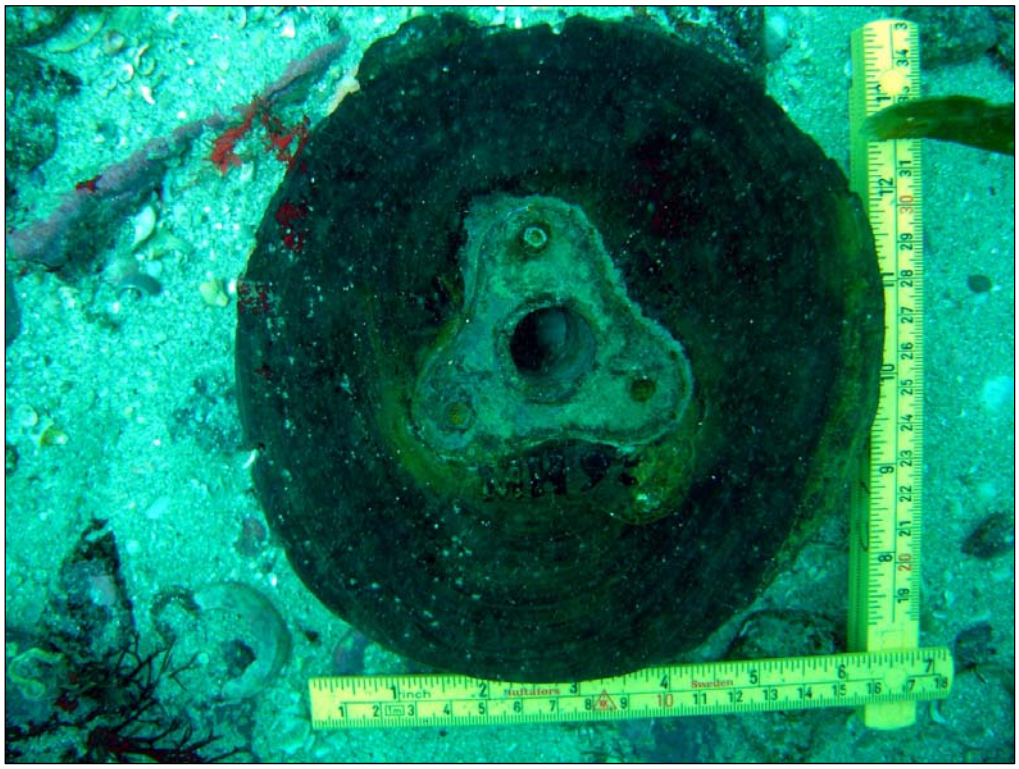


Fig 10 An example of the exposed objects – a block sheave

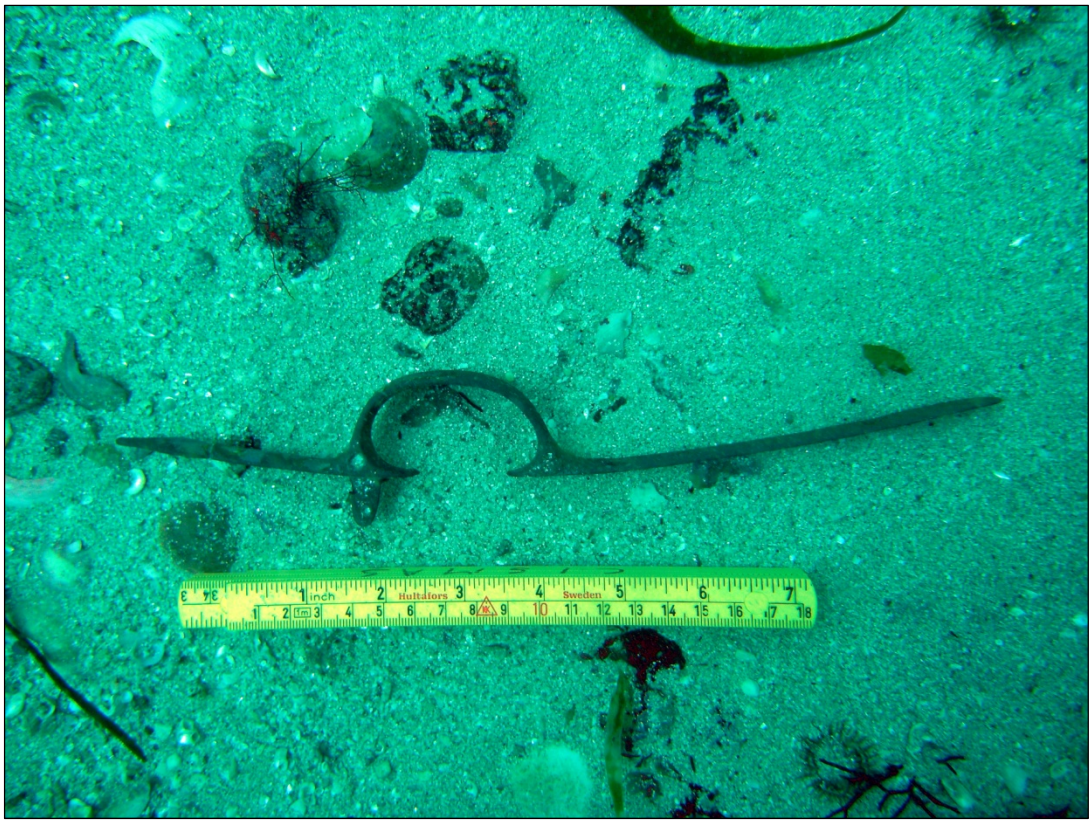


Fig 11 Another example of the exposed objects – a musket trigger guard

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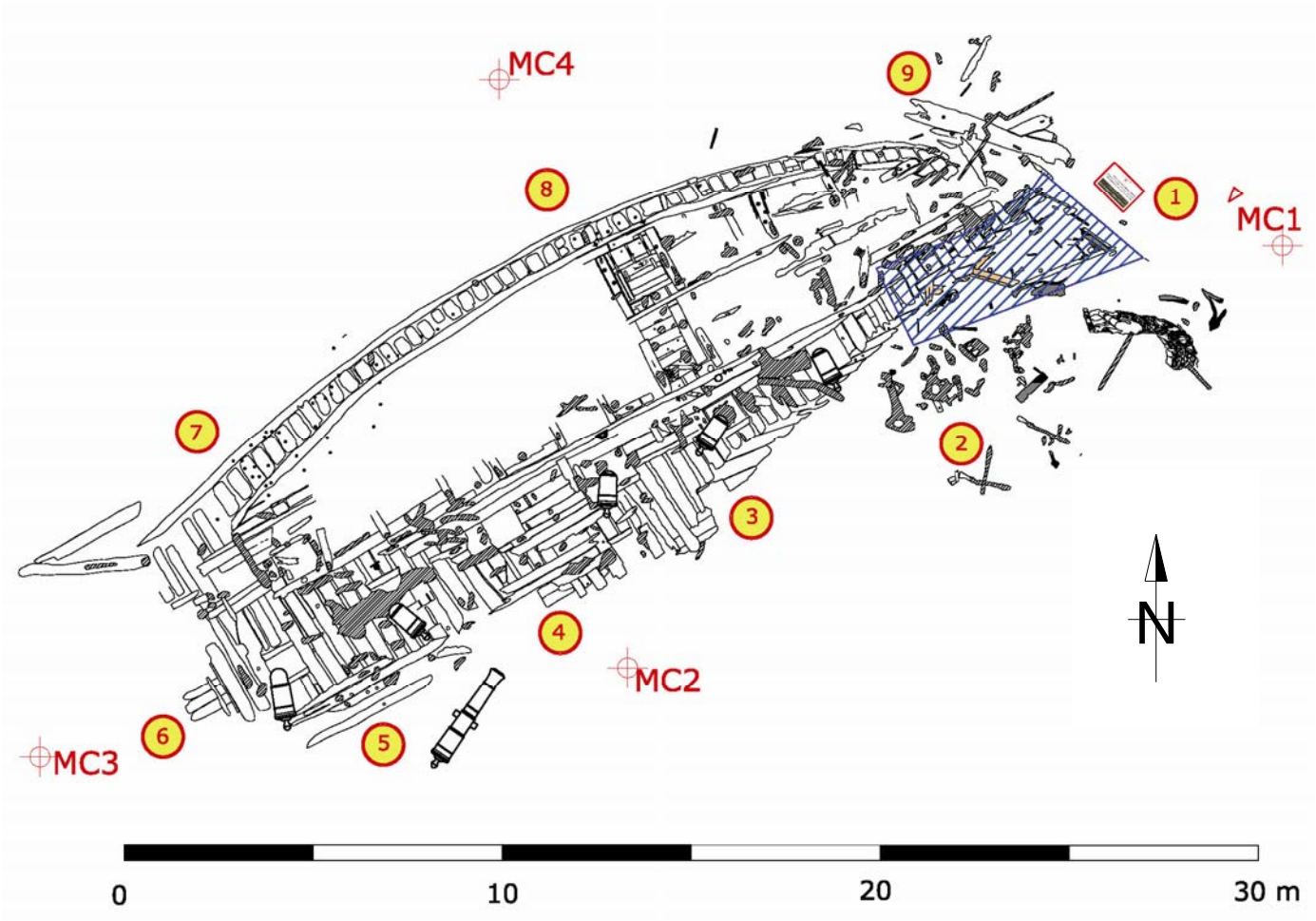
Appendix I – Underwater Guide

One copy of the site guide was produced and tested on the site after the seabed stations were in place. This was used for a dive on the trail the day after installation by the Bingham BSAC club diving on Tim Allsop's boat. A writeup of their dive which appeared in Dive magazine is reproduced below in appendix III. The dive guides were distributed as follows:

Destination	No of copies
Tim Alsop (dive boat skipper)	8
