

HMS Colossus

Wrecking Project 2017



Project Report

Kevin Camidge

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Weezle Undersuites



Ambient Pressure
Diving



C.Tag
Anti-fouling markers



Otter Watersports

The Team



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Cover Photograph: Divers return to the boat - *Moonshadow*.

Project Name

HMS Colossus Wrecking Project 2017.

HE 7389

Project Summary

Sediment level monitoring was continued and it was noted that the sediment levels are currently slightly higher, but are dynamic and unevenly distributed.

Fieldwork was undertaken by CISMAS volunteers for two weeks in May 2017. Large areas of seabed around the stern site were searched in detail in order to better understand the events leading to the present disposition of wreck material on the seabed. This was mainly prompted by the proposal of a new wrecking theory by CISMAS in 2015.

This report revisits the loss of the ship, the historic salvage of the wreck and the rediscovery of the site and subsequent excavation by Roland Morris in the 1970s. The evolution of our understanding of how and where *Colossus* was wrecked is examined in some detail. This is followed by an explanation of the new wrecking theory - and how the results of this year's survey accord with it.

Finally, some suggestions for future study of this site are advanced.

Dead archaeology is the driest dust that blows (Wheeler, 1956).

Background

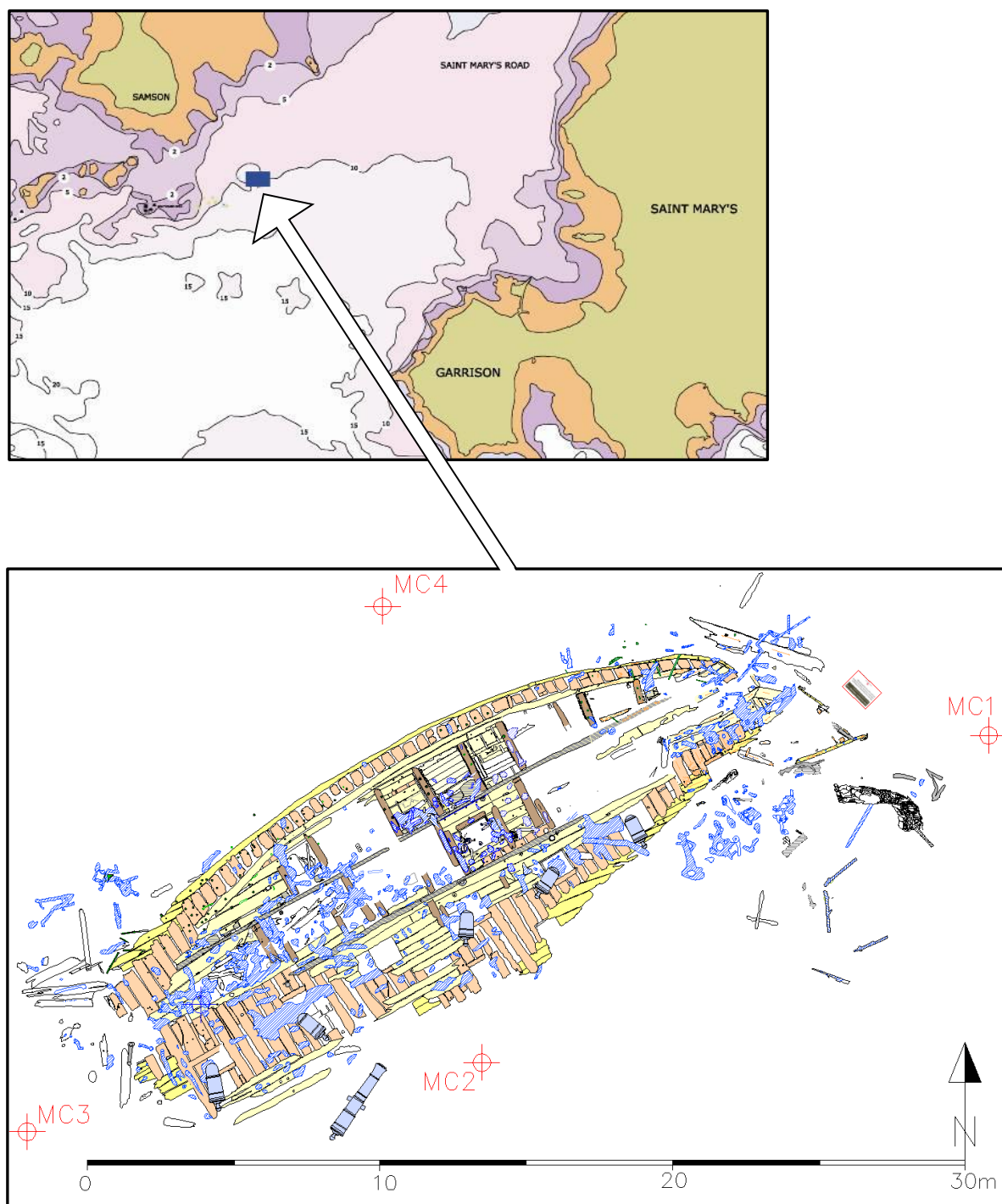


Fig 1

The stern of Colossus. The inset shows the location of the wreck 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 in 1793: *Le Vanneau*, a French 6-gun ship; and *Vrai Patriot*. She had no less than nine different captains during her relatively short career. A complete refit, which took six months, took place in 1796.

In December 1798 *Colossus* was on her way home to England with wounded from the Battle of the Nile and with cargo, including part of Sir William Hamilton's second collection of Greek 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	13 th December 1781
Laid down	October 1782
Launched	4 th April 1787

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 site and the stern site. 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). The

designated area was extended in August 2017 and is now defined by the following co-ordinates:
N: 49.92688286, -6.34111824 E: 49.92371411, -6.33617442 S: 49.91861193, -6.34401542 W:
49.92178068, -6.34895924

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 salvager 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. 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 these reconstructed pots is now on public display. Once Morris' team had finished their work, the site was de-designated in 1984. The current whereabouts of the other material removed from the site by Morris is for the most part unknown.

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 the quarter-piece, part of the stern decoration of the vessel, was recovered from the site. This was conserved at the Mary Rose Trust, and has now been returned to Scilly for display on Tresco. Later that year a small, limited 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. This determined that - on this site - the most effective form of stabilization is a layer of Terram 4000 (Camidge, 2009).

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*. This demonstrated the presence of large quantities of material from *Colossus* extending beyond the area covered by the current designation.

Between 2002 and 2012 the author carried out monitoring of the sediment levels on the site. This work has demonstrated that the sediment levels around the stern section of *Colossus* have 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 (Camidge, 2009). 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. The same year a diver trail was installed on the site and an underwater guide book produced, copies of which are held by the local dive charter boats for the use of visiting divers. This work was commissioned by English Heritage.

In 2010, a monitoring survey of the small objects exposed on the seabed around the exposed timbers of the wreck was undertaken. The aim of this survey was to allow the amount of object mobility, loss and deterioration to be determined in subsequent monitoring surveys.

2012 saw a small excavation undertaken on the stern section of the site. There were a number of reasons for this undertaking: investigation of the main gun deck ordnance, recording of a main gun-deck port, and detailed recording of the post-wrecking stratigraphy present on the wreck. Recording of newly-exposed wreck material was also undertaken in phase two of the project, along with monitoring of mobile surface artefacts. The on-going recording of the sediment levels on the site was continued. In addition to these site specific enquiries, a number of more general aims were achieved. These included investigation and appraisal of different excavation methods and recording regimes, and the initiation of a long-term reburial trial on the site using real archaeological objects rather than modern tokens. Finally, an opportunity to gain experience in underwater excavation was offered to two separate trainees, who were able to use their experience towards their NAS part II and III qualifications.

In July 2014 the sediment level monitoring points were renewed. The sediment levels on the site have been monitored since 2003, and have been found to be steadily diminishing since then. The monitoring points had deteriorated so renewal was necessary to enable the monitoring to continue. At the same time maintenance work on the dive trail was undertaken and the dive trail was extended. During this work it was noticed that new wreck material had become exposed to the east of the stern of the wreck, which instigated the investigation undertaken the following year (2015).

A small scale excavation of an area to the east of the wreck was undertaken in July 2015. Three small trenches were excavated in the area where newly-exposed material had been discovered in 2014. A number of important objects were recovered for conservation, including several pieces of a 9lb gun carriage - one of which was inscribed with the ship's name. An upper deadeye, complete with attached rope shrouds and lanyard, was also recovered. This was most probably one of the mainmast deadeyes/shrouds. A corresponding lower deadeye, complete with attached iron chains, was also recorded but left *in situ*. A significant quantity of rope was found, especially in trench two. These ropes were recorded and samples taken for further study. A small, localised collection of personal items was also found in 2014. This included 56 pewter uniform buttons, a bone brush and a small area of fabric. Sadly, this area had been disturbed by the time we came to excavate it in 2015. Nevertheless, three further pewter uniform buttons, parts of a leather shoe and a remarkable miniature bronze cannon were recovered in 2015. This collection of items was confined to a very

small area (less than 0.3m diameter) and as such was probably originally contained within a small bag. A number of questions were raised by the material found in 2015; this has led to a reappraisal of the wrecking process of *Colossus*. A new theory of how the current disposition of remains came about was suggested – along with suggestions as to how this new theory could be tested.

All reports relating to the work undertaken by CISMAS on *Colossus* can be downloaded at www.cismas.org.uk

A guided video tour with commentary was recorded this year (2017) and can be viewed at: <https://youtu.be/FOJ0SUOV7QU>

Understanding the Wrecking

In July 2014, while undertaking renewal of the sediment level monitoring points, CISMAS divers discovered newly-exposed wreck material some 25m to the east of the stern of *Colossus*. This material included a number of muskets, bringing the total visible on the seabed to ten. There were also items originating from the rigging of the ship, which included several sections of rope (both cable and hawser laid), numerous iron deadeye chains, a large wooden deadeye (with attached rope) and several pieces of timber. A small collection of personal items was also located. The items were all tightly grouped, suggesting that they may have originally been contained within a bag. The items consisted of a leather shoe, a combined bone brush/shoe horn, the remains of fabric (possibly a jacket) and 53 pewter uniform buttons. These were recovered and have been conserved by Angela Middleton at Historic England. More details of these items can be found in the Sediment Level Monitoring report (Camidge, 2014). They are now in the Isles of Scilly Museum on St Mary's and will be the subject of a forthcoming publication by Angela Middleton.