David McBride (dive boat skipper)	8
Jo Williams (dive boat skipper)	8
Isles of Scilly Museum	3
English Heritage Maritime	3
Kevin Camidge (spares in case of loss or damage)	10
TOTAL	40

ENGLISH HERITAGE

HMS Colossus Dive Trail



[FRONT COVER]

HMS Colossus Dive Trail

Read this page before the dive

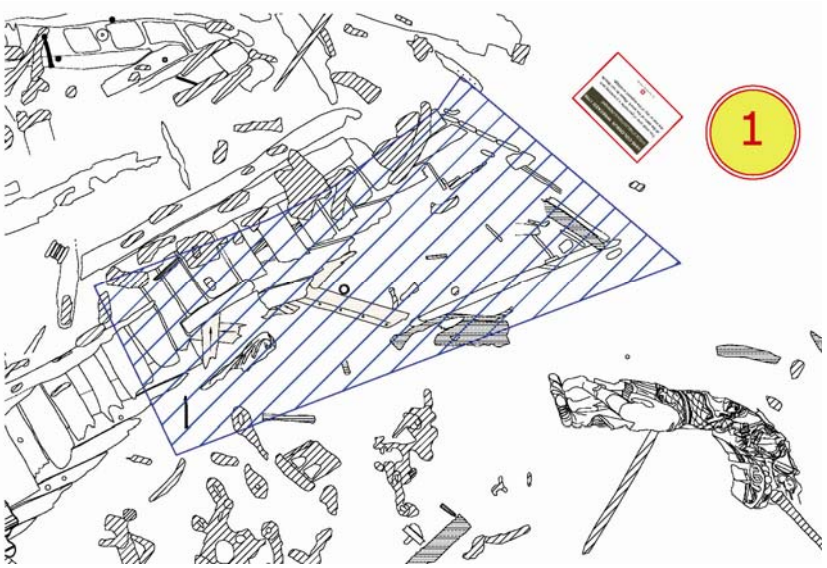
HMS Colossus was a 74 gun warship built in 1787 at Gravesend and wrecked in 1798. These 74 gun ships were one of the most successful types of the period. They were about 51m (170 feet) in length and had a crew of over 600. During her relatively short working life (eleven years) *Colossus* saw action at Toulon, Groix, Cape St Vincent and Cadiz. She also took part in the capture of two enemy ships, *Le Vanneau* and *Vrai Patriot,* in 1793

In December 1798 *Colossus* was on her way home to England with a remarkable cargo including eight crates of Greek antiquities, wounded sailors from Nelson's victory at the battle of the Nile and the body of a dead admiral. What she did not have on board was one of her spare bower anchors, which had been given to Nelson's ship *Vanguard* in Naples. This would prove to be disastrous. She was sheltering from a gale in St Mary's Roads when the anchor cable parted and she was driven aground to the south of Samson. All but one member of the crew were taken off safely before *Colossus* turned onto her beam ends and proceeded to break up.

The wreck lies on its port side and what you will see are the inside timbers of the ship's hull. There are nine dive stations at points of Interest around the wreck. Follow the shot line to the seabed, and the site is 20m south west of the shot line – there is a lead line you can follow from the shot to seabed station 1. Each seabed station has an arrow pointing to the next station.

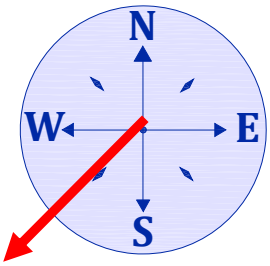
More information about the work on the wreck of Colossus is available at www.cismas.org.uk . If you would like to see photographs or accounts of your visit on the web site please email to: darkwright@talktalk.net

Station 1



You are at the stern of the wreck. The seabed sign is situated close to where the stern windows of the Captain's cabin would have been. The white Terram mat in front of you is protecting an area of timber from further decay. This forms part of a long term study into ways of protecting the remains of this wreck. Notice how the Terram and sand bags are already covered in seaweed and sediment.

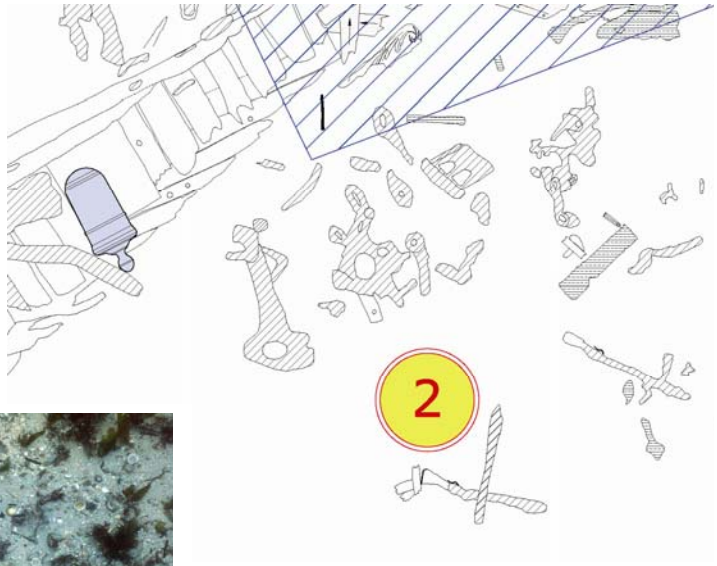
Next Station

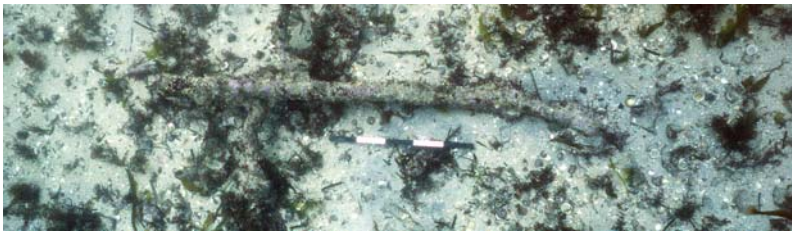


8.5m

Station

2





Here you can see the remains of several muskets. These were used by the 120 marines on board *Colossus*, as well as by the ordinary seamen. These are sea service muskets, similar to the well known 'Brown Bess' of the British Army, but simpler and slightly shorter than the standard land musket. They were smooth-bore flint-lock weapons and fired a lead ball of 0.75 inch diameter. The accuracy of this type of weapon was low; the effective range would have been well under 100m. The barrel is made from steel, the stock is wood and the trigger guard and butt plate are copper alloy.

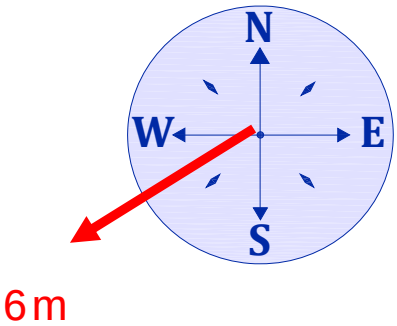
Station

2

This is what the now corroded muskets would have looked like. The musket was fired using black powder (gun powder), which was ignited by sparks generated by a flint striking a steel plate.