In 2015 CISMAS returned to the site and undertook a limited excavation to enable recording of this newly exposed material. A full account of the 2015 work is presented in the 2015 project report (Camidge, 2015). Significantly, this work highlighted a number of anomalies in the distribution of wreck material on the seabed. It was clear that our current ideas of the wrecking process for *Colossus* did not adequately explain the observed distribution of wreckage. A new wrecking theory for the vessel was accordingly proposed; this explained most of the observed anomalies. One of the objectives of the current project was to test the new wrecking theory. In order to explain the conventional and new wrecking theories it will be necessary to revisit some of the previous work undertaken on the *Colossus* site at some length.

The Conventional Wrecking Model

The circumstances leading up to the loss of *Colossus* were outlined in the Captain's letter to the Admiralty and the court martial enquiring into the loss of the ship (reproduced in appendix II). Importantly these accounts do not state where the ship struck ground or where she foundered. They do, however, make it possible to reconstruct where *Colossus* was anchored when the cable parted and the wrecking process began (fig 2). We are given the wind direction, the fact that the ship was in water sheltered by the land and the water depth at anchor and length of cable deployed. There is only a relatively small area of water which conforms to all these criteria. In brief, the sequence of events was as follows:

- At anchor in St Mary's Roads
- Anchor cable parts
- New anchors deployed but ship drags to NW
- Ship strikes bottom
- Rudder beaten off – water gains fast – up to upper gun-deck sills
- Crew taken off by small boats
- Ship turns onto beam ends and starts to break up

A full account of all known events with time, tide and wind direction is reproduced in appendix III.

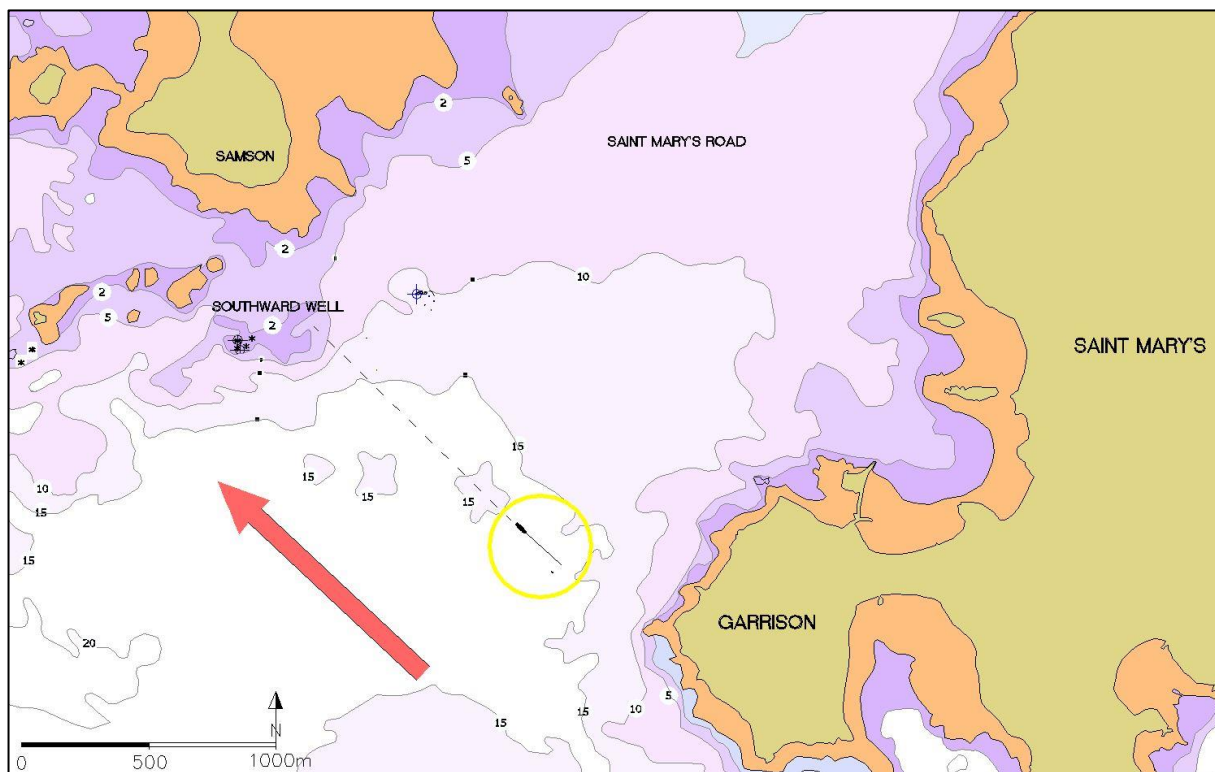


Fig 2

Colossus is shown at anchor riding to a full cable (circled in yellow). The wind direction is shown by the large red arrow. The assumed path the vessel dragged along is shown by the dashed line. The Southward Well reef lies over 400m to the west of the currently designated stern site which is shown by a small cross.

Notice of the loss appeared in the *Times* of 19 December 1798, stating that '*she drifted onto a ledge of rocks, called Southern Wells, near the island of Sampson [sic]*'. In 1960 a narrative of the loss appeared in an article in the *Mariner's Mirror* on the shipwrecks of Scilly. This stated that '*she was blown onto Southern Wells – a shoal of rocks to the south of Samson*' (Boulay, 1960) Note that this reef appears on the Admiralty chart as Southward Well, but is known locally by a number of similar names. Thus far the conventional wrecking lore places the wreck of *Colossus* on and around the Southward Well reef. But as we shall see, things are not quite that simple.

Contemporary Salvage

Salvage of material from the wreck of *Colossus* began soon after she was wrecked, the log of *HMS Hecate* for 14th December 1798 stating '*sent our cutter to assist in getting some things out of Colossus*'. [ADM 51 4456]. *HMS Fearless* was ordered to salvage what she could from *Colossus*, and her log for 14th, 15th and 16th of January states '*people employed breaking up the wreck*' [ADM 51 4115]. An admiralty letter also records '*many useful pieces of masts and spars, copper iron etc. and an anchor of 72cwt were brought off her, with various armaments*' (Boulay, 1960). Three Board of Ordnance records, dated August 1799, July 1800 and March 1802, detail payment made to third parties for recovery of guns and shot. In total, 47 guns were recovered as well as unspecified quantities of round shot and gun carriages. The guns consisted of fifteen 32lb, seventeen 18lb, thirteen 9lb and 2 carronades. [WO 52 130].

In 1808 another recovery was reported: *‘SCILLY, May 30. -..... One of the Colossus guns has been taken up this week, in a perfect state as if never under water, by the help of a water glass, whereby any object can be seen 10 fathoms under water, the Colossus 74 has been lost 10 years’*. [Royal Cornwall Gazette 4th June 1808 Page 3].

That the salvage continued for some time is evidenced by recoveries made by the Dean Brothers in 1833 which included 17cwt of sheet copper and several iron guns (Wessex Archaeology, 2003, p.15). It is worth reproducing here a contemporary newspaper account of this salvage:

It is now thirty-five years since his Majesty's ship Colossus was wrecked in St Mary's Roads, Scilly. A few weeks since, two young men (brothers) were there with a diving apparatus of a new construction, and succeeded in bringing-up several pieces of cannon, &c. from the wreck. The following extraordinary fact merits investigation: one of the guns exploded on being struck with a hammer, while lying near St. Mary's quay, and the wadding &c. fell on Rat Island. Master-Gunner Ross was severely injured in the leg by the accident. [Hampshire Telegraph 1833 Nov 4th p2].

What is not recorded in any of these accounts is where this material was salvaged from. Given that the currently designated ‘stern site’ and the previously designated ‘bow site’ lie over 400m apart, it is not clear which of these sites was being salvaged.

Discovery and Excavation – Roland Morris

A dive team lead by Roland Morris began looking for the wreck of *Colossus* in 1967. His searches were initially on the Southard Well reef, where he did not find anything. In 1974 his divers found three anchors on the edge of the reef. By following the direction pointed to by their shanks, he finally located historic wreck material some 90m to the north-west. Further searching located more wreck material, including at least 12 iron guns - and a large quantity of broken pottery which was originally part of Sir William Hamilton's second collection of ancient Greek pottery (this was known to have been on board *Colossus* when she was lost). Morris spent the next six years excavating on the site and recovered around 30,000 sherds of Hamilton's pottery (now in the British Museum). Roland Morris produced a book about the *Colossus* which tells a stirring tale of the discovery and has an impressive site plan (Morris, 1979).

The identification of the wreckage as *Colossus* rested mainly on the presence of the Hamilton pottery – which was known to have been on board when *Colossus* was wrecked. However, there are a number of anomalies in the other material found and recovered by the Morris team. The three anchors discovered by Morris were all far too small for *Colossus* bower anchors – the largest had a shank length of only 3m (the other two were only 1m long) whereas *Colossus* bower anchors would have been 5.6m (18'6") long. Morris reported recovering four 12lb guns and 12lb shot, one 24lb gun as well as two carronades and three swivel-guns (Morris, 1984). The problem here is that *Colossus* did not have 12lb or 24lb guns as part of her armament. The mystery deepens when examining reports of finds made to the Receiver of Wreck in 1980, when Morris reports recovering three 32lb cannon (8'6" long) and two 24lb cannon (7'6" long), as none of the guns in use on British warships of the late 18th century match those calibre and length combinations. The 32lb guns should be 9'6" long and 24lb guns should be 9' or 9'6" in length. Given the above facts we must conclude that either *Colossus* was carrying anchors and foreign/archaic guns as cargo, or there is an additional wreck in the area where Morris was working. Morris wrote a number of articles in IJNA which demonstrate a

fairly comprehensive knowledge of historic ordnance (Morris, 1984) and (Morris, 1984 c). This would suggest that his identification of the gun calibres was probably correct. It is also telling that all of the 47 guns salvaged immediately after the loss of *Colossus* were of the correct type for the armament of *Colossus* – no 12lb or 24lb guns were recovered. There is a hint in Morris's book that he may have been aware of the discrepancy – he recounts at length how 'old time' ships often employed 'movable ballast' in the form of old guns making identification of a wreck from the guns impossible (Morris, 1979, pp.167-71).

The 'bow' site was designated under the Protection of Wrecks Act in 1975, and this designation was revoked in 1984 when Morris asserted that there was nothing left to find on the site. Subsequent searches in the area by CISMAS, Wessex Archaeology and local divers have failed to find any of the Morris guns or anchors on the seabed. We must conclude that Morris carried out his intention stated in his 1979 licence application '*I now wish to salvage what little remains of the ship*'.