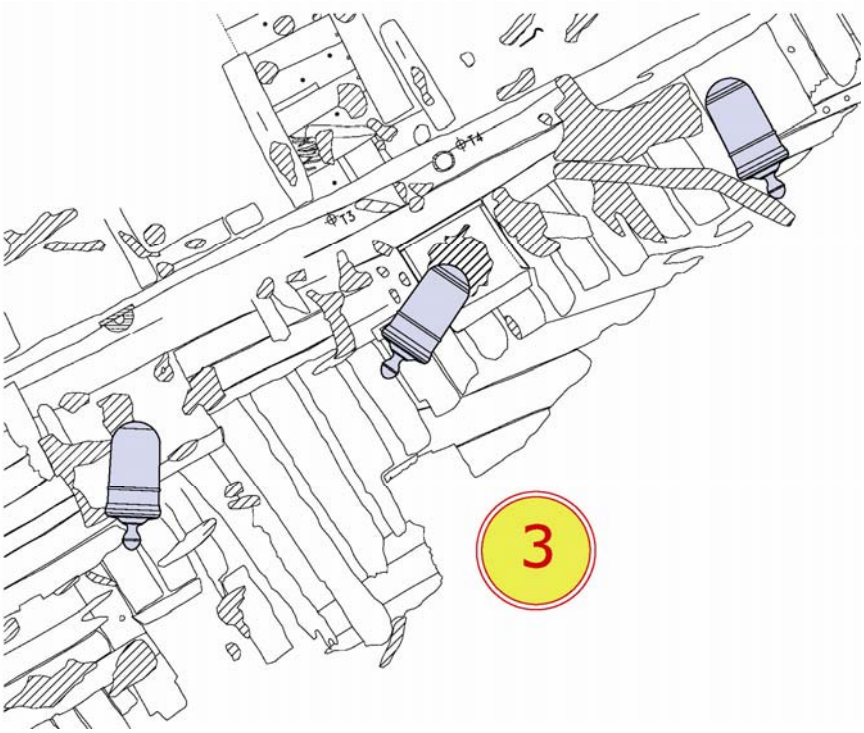
To the north of the muskets are a number of large iron objects. These are the remains of the mizzen chains, the iron fastenings which held the shrouds (supporting ropes) from the mizzen mast to the outside of the ship's hull.

Next Station



Station

3



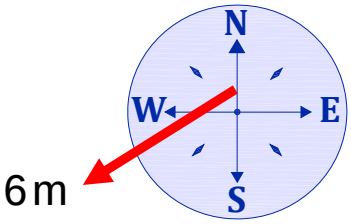
Turn to face north. In front of you now is one of the five eighteen-pound iron guns standing upright on the seabed, their muzzles buried in the sand. If you look carefully you will see that the guns are still within their gun ports. Immediately in front of you there is timber exposed on the seabed. This is the inside face of the ship. You will also see an empty gun port very close to station 3. This is one of the quarter-deck gun ports, where smaller nine-pound guns would have been.

Station

3

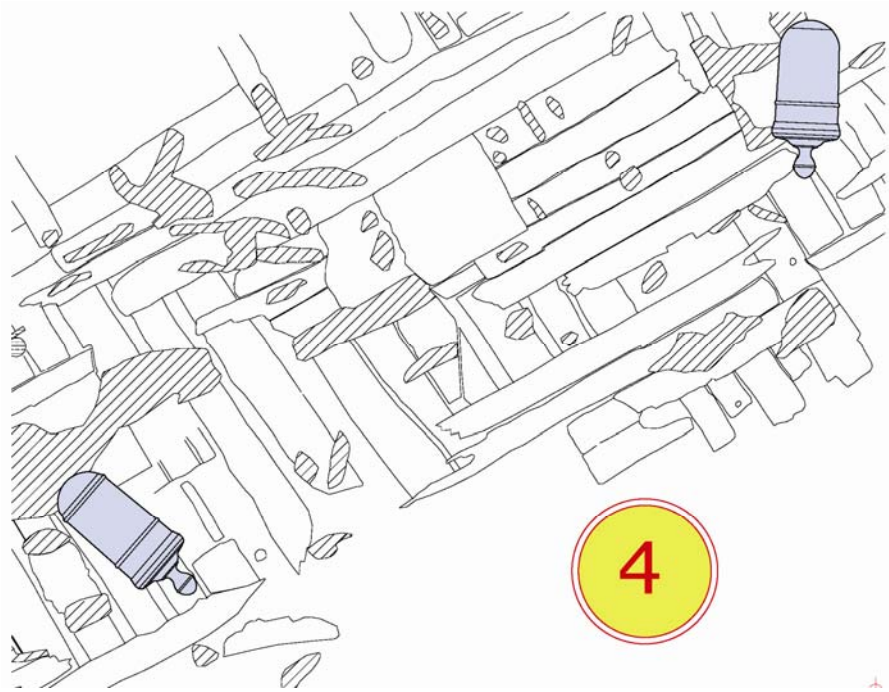
Colossus carried 74 guns on three different levels. These were all smooth-bore cast iron guns designed to fire a variety of projectiles (grape, case, bar, chain and round shot). The guns were classified according to the weight of round shot they fired. The lower gun deck had 28 thirty-two pound guns; the upper deck had 28 eighteen-pound guns while the quarterdeck and forecastle held the remaining 18 nine-pound guns. The guns visible on site are eighteen-pound guns of the Armstrong type, while the lower deck guns were the newer Blomefield design.

Next Station



Station

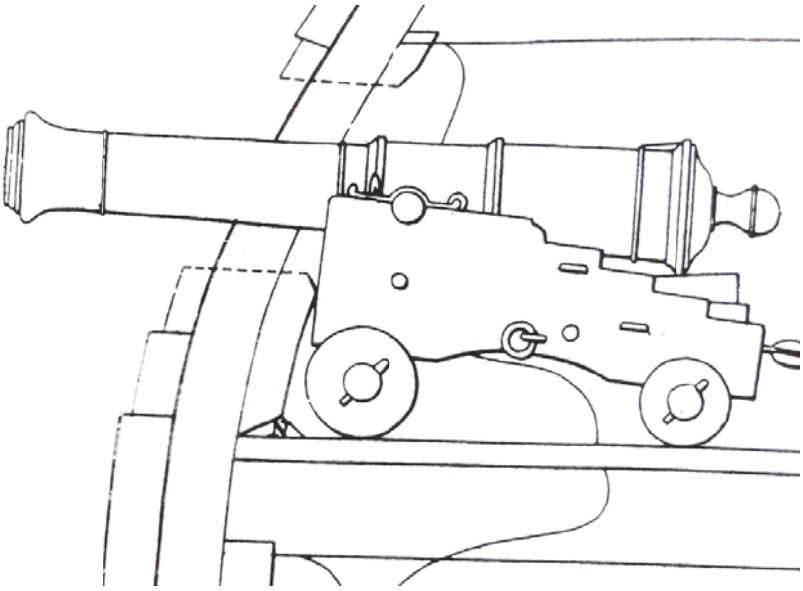
4



About two metres to the north of station 4 you will find an empty gun port. This gives a clear idea of what the gun ports looked like. Remember you are looking at the inside of the gun port. Notice the corroded iron ring bolts at the side of the gun port, which would have been used to secure the gun carriage to the side of the ship. If you look closely at the timber on the seabed, you will see the tunnels in the timber created by the wood-boring organisms which are attacking the hull timbers.