Although the general area where Morris worked is clear, the exact location of his work is problematic. He locates his site plan with a bearing and distance (63° W of N and 270m) from his C10 (an iron gun) to Southard Well Rock. If plotted in this position, the numerous depths recorded on his site plan appear to be reasonable. In 2006 Wessex Archaeology repositioned his site plan based on seabed topography and two iron concretions thought to represent positions where iron guns had been removed from the seabed (Wessex Archaeology, 2006). This entails the most easterly of the Morris guns (C9) relocating about 125m to the NNE and the whole plan rotating about 20° anticlockwise. Unfortunately this makes all the depths recorded on the Morris plan too deep.

The site plan published by Morris shows a site which is widely dispersed, being over 250m east to west. Finally, it is worth quoting how Morris saw the distribution of material he spent so long excavating. He was convinced the hull lay with the stern at the west (where he found four rudder pintels) to the galley area ('*smoke blackened marble slabs*') over 200m to the east of this. His license application for 1979 states '*.. a great deal of material [was] recovered by dragging grapnels to and fro across the site ... we also know the hulk broke in two ... the site extends to 240m in length*'. It would appear that Morris was unaware of the material from *Colossus* lying to the east of his site. Material continued to be recovered by local divers after the designation was revoked in 1984.

Our understanding of the wrecking of *Colossus* seemed – at this stage - straightforward. The ship was wrecked on the eastern edge of Southward Well reef. The remains of the wreck were dispersed over an area extending some 250m to the east of the reef. No articulated ship structure was thought to survive.

Discovery of the Stern

In 2001, an area of ship structure and iron guns was discovered about 400m to the east of the Morris site. The remains were spectacular, consisting of much of the port side of the ship from mainmast to stern. Five iron cannon stood upright on the seabed, their muzzles buried in the sand – incredibly still within the surviving gun-ports of the hull. Part of the stern decoration consisting of a carved human figure lay on the seabed at the stern. These remains were designated under the Protection of Wrecks Act in the same year.

The wrecking theory was duly amended, incorporating the drift eastwards of the stern sometime after the wrecking to its present position. A debris field of material was discovered between the two sites (Camidge, 2005). It was now assumed that the Morris site was the bow of the ship and the new site the stern – in fact they became known as the bow site and the stern site.

It was clear that we did not fully understand the wrecking process of *Colossus*. Accordingly, CISMAS undertook a Lottery-funded survey of the debris field around the wreck in 2004 and 2005. This resulted in a better understanding of the distribution of wreckage but no clear understanding of the wrecking process itself.

Trouble at the Stern

One of the abiding enigmas of the stern site was how the five upper deck guns came to rest in their unusual positions. Given the conventional wrecking scenario, we understand that the ship foundered at Southard Well and a section of the stern then drifted east to its current position. The problem with this is that we know the ship fell onto her beam ends within hours of her abandonment. It is hard to see how the upper deck guns stayed in place throughout this process.

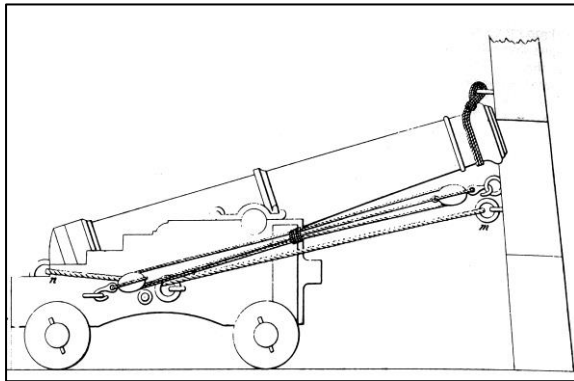


Fig 3

The guns on 18th century warships were lashed with their muzzles up against the upper gun-port sill when not in use. It is easy to see how they would end up falling through the gun-ports when the ship fell over onto her beam ends.

Further, once on her beam ends the ship would likely remain on her side due to the ballast and guns shifting when she rolled over. Thus the stern section would need to have travelled 300-400m east on her side – which makes the present disposition of these guns even more incredible.

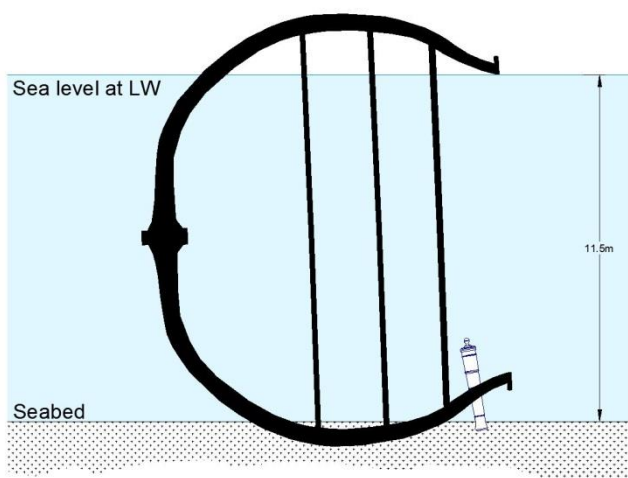


Fig 4

With the ship on her beam ends it is clear that the upper hull tumblehome allows the upper gun-deck guns to protrude through the gun-ports – but held upright by the gun-port. From here it is easy to imagine how they became buried muzzle down in the seabed. However, it is difficult to see how the hull could travel over 300m along the seabed without shedding the guns



Fig 5

One of the upper gun-deck 'upstanding' guns on the stern site. These are 18lb guns which are 9 feet (2.75m) long; roughly half the length of the gun is buried in the seabed.

In addition, during work undertaken in 2015 it became clear that there were other anomalies in the distribution of the material on the seabed which required a different wrecking scenario to explain them. This is covered in detail in the 2015 project report (Camidge, 2015) but is summarised below.

Missing guns

The stern section of the wreck is largely intact with the timbers remaining articulated. This section of hull contains 21 gun ports, seven main gun deck ports, seven lower gun deck ports and seven quarter deck ports. However, only six guns remain in place, all upper gun-deck 18lb Armstrong pattern guns. The mystery here is: why do so many of the upper gun deck guns survive, and none of the other pieces?

Outlying guns

Four guns lie on the seabed some distance to the south of the stern hull remains (fig 6). These consist of one 9lb quarter-deck gun (30m to the south-east), and three 32lb main gun-deck guns (50m south, 60m south-east and 260m south-west). Interestingly these three main gun-deck pieces lie roughly on a line aligned to the prevailing tidal flow. It is tempting to imagine that these guns represent some of the missing stern ordnance – but how did these guns get to these positions?

Stern window sash weights

In 2015 sediment levels around the site had fallen, exposing previously unseen wreck material. This included five lead sash weights, all found some 40m to the east of the stern (fig 6 & 7). These sash weights were part of the stern windows of the ship and as such come from a known location. Why was this cluster of sash weights so far from the stern?



Fig 6

Two views of one of the lead sash weights found on the seabed to the east of the stern.

Scale = 0.25m

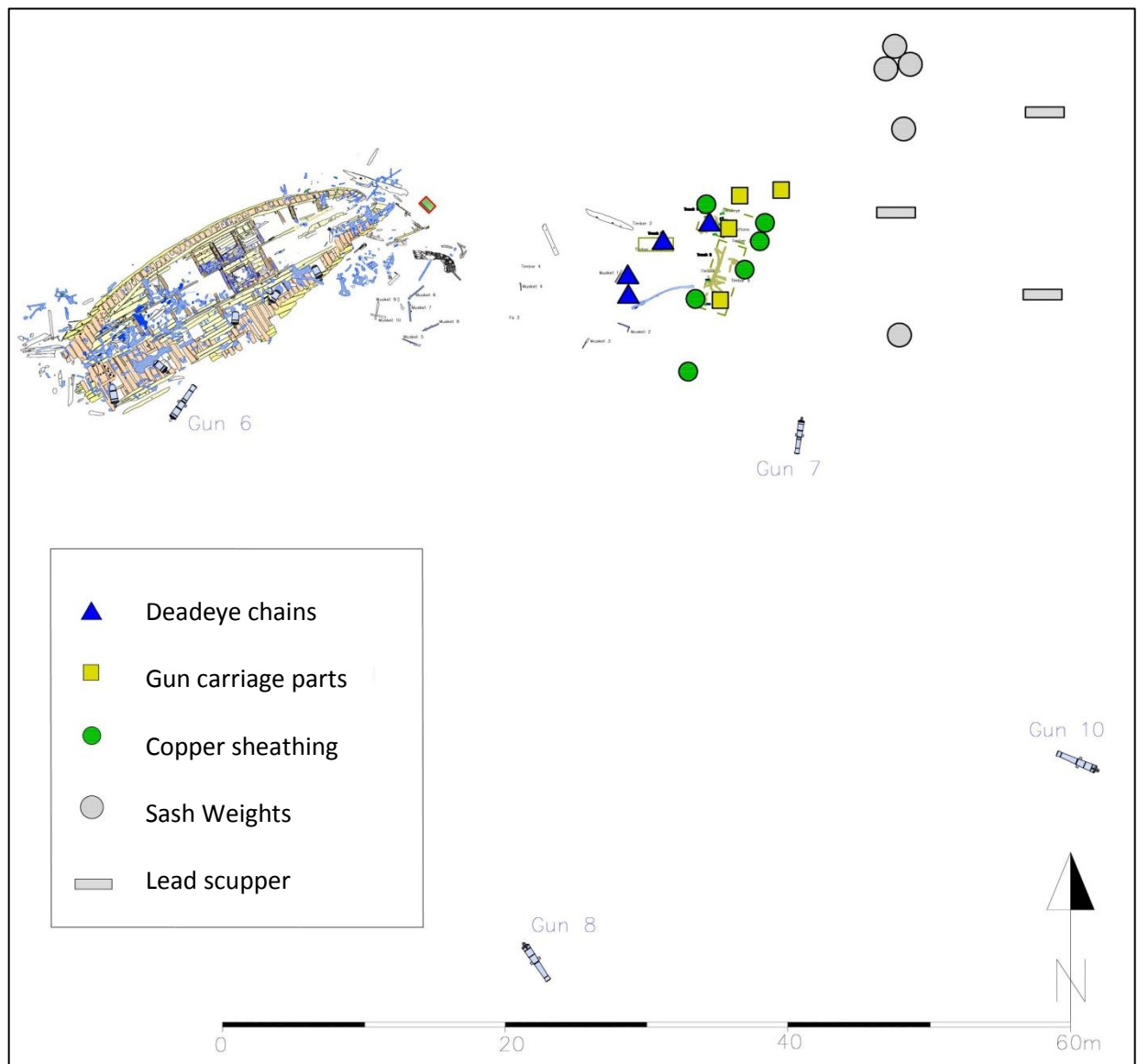


Fig 7
Distribution of wreck material around the stern of the vessel, mostly located in 2015

Outer hull material

In the same area, to the east of the stern, a number of objects originating from the outside of the hull were observed. These items included copper sheathing from the underside of the hull, and copper nails which would have been used to fasten the sheathing in place. In the same area were deadeye chains – one complete with wooden deadeye (the diameter of which indicates that it is from the main or foremast shrouds). The most obvious conclusion to be drawn from this material is that the hull of the vessel passed over this part of the seabed at some time during the wrecking – shedding sheathing and deadeye chains as it went. What was the hull doing here?