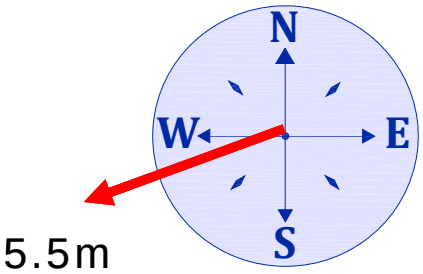
Station

4



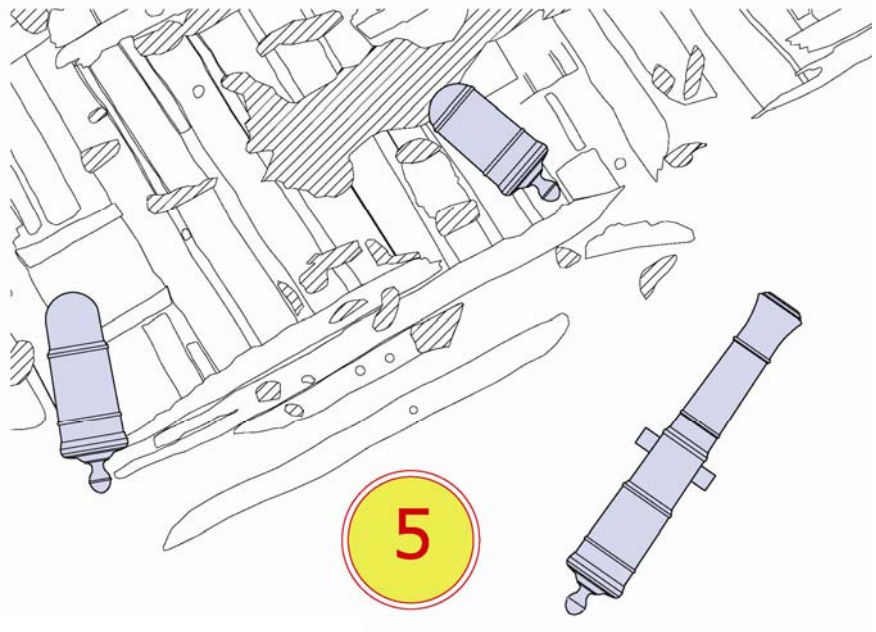
Three metres to the west of station 4 you will find another of the upstanding eighteen-pound guns. If you look carefully you will see a number of iron bolts attached to the barrel of the gun. These are the iron fastenings which held the wooden gun carriage together. The timber of the carriage has now decayed, leaving only the iron fastenings.

Next Station



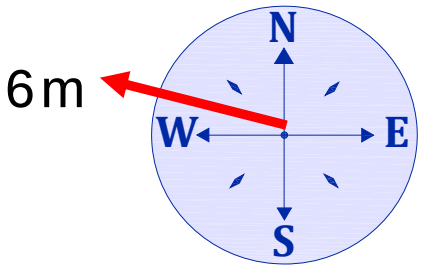
Station

5



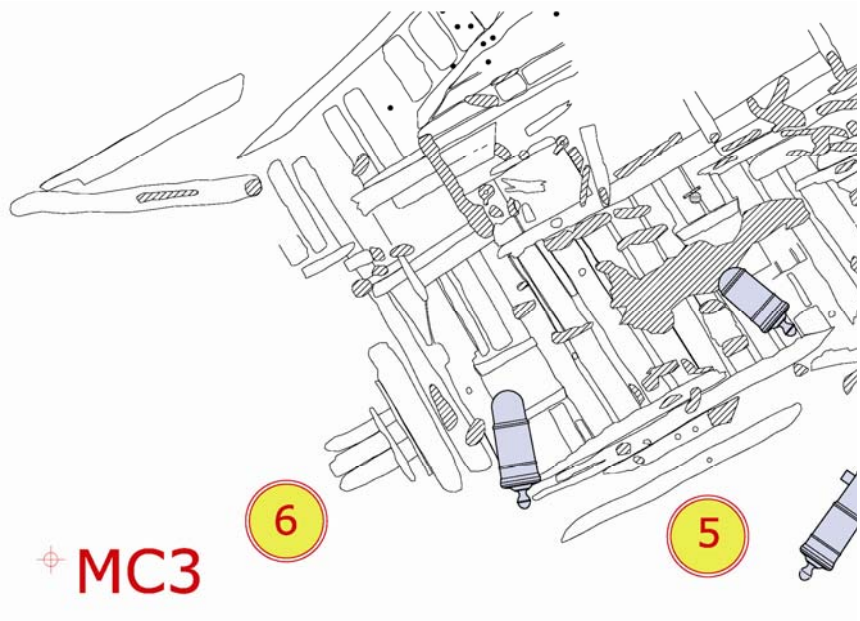
At station 5 you can see one of the eighteen-pound guns lying flat on the seabed. This gun is probably the one which was originally sited at the empty gun port you saw at station 4. Here you can see just how large these guns are. They are 2.75m (9 ft) long and weigh 2 tonnes each. The lower deck guns (thirty-two pound) were even larger.

Next Station



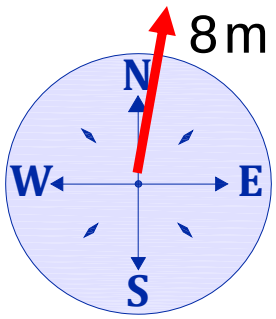
Station

6



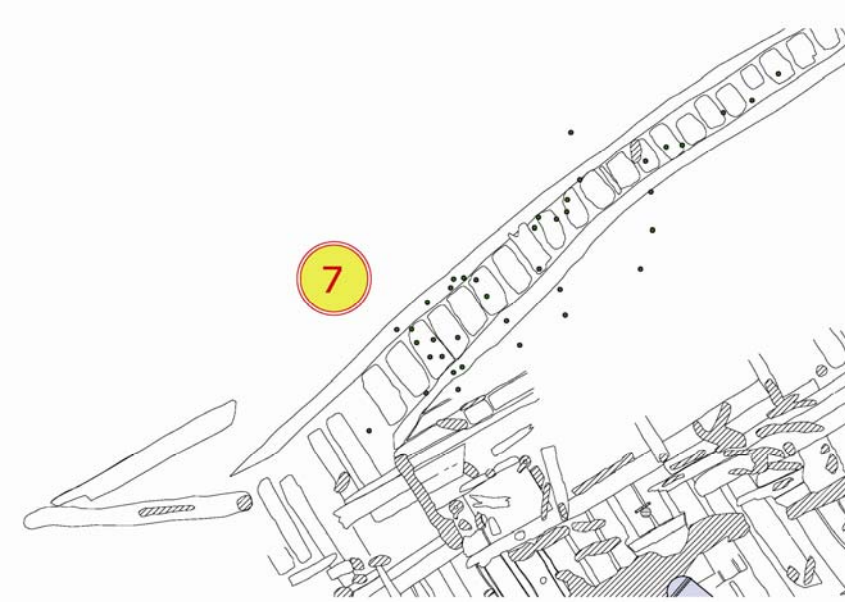
You are now at the point where the ship broke in half – roughly where the mainmast was. The bow section of the wreck is over 300m to the west; this was excavated in the 1970's by Roland Morris. He recovered thousands of pieces of Greek pottery (now in the British Museum) which were part of the cargo of *Colossus* when she sank.

Next Station



Station

7



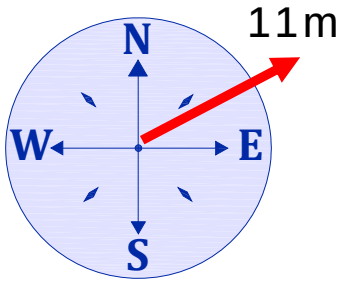
You can now see a number of copper spikes standing upright on the seabed. These are the remains of the copper bolts used to fasten the timbers of the hull. Before 1780, ships were fastened using iron bolts. After the introduction of copper sheathing below the waterline, it was soon discovered that the iron bolts corroded rapidly. The solution to this problem was to use copper fastenings below the waterline. The sharp points seen on these copper bolts are caused by erosion of the exposed bolts on the seabed.

Station

7

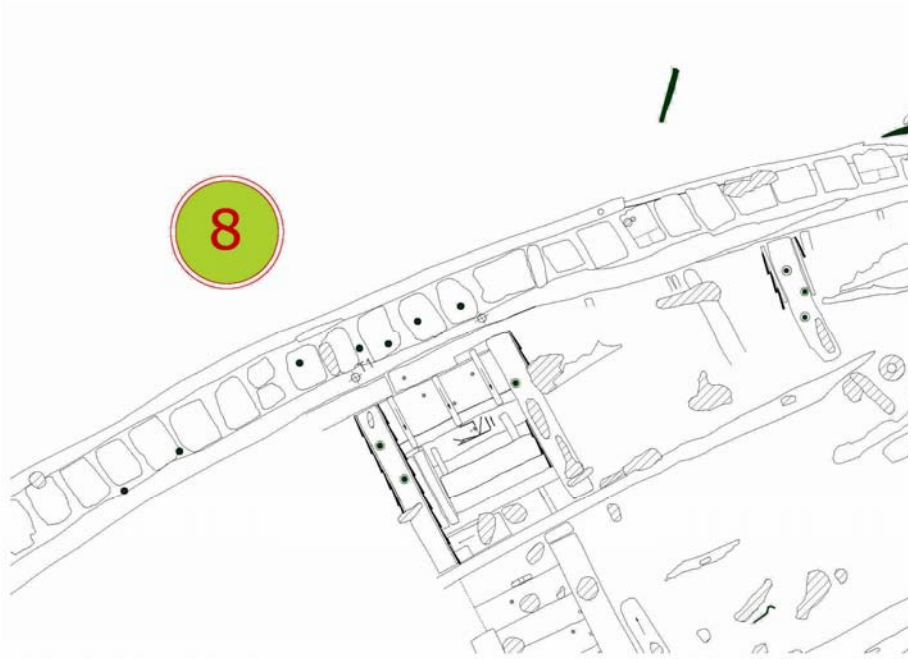
The timbers you see here are the partly buried hull timbers. These consist of the inner planking, frames and outer planking. You are at the level of the orlop deck, where cables and sails were stored, below the water line of the vessel.

Next Station



Station

8



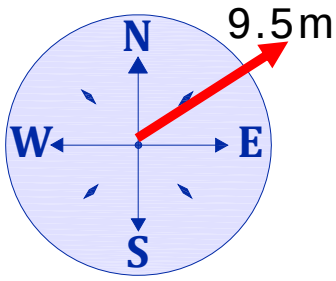
Turn so that you are facing south. In front of you are the timbers of the hull. You should also be able to see several copper fastening bolts similar to those you saw at the last station. If you look carefully at the outside of the hull (outer planking) you should be able to see some of the copper sheathing which covered the hull below the water line.