Crushed gun carriages

Several fragments of 9lb gun carriage were also located (one of which was inscribed 'COLOSSUS'). All of the recovered fragments of gun carriage exhibited extraordinary damage. They were broken and split extensively – far more than it would seem reasonable to expect from the carriage and gun falling from the deck of *Colossus* into the sea, even if the gun was still attached to the carriage when it landed on the seabed. What could account for this 'crushing' of the gun carriage?

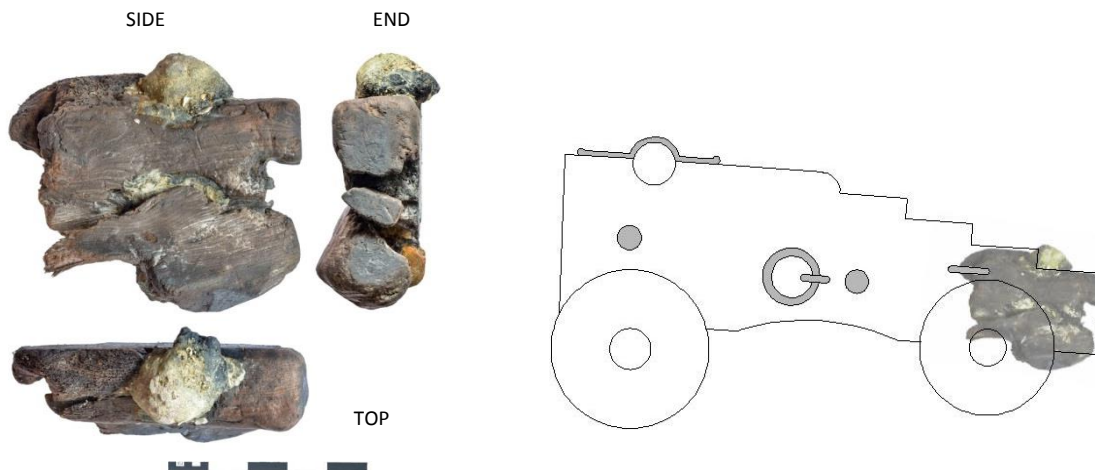


Fig 8

One of the damaged gun carriage fragments (left) and shown in position on a gun-carriage outline (right)

Scuppers

In the same area several lead scuppers were found (fig 7). What are they doing this far from the stern wreckage?

Rigging

During the small scale excavation undertaken in 2015, considerable quantities of rope were exposed. This was probably rigging – possibly evidence that the mizzen mast was still in place when the stern came to rest in its present position. This seems odd if the hull broke up at Southward Well reef.

Undulations

Finally, we have the evidence from the 2015 excavation. The rope, deadeyes and timber were often found to be steeply sloping within the sand. If this material had been deposited on the pre-wrecking seabed (which is sand), it would surely have been level. The undulations and furrows noticed in the surface upon which these items were discovered requires some explanation.

The new wrecking theory (2015)

The most significant feature of the new wrecking theory is that *Colossus* was abandoned by her crew when she was grounded just to the east of the current stern wreckage – rather than by Southard Well reef. This explains many of the noted anomalies around the stern site. The following is a narrative of the new wrecking theory:

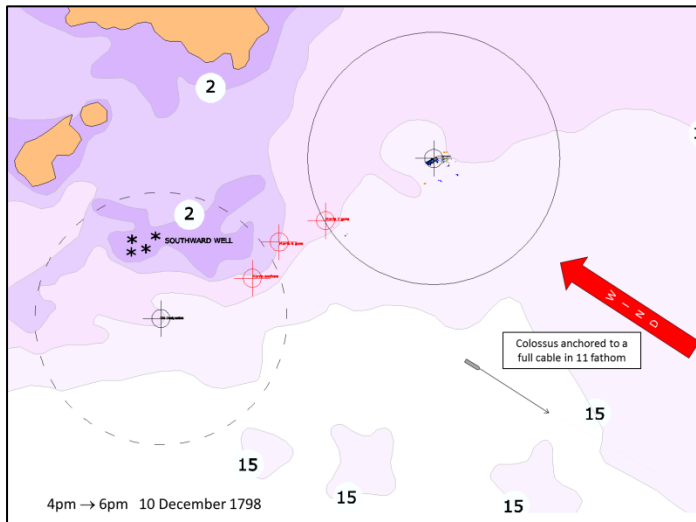


Fig 9

Colossus (and convoy) anchored in St Mary's Sound in 11 fathoms of water with the best bower and veered to a whole cable. Cable parts. Small bower let go. Yards & topmasts struck. Sheet anchor let go (but ship continues to drag)

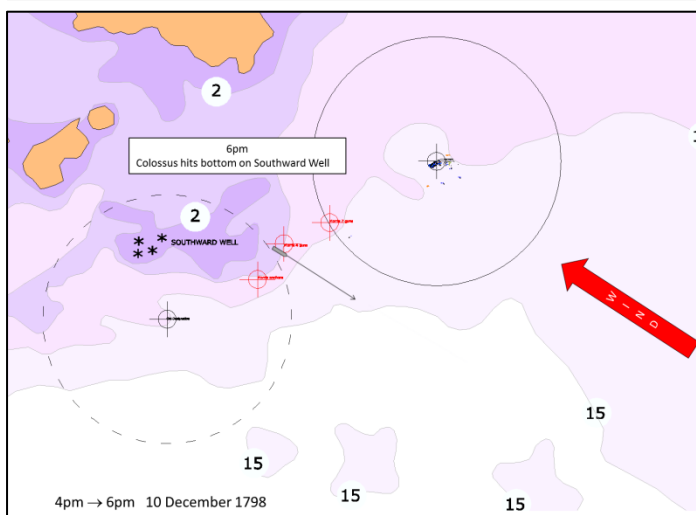


Fig 10

Small bower 'came home' Obligated to veer and ride between both (anchors) Struck ground (but not too hard)

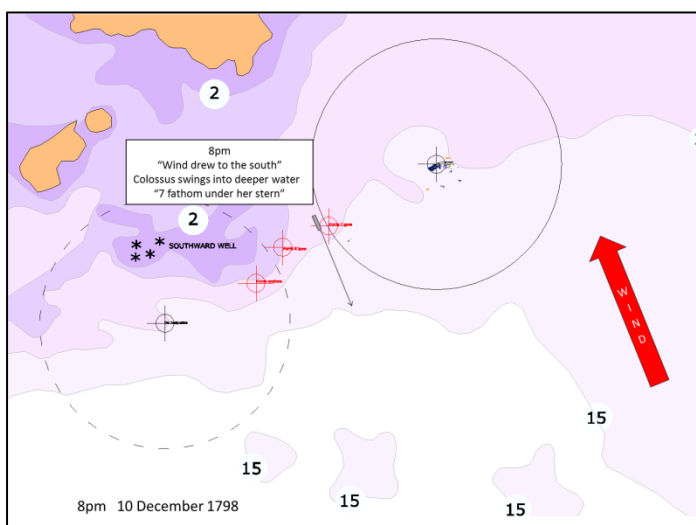


Fig 11

Wind veered to southward Ship tailed more inshore Tried with boat and found more water ahead of the ship. We still kept her free with our pumps. Having then 7 fathom water under her stern

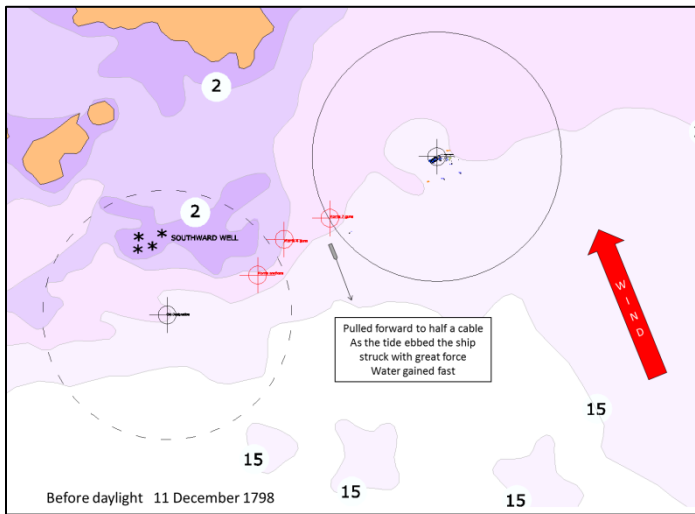


Fig 12

Hove in to half cable on anchors
As the tide ebbed the ship struck with great force.
Water gained, all pumps manned, baled with buckets and tubs

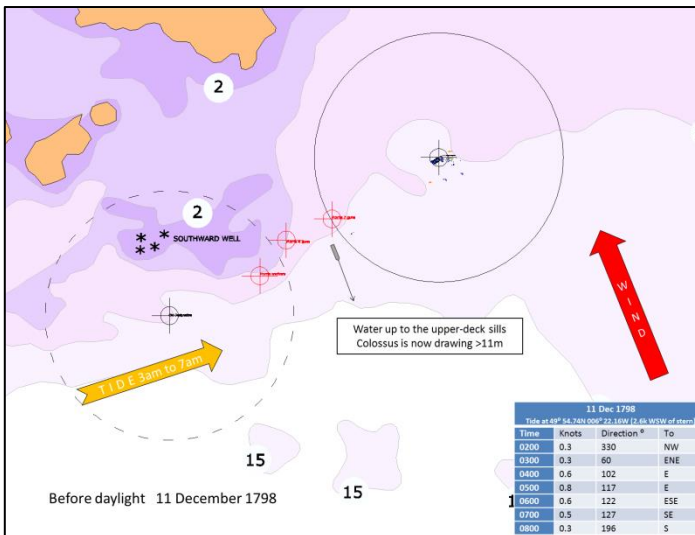


Fig 13

Rudder beaten off
Distress signals (made from the first of the ships driving) were constantly repeated
Water gained fast
Obliged to order people on the quarter deck and poop.
Water up to the sills of upper deck
[ship now drawing amidships 35', 10.66m, 5.8 fathom – Stern 11.3m]

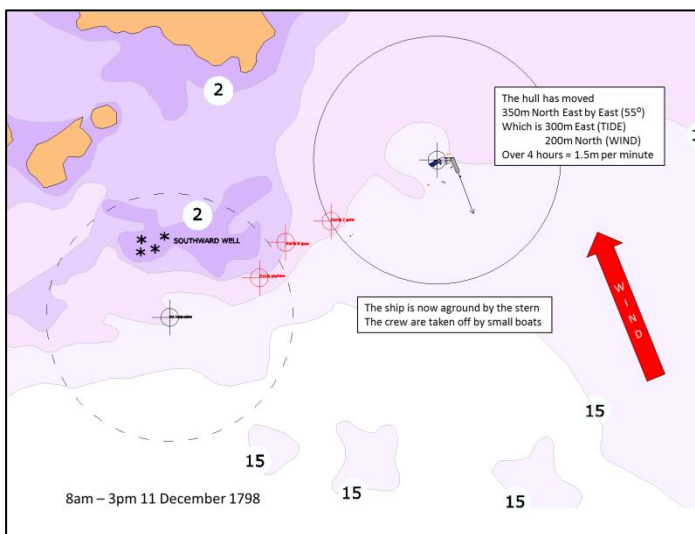


Fig 14

Saw several boats coming to assist
All saved except 1
Colossus boats forced to bear away to Bryher – not being able to pull to windward.

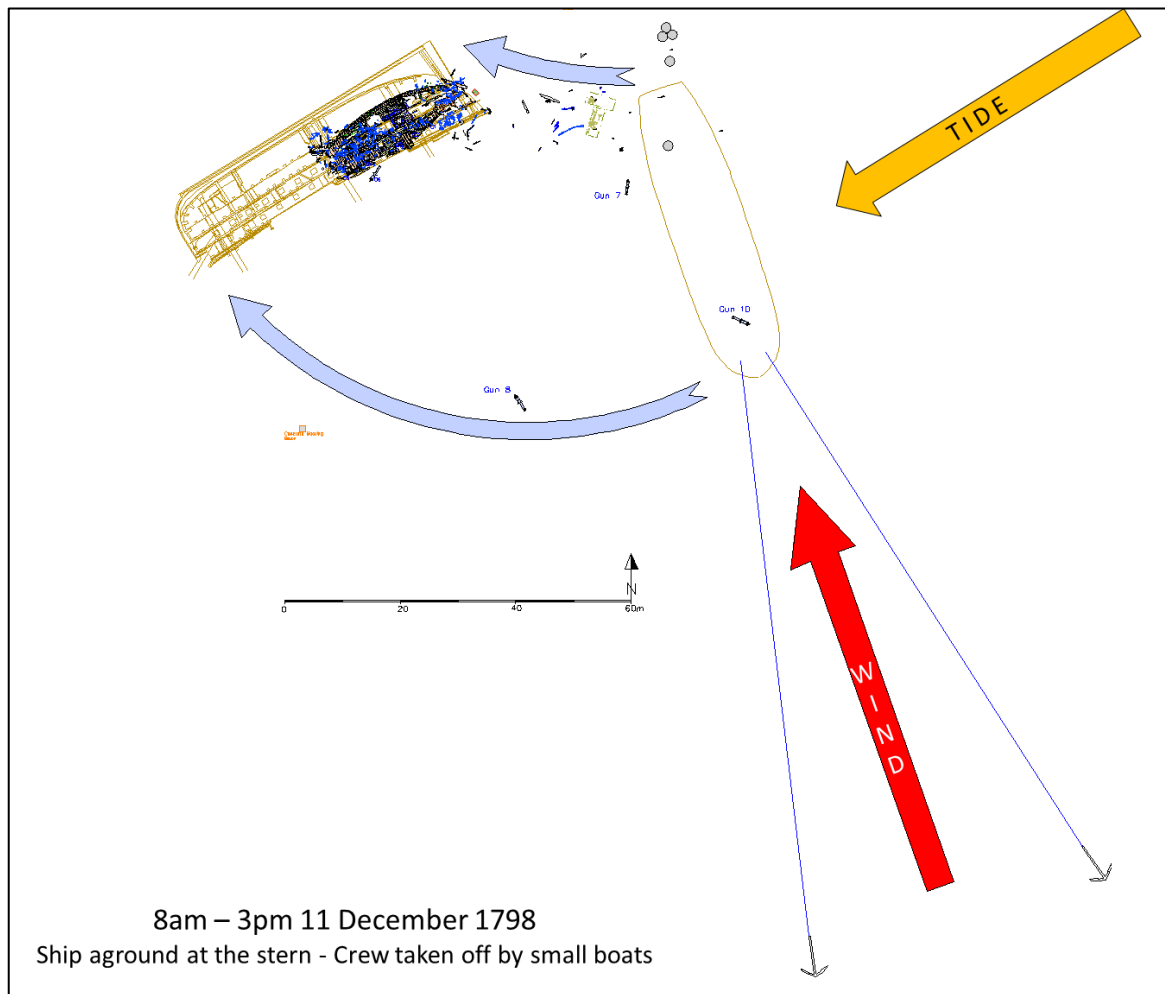


Fig 15

The wrecking of Colossus. The large red arrow shows the wind direction. The Colossus is shown riding to her two anchors head to the wind – cables 100m long (half a cable). To the left are shown the current remains of the stern lying on its port side. The sheer-plan of a 74-gun ship is shown superimposed in green. The blue arrows show the hull pivoting on her stern into the current location of the wreckage. Note how everything forward of the mainmast is now missing.

Both the conventional and new wrecking theories require that the hull breaks up and part of it then drifts away to a new location. In the conventional theory, the stern departs east on the flood tide, while the new (2015) theory requires that the bow breaks up and drifts west on the ebb tide. The fact that the stern site consists of a single piece of articulated hull while the bow site comprised widely dispersed remains is certainly supportive of the new theory. One of the more intriguing questions is: on which of the two sites did the original salvage take place? If the new wrecking theory is the correct one, then the salvage of the guns undertaken in the first few years after the wreck probably occurred on the stern site. This would certainly explain the absence of guns (and timber) from the starboard side of the vessel over the existing remains. In 1833 John Dean did not have any trouble finding the wreck ‘After an uneventful passage to the Scilly Isles, John searched for and quickly found the wreck of Colossus. He successfully raised several iron cannons and brought them ashore’ (Bevan, 2010) – this was only 35 years after the wreck, so he was probably told where to look – but there is no mention of two different wreck sites.

Inconsistent wreck items at the stern	
Anomaly	Resolution (2015)
Upstanding upper gun-deck guns	These need little explanation as the wreck falls onto her beam ends in roughly the position they now lie in.
Missing main gun-deck guns	Some of these will have been washed out of the gun ports by the surging water as it filled the main gun-deck as the hull moved eastwards on the flood tide (figs 13 and 14 above). Any guns remaining within the hull were then subsequently salvaged.
Outlying guns	These now lie within the path of the hull as it is pivoted on its stern into the current position by the ebbing tide.
Stern window sash weights	Shown on fig 15 as grey circles – note how these are clustered around the stern of the vessel – exactly where you would expect them
Outer hull material	This was all found in the area over which the hull pivots in fig 15, so is to be expected.
Crushed gun carriage	The carriage fell from the quarterdeck – after which the hull of the vessel passed over it (probably bouncing on the seabed in the swell) crushing/pounding the carriage
Scuppers	Positioned around the location of the hull at abandonment, but it is not clear how they became detached from the hull.
Rigging	If the masts were lying south of the hull when the vessel turned onto her port side, then the rope and rigging could be expected in this area.
Seabed undulations and dips	Caused by the passage of the hull over the seabed, probably bouncing on the seabed in the swell.

Overall the new wrecking theory, as proposed in 2015, was compelling but unproven. One of the objectives of the current project was to attempt to gather evidence which would help test the theory. This also facilitated recording of newly-exposed material on the seabed and continued monitoring of the sediment levels.

Methods

The majority of the project was spent searching three different areas around the stern of the wreck. An area to the north of the wreck was searched in order to locate any remains of the rudder or the keel of the vessel – these search area identifiers are prefixed ‘N’. An area to the south of the wreck was searched in order to locate any remaining anchors from the vessel (we know *Colossus* deployed two in addition to the anchor left at her original mooring) – these search area identifiers were prefixed ‘S’. Finally a central area, located to the east, south and west of the exposed stern wreckage, was searched in order to establish the distribution of wreck material. The location of each search area is shown on fig 16 below.