Station

8

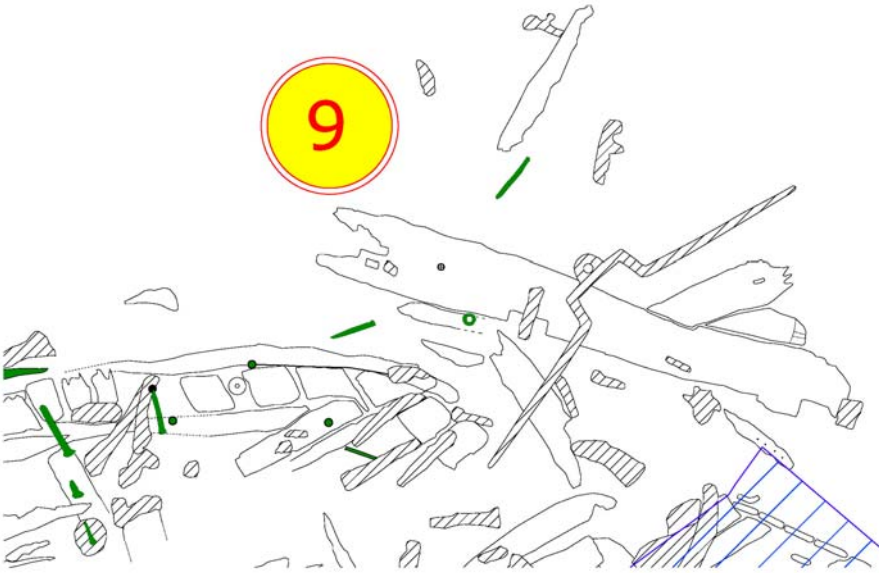
The photograph here shows you roughly what the hull timbers look like at this point (looking east). On the left is the outer hull planking. In the middle, the large square timbers are the frames of the ship. On the right hand side is the inner planking. If you look carefully you should be able to see the joins in the planking. Again you will notice how the timbers are being attacked by wood boring organisms – sometimes called gribble.

Next Station



Station

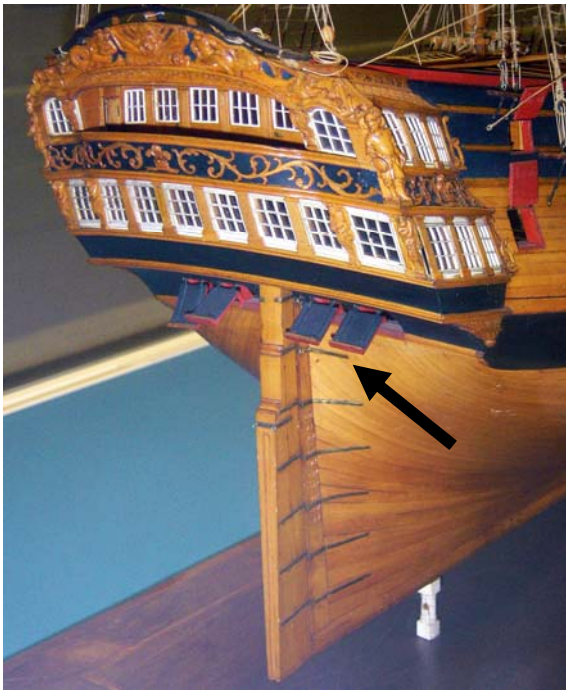
9



Here you can see part of the stern post of the ship. The large iron object on top of the timber is one of the rudder gudgeons, an iron strap used to attach the rudder to the hull (the gudgeons attach to the hull and the pintles attach to the rudder). The hole in the centre of the gudgeon is where the rudder pivoted on the pintle pin. Colossus lost her rudder when she first grounded some distance to the west of where you are now.