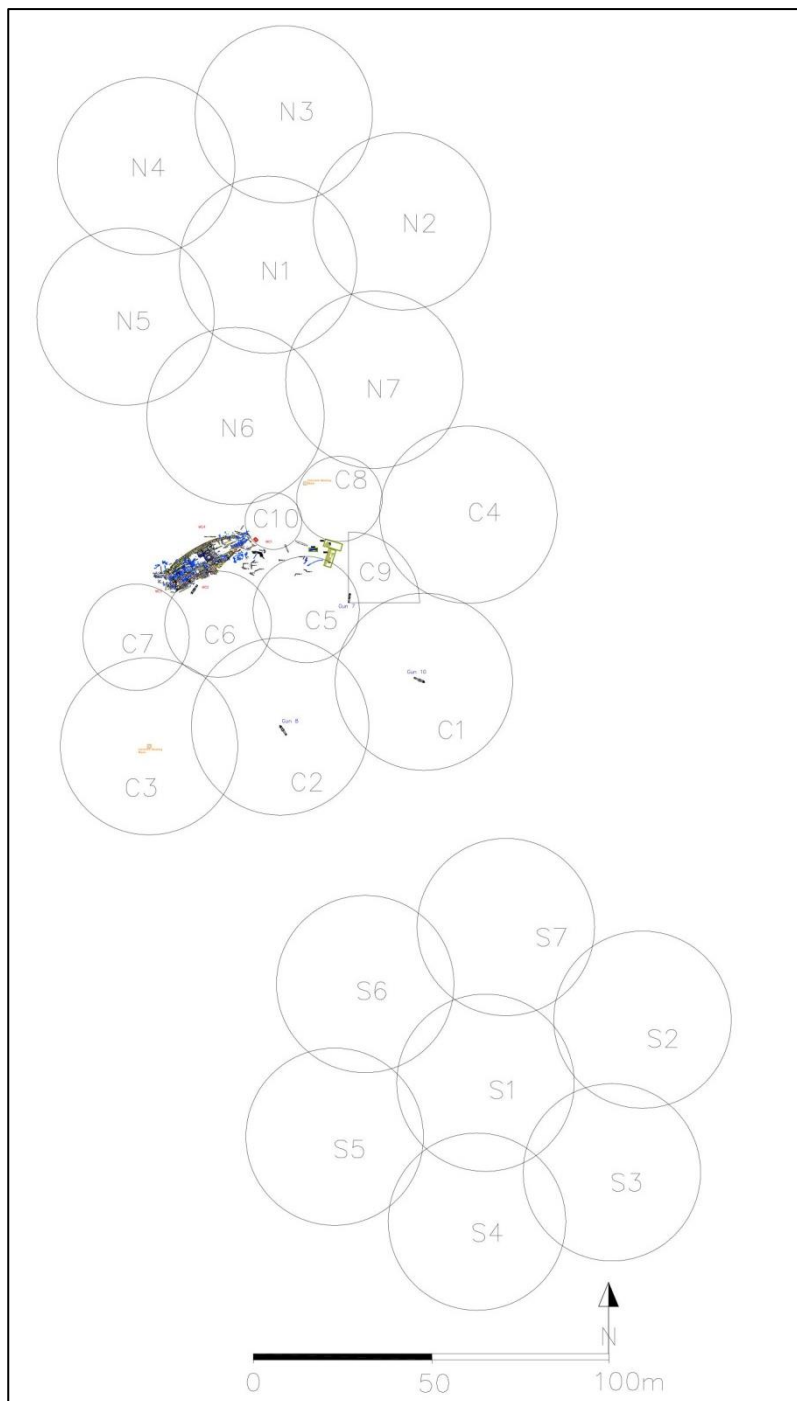


Fig 16

Plan showing the distribution of the search areas undertaken in 2017.

The majority of the circular searches were 50m in diameter. A total area of 34,000 square metres was searched by a team of only five divers in eleven days.

Each circular search was centred on a 25kg shot-weighted line. This was positioned using a Garmin 76C WAAS/EGNOS enabled GPS unit. A team of divers would then conduct circular searches using a graduated bottom line to control the circle diameters. One diver controlled the reel/bottom line while the other searched the seabed, visually and using a pulse induction metal detector. The use of the metal detector helped locate metallic objects where there was weed cover, or where objects were obscured by mobile sand. Although the use of metal detectors slowed down the searching, it did ensure that we did not miss any buried anchors (or other large metallic objects).

All artefacts located were recorded on an underwater data collection form. The approximate position of the object was established by distance and bearing from the centre of the search area. The object was then measured, described and photographed. A total of 106 objects were recorded – the complete finds record is reproduced in appendix I

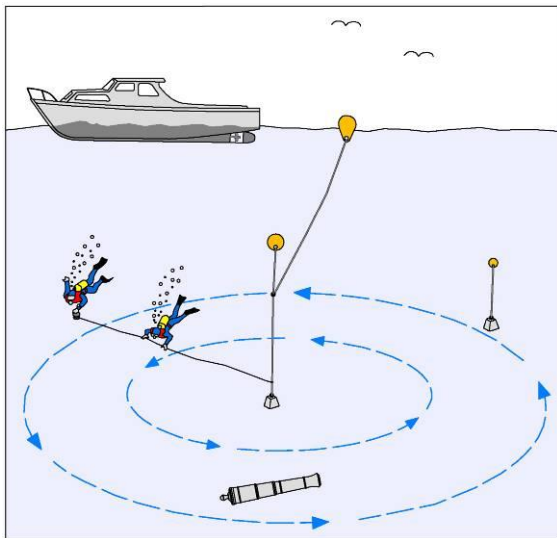


Fig 17

This diagram illustrates the circular search technique employed on this project. The maximum radius used was 25m.

The searching was strenuous and often monotonous, particularly when searching areas where there were few artefacts. The task was made more difficult by illness in the dive team – the consequence of this was that there were only two dive teams to carry out tasks which had been planned for three dive teams. However, all the planned areas were searched in the time available. This was entirely due to the dedication and commitment of the CISMAS dive team – conducting circular searches is one of the least glamorous activities undertaken in the name of underwater archaeology.

Results

Sediment Level Monitoring

The sediment levels on the site have been monitored since 2003. This has been accomplished by means of 14 fixed survey pins driven into the seabed at various locations around the site. The results of the sediment monitoring have been reported every year in the annual licensees' report submitted to English Heritage (and now to Historic England). The sediment monitoring points were renewed in July 2014. It was while this work was in progress that the newly exposed material to the east of the wreck was first noticed (Camidge, 2014).

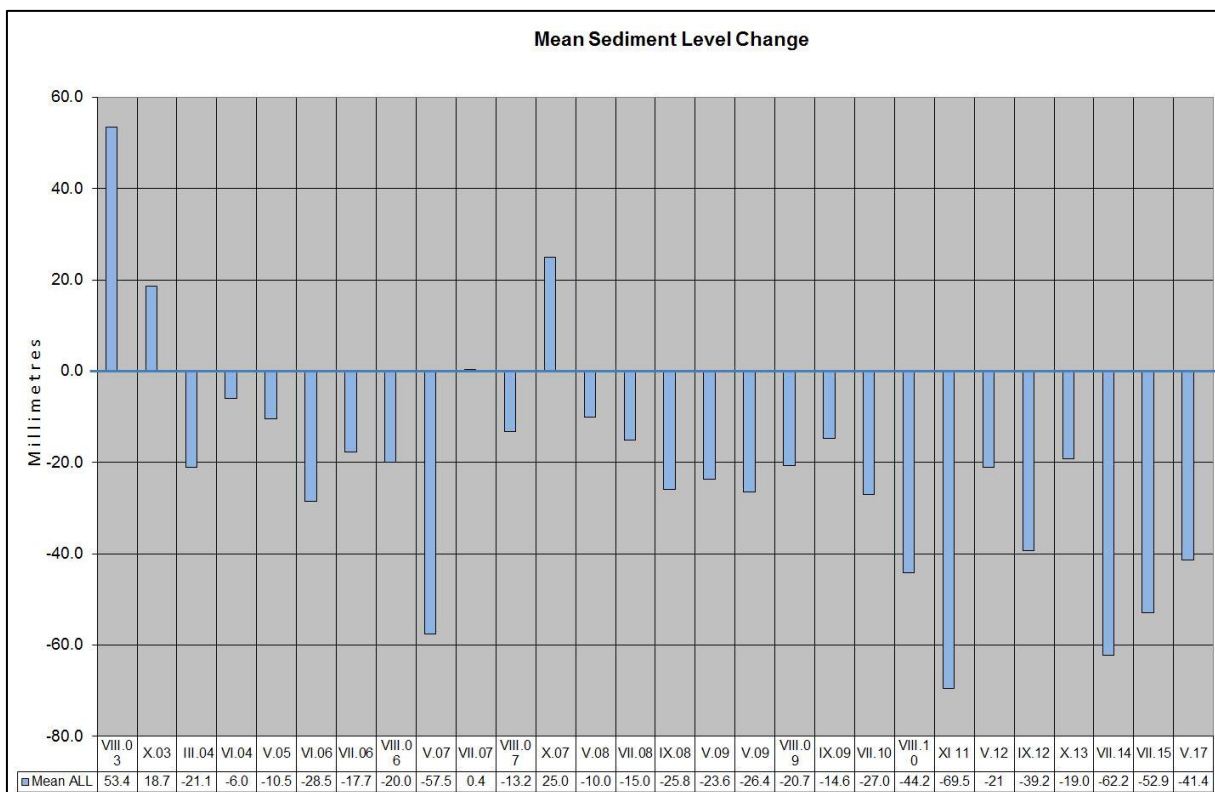


Fig 17

Chart showing the mean sediment level change on the site relative to the sediment levels in 2003 when monitoring began – this is represented by the horizontal zero line in the centre of the chart. These values are the average readings for all 14 monitoring points.

Although the mean sediment levels on the site are 41mm lower than they were when monitoring began in 2003, the actual mean level of sediment has continued to rise since 2014. The mean levels are in fact 11.4mm higher than they were when last measured in 2015. However, reference to the table below demonstrates that the underlying mean is concealing the fact that the sediment is currently higher on the north side of the wreck and lower on the south side. This is best demonstrated by looking at the largest rise (monitor point M6, on the north side of the wreck) which rose by 65mm and the largest fall (M13 on the south side of the wreck) which fell by 35mm since 2015. What this demonstrates is that the sediment levels on the site are dynamic and continued monitoring is required as an indicator of the current and future risk to the timber on the site.

Sediment level change at different points around the site (mm)				
Monitor Point	July 2015	May 2017	Change	Position
M1	170	155	+15	N
M2	135	145	-10	W
M3	165	160	+5	S
M4	160	170	-10	NW
M5	165	150	+15	N
M6	180	115	+65	N
M7	140	150	-10	SE
M8	155	130	+25	E
M10	160	125	+35	N
M11	145	130	+15	N
M12	150	170	-20	Central
M13	145	180	-35	S
M14	170	155	+15	S
M15	115	60	+55	E
Mean change since 2015			+11.4	

Note – there is no sediment monitoring point M9. The readings taken in 2015 and 2017 are the length in millimetres of monitoring rod exposed above the seabed. The numbers in the change column represent the change in height at that point on the seabed.

Survey

Three separate areas around the stern site were searched, an area to the north (N), an area south and east of the stern (C) and an area centered some 250m south of the stern (S). The layout of these search areas is shown in fig 18 below.

A summary of the objects found is shown in the table opposite and a full list of the objects recorded appears in appendix I.

Summary of artefacts located in the survey 2017		
Material	Type	Total
Ceramic	Pottery	1
Copper	Sheet	10
	Fastening	5
	Rigging part	1
	Object	1
Composite	Small arms	4
Iron	Anchor	1
	Fastening	6
	Round shot	3
	Object	38
	Rigging	2
Lead	Sheet	9
	Sash weight	4
	Object	11
	Scupper	3
Organic	Fabric?	1
Wood	Structural	5
	Rigging	1
GRAND TOTAL		106
Northern search area		9
Central search area		92
Southern search area		5

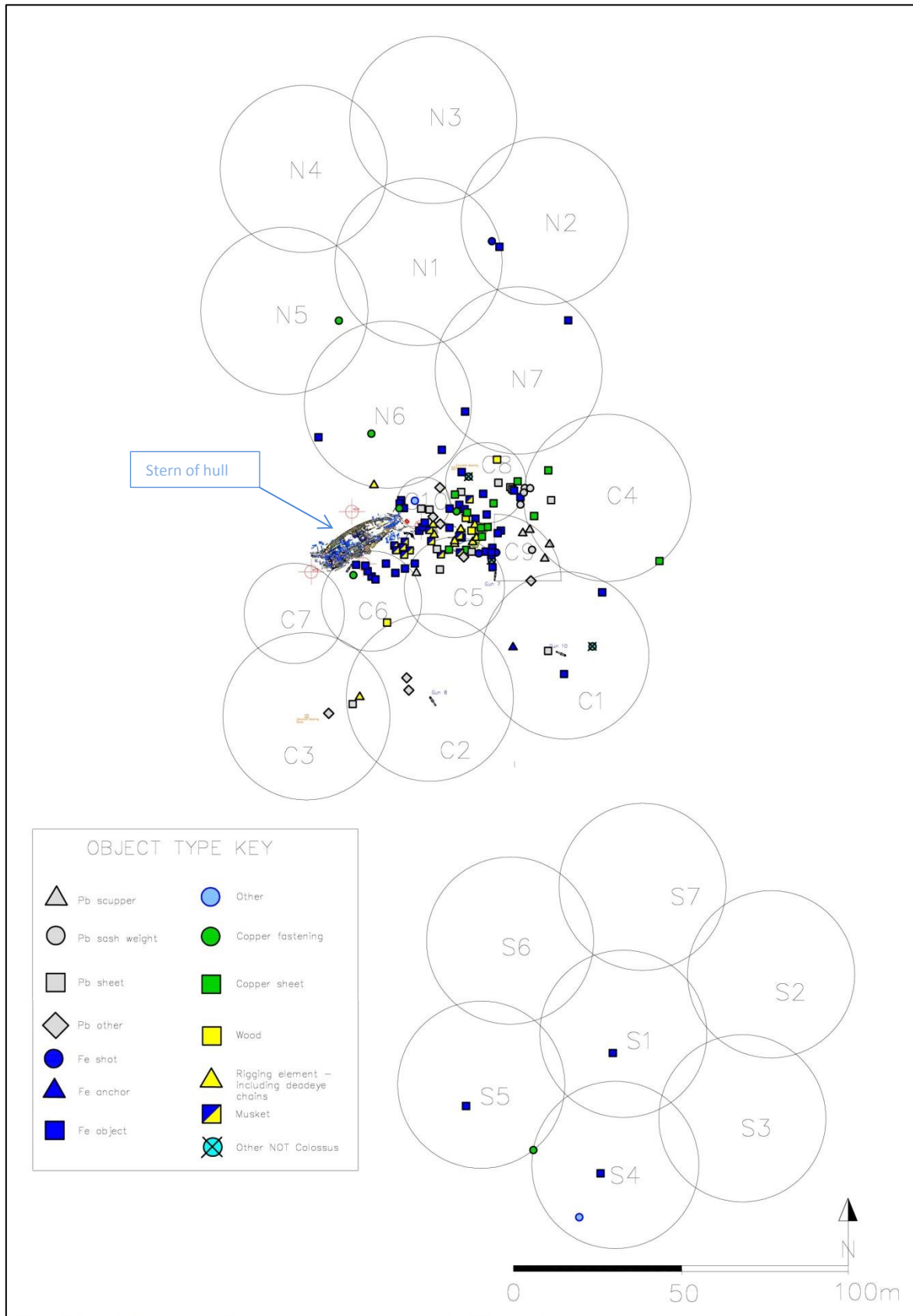


Fig 18
Plan showing the distribution of artefacts located in the searches undertaken in 2017

Northern Search Area

This area was searched in order to establish the density and distribution of debris to the north of the stern site. It was also thought that there was a possibility that keel or rudder parts may have been located here. The area comprised seven overlapping 50m diameter circular searches. A total area of 12000 square metres was searched (see fig 18). Only nine objects were located, all within the southern half of the search area. The material found consisted of five iron concretions of unknown function – but typical of material seen around the stern site; one concreted iron round shot, possibly a 9lb cannon ball; two copper fastening bolts, originally from below the waterline of the ship; and one wooden pulley sheave.

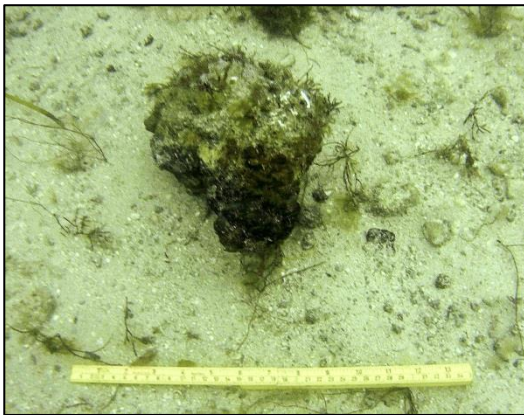


Fig 19
Concreted iron round shot N2.1

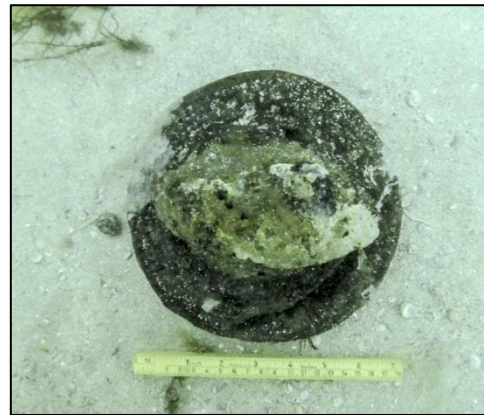


Fig 20
Wooden sheave N6.2



Fig 21
Copper fastening bolt N6.5



Fig 22
Iron concretion N6.4

There was no trace of any substantial wreck material in the northern search area. This sparsity of artefacts would suggest that the wreck did not pass over this area during the wrecking process. The keel and deadwood of the vessel would have been composed of substantial timbers liberally fastened with copper fastening bolts. No trace of the keel and deadwood has ever been recognised and their location will probably remain a mystery. The lack of material to the north is also confirmation that the wreck ‘fell over’ onto her port side with the masts and rigging lying south of the stern site. If the wreck had fallen onto her starboard side the masts and rigging would have been to the north of the stern site – which would surely have resulted in an extensive scatter of material in the northern search area.

Southern Search Area

The primary objective in this search area was to locate any surviving anchors. These would have been in this search area according to the new (2015) wrecking theory – see figs 14 and 15. *Colossus* deployed all three of her bower anchors (the fourth was given to Nelson's ship *Vanguard* at Naples). One anchor was used at her original anchorage when the cable parted. CISMAS searched for this anchor in the 2005 Debris Field Survey but did not locate it and concluded that it had been salvaged (Camidge, 2005). The remaining two anchors were deployed and the ship was still riding to these when she was abandoned (see appendix III – Summary of Wrecking). We know from contemporary salvage accounts that at least one of the bower anchors was salvaged shortly after the loss (see 'Contemporary Salvage' p 14). The bower anchors of a 74-gun ship of this period would be 5.6m (18'6") long and weigh about 3.5 tonnes – so they should have been easy to locate in a detailed metal detector search. However, no anchors were located in this search and thus it seems likely that they have been salvaged.

The southern search area comprised seven overlapping 50m diameter circular searches. A total area of 12000 square metres was searched (see fig 18). Only five small artefacts were located: three iron concretions, one small piece of copper sheathing and a small copper object (probably part of a box lock). Some or all of this material may not originate from the wreck of *Colossus*.



Fig 23
An iron concretion S1.1

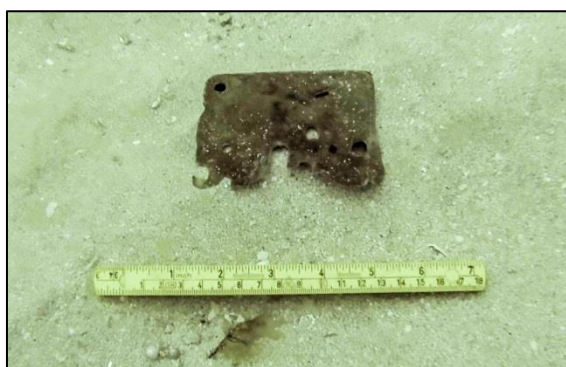


Fig 24
Copper alloy object (part of a box lock?) S4.2



Fig 25
Copper sheet fragment S3.1

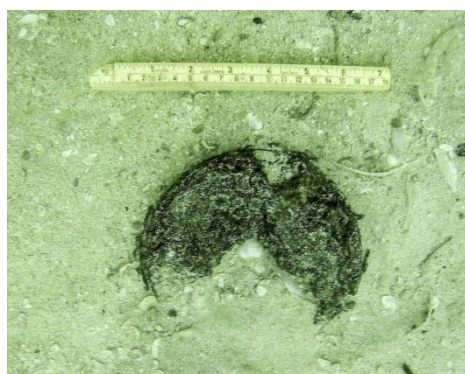


Fig 26
Iron object S5.1

Central Search Area

The objective in this search area was to establish the extent and distribution of wreck material around the stern site. This will help us to understand the wrecking process as well as informing us of the location of potentially vulnerable material. In total ten circular searches were completed, varying in diameter between 16 and 50m. The total area searched in the central searches was slightly less than 10,000 square metres.