Station

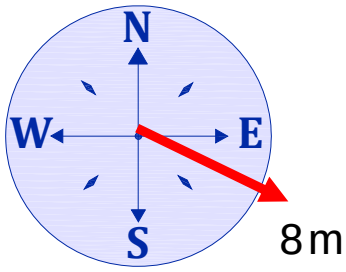
9

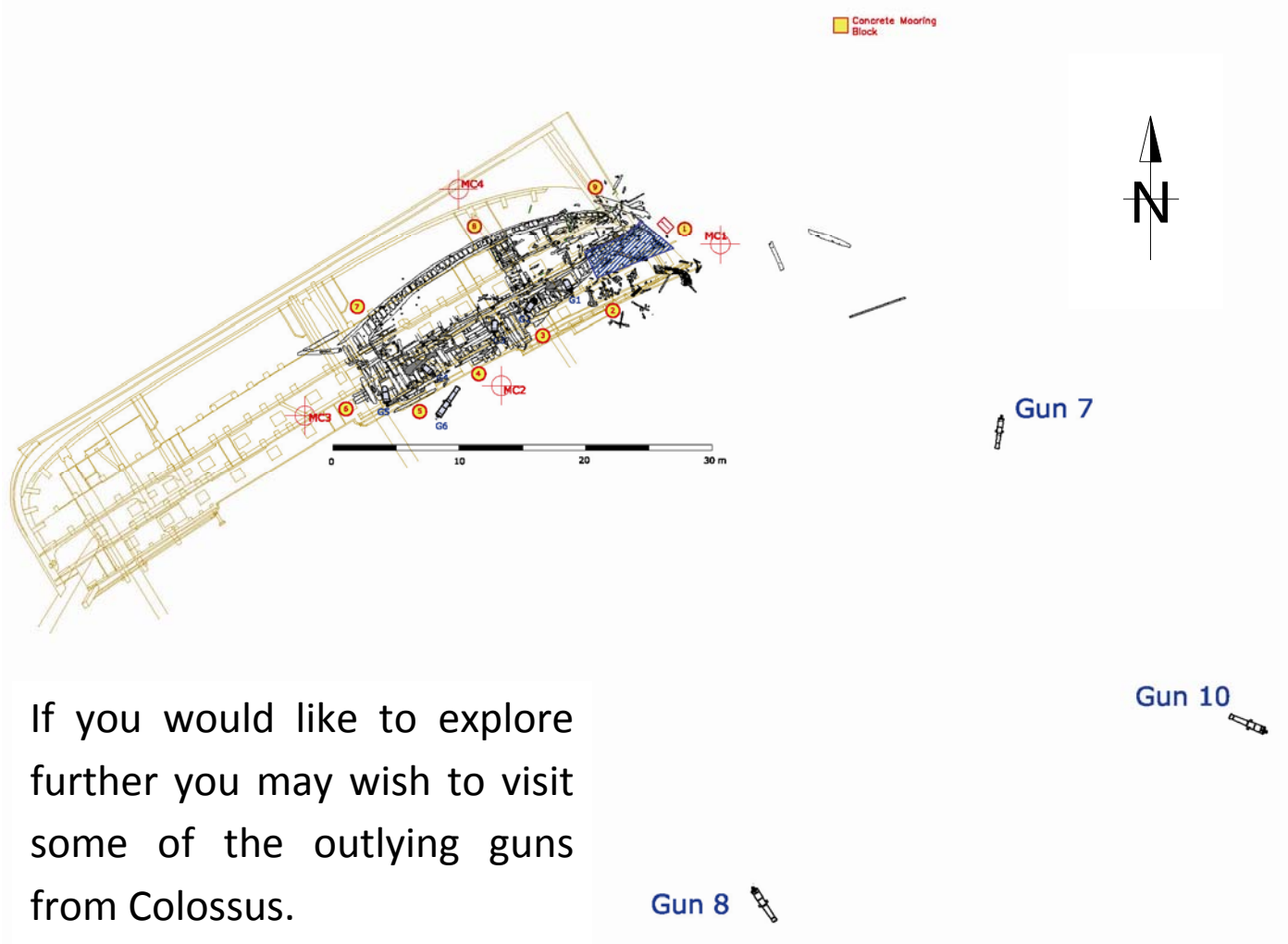


This photograph of the stern of a model of a similar ship shows the position of the rudder gudgeon (arrowed).

Station 9 is the final station on our tour of the wreck. Follow the compass pointer to arrive back at station 1 and the seabed sign – where you started this tour.

Station One





If you would like to explore further you may wish to visit some of the outlying guns from Colossus.

Gun 7 is a nine-pound gun with parts of the gun carriage still attached. It lies 29m from station 1 on bearing of 120°. Gun 10 is one of the Blomefield thirty-two pound guns from the main gun deck. It lies 53m from station 1 on bearing of 130°.

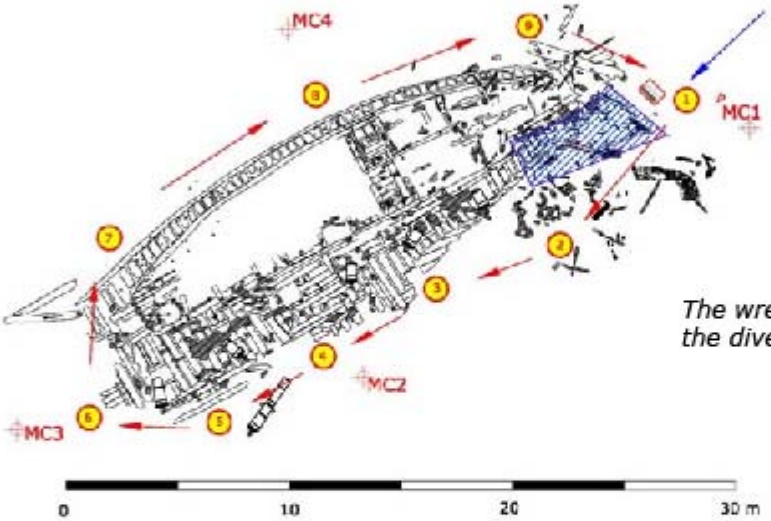
[BACK COVER]

Appendix II – Dive Trail Poster

ENGLISH HERITAGE

HMS Colossus Wreck Dive Trail

HMS Colossus was a 74-gun wooden warship wrecked in the Isles of Scilly in 1798. *Colossus* was sheltering from a gale in St Mary's Roads when her anchor cable parted and she was driven aground to the south of Samson. All but one member of the crew were taken off safely before she turned onto her beam ends and proceeded to break up.



The wreckage of Colossus and the dive trail

A dive trail has now been installed on the site, consisting of numbered observation stations situated around the site with an underwater guide booklet which directs divers around the wreck.

To book a dive on *Colossus*, contact one of the local charter boats:

Moonshadow	**01720 422848**
Morvoren	**01720 422848**
Tiburon	**01720 463162**

For more information visit
www.cismas.org.uk

Appendix III – Extract from Diver Magazine

Bingham BSAC test underwater trail

By Jo Mattock

A group from Bingham BSAC in Nottinghamshire was the first to dive the new underwater trail on the wreck of HMS Colossus in the Isles of Scilly.

Bingham BSAC in the Isles of Scilly

Kevin Camidge, a marine archaeologist, was commissioned by English Heritage to make the wreck more accessible to visiting divers and to help them understand more about it.

The trail takes you around the stern section of the wreck. Numbered markers are positioned at key points around the site and a waterproof booklet explains the artefacts and what is being done to record and preserve them. The tour takes you to the window of the captain's cabin, and past muskets and cannon and the booklet provides an insight into how ships of this type were built.

Andrew Shipley, Bingham BSAC's Chairman, said: 'This dive was the high point of a fantastic week with tricky weather conditions. Tim Allsop of St Martin's Diving Centre was the best skipper I have dived with and we are very grateful to him for organising this special dive and to Kevin for allowing us to be the 'guinea pigs'.. We'll be back to the Scillies for another dive trip as soon as possible.'

The underwater booklets that guide divers around the trail are available from dive shops and the local museum, or can be downloaded from www.cismas.org.uk. Divers are encouraged to send in their feedback about the trail via their website.