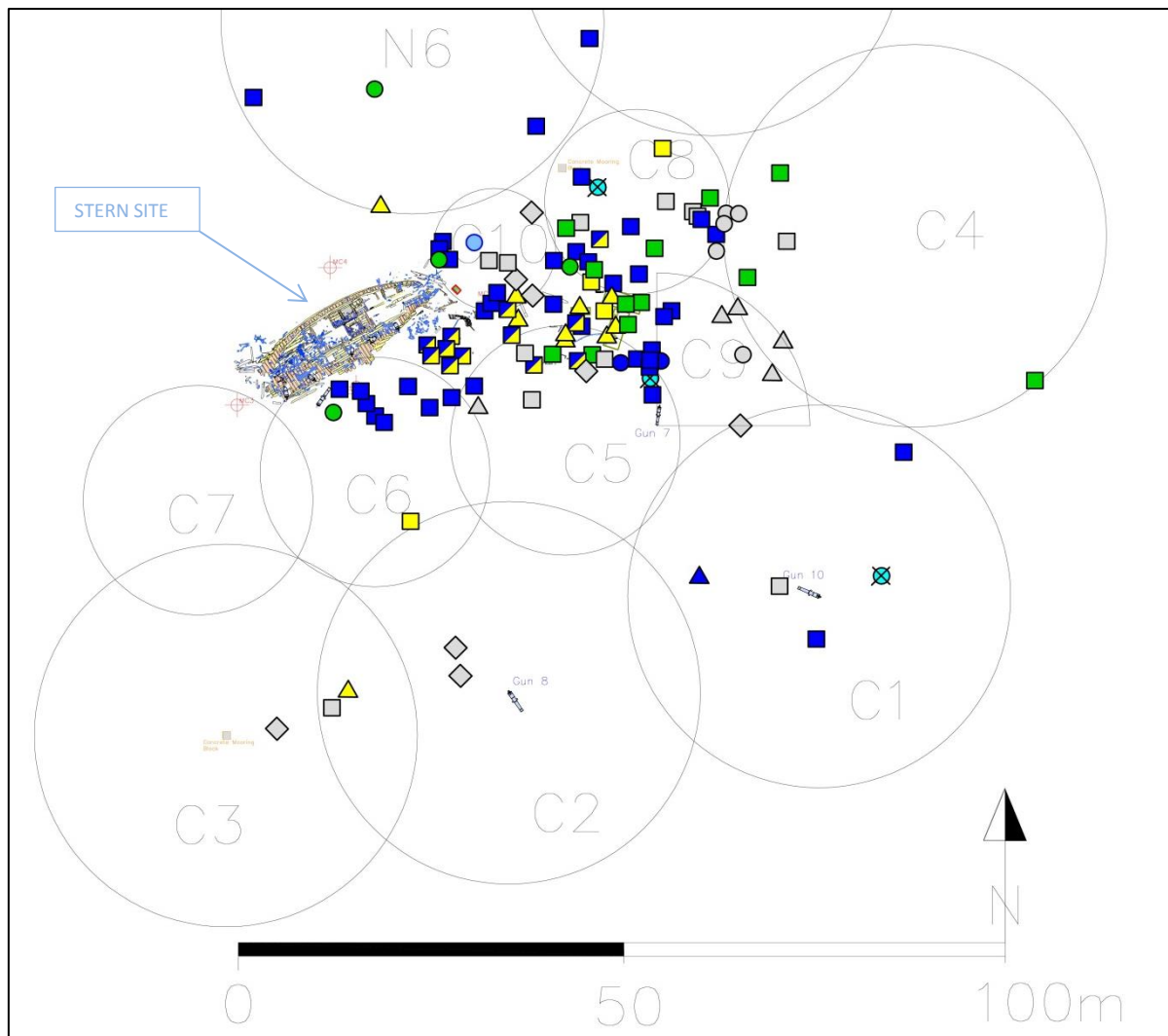


Fig 27

Distribution of the objects found in the central area of the search. For the key to the different object types, refer to the key in fig 18 above

It is evident from the distribution of the material found in the central area that the artefacts are clustered to the east of the stern site (fig 27). What is more intriguing (and potentially informative) are the areas where little or nothing was found. Note how there was nothing to the west of the stern site (C7) and almost nothing in the eastern half of C4. It is also noticeable how sparse the distribution is to the north of the stern site. There is also a thin band of artefacts along a line projected through guns 10 and 8. Overall, the distribution is certainly not random and is doubtless significant in understanding the wrecking process of *Colossus*.

Before going on to analyse the distribution of the material found we shall look briefly at the more interesting items discovered. Without doubt the most intriguing (but least relevant to the wrecking) was a fragment of medieval pottery C1.3 found to the east of gun 10. This has yet to be appraised by John Allan – but his preliminary identification was ‘*French, probably Saintonge, all-over green of c.1280-1320, just like [pottery from] Tresco Channel*’. The piece of pot was found on the surface of the seabed – but has not been exposed for very long as it exhibits very little marine growth. Just how this came to be recently deposited on the site will, I suspect, remain a mystery. This was the only item recovered during the project – it will be added to the forthcoming publication of the Tresco Channel medieval pottery.



Fig 28
A fragment of medieval pottery C1.3 found to the east of gun 10 in search area C1. Probably Saintonge 1280-1320.

By far the most numerous of the objects discovered were the iron objects, 41 of the 92 items found in the central search area being made of iron. Concreted iron is often very difficult to identify on historic wreck sites. On the stern site, which has been extensively surveyed, we now understand the function of nearly all the timber remains – but the function of the copious amounts of large iron elements remains indefinite. That said, we were able to identify some of the 41 iron objects. Two round shot were identified, C9.12 (9lb shot) and C9.16 (18lb shot). Six iron fastening bolts were found (C5.6, C6.8, C6.10, C8.9, C8.13 and C8.20). Iron fastening bolts were used above the waterline while copper bolts were used below the waterline (to prevent electrolytic corrosion due to the copper sheathing used on the hull below the waterline). This was confirmed in the 2012 excavation on the stern site, where the main gun deck knees were fastened with iron bolts while those on the orlop deck were fastened with copper (Camidge, 2012).

A number of larger, complex iron objects were found. Perhaps the easiest to identify was C6.19 which was an iron crank (fig 29) – probably part of the mechanism by which the crew powered the chain pump (fig 31), which would certainly have seen some action during the final hours of *Colossus*! Close by (8m to the south east), was found a similar complex iron object C6.20. This is probably the handle from a portable ‘fire’ pump of the period (figs 30 and 32) – doubtless also put to use as *Colossus* began taking on water.

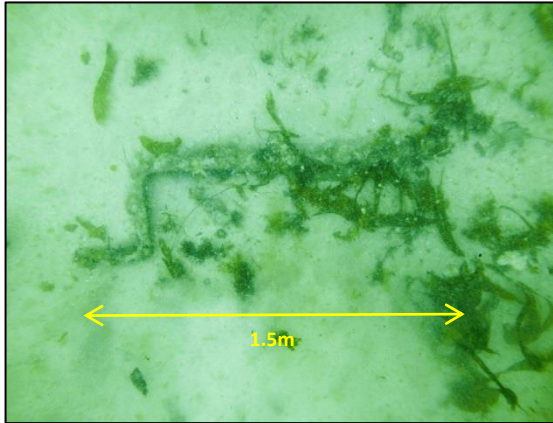


Fig 29
Iron object C6.19 probably a chain-pump handle

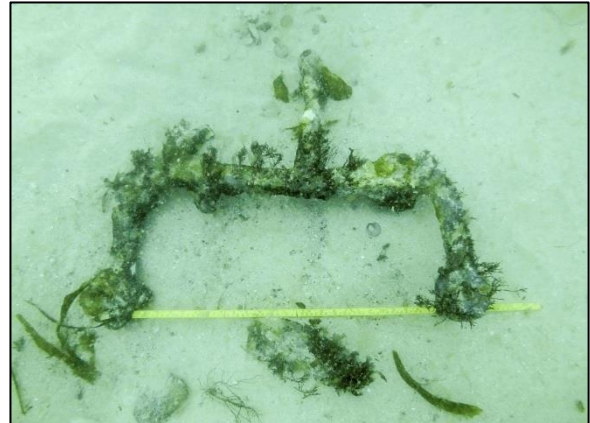


Fig 30
Iron object C6.20 possibly a portable pump handle

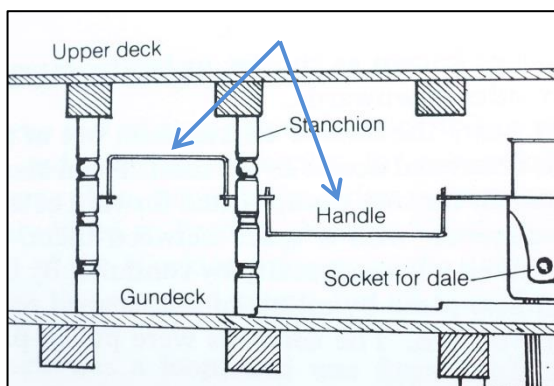


Fig 31
Chain pump handles (arrowed) on an eighteenth century English warship (Lavery, 1987)

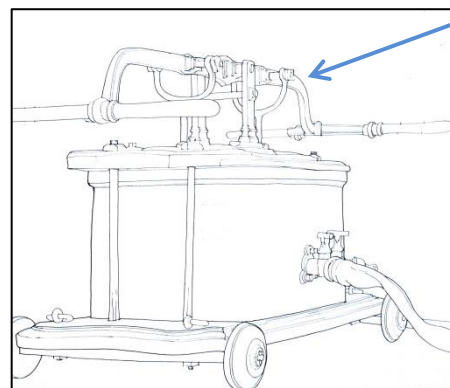


Fig 32
Portable pump of a 74-gun ship (Boudriot, 1986)

Several other 'complex' iron objects which were probably part of the ship's machinery have so far defied identification (C5.1, C8.11 and C10.4). This highlights the previously-made point that the iron remains on historic shipwrecks are often the least studied and understood elements of the wreck.

One of the largest iron items located was a wood lower deadeye complete with iron chains C10.1. The chains are the iron straps used to fasten the lower deadeye to the outside of the hull of the ship. This deadeye is very similar to another (F1355) found in 2015 some 7m to the east (Camidge, 2015). The diameter of the deadeye (440mm) is such that this would have been one of the main or foremast deadeyes – the mizzen deadeyes were smaller. It was partly buried within the seabed and lies on its edge rather than flat on the seabed. This brings the total of deadeyes and chains found to the east of the stern site to five (shown as yellow triangles on fig 27) – this is significant, as they potentially denote areas the hull has passed over during the wrecking process. What is more, at least three of these are attributable to the main or foremasts – so must be from amidships or the forward part of the hull. This deadeye lies right next to the dive trail around the site, but remained unrecognised until the survey undertaken this year. It should be noted that the port mizzen chains lie on the seabed in exactly the right place on the stern site (these were identified by the ADU in 2002).



Fig 33
Timber lower deadeye and iron chain band
C10.1

Four iron ringbolts were also encountered (C6.12, C9.13, C9.14 and C9.18) – many of these were employed on the gun carriages and in securing the guns to the ship.

Nine fragments of thin copper sheet were found distributed within the search area (shown as green squares on the plan – fig 27) these may be useful in indicating where the hull of the vessel has been. Three copper fastening bolts were also recorded C6.11, C8.16 and C10.5 (shown as green circles on fig 27). Interestingly C10.5 was once some six metres further east, where it served as one end of the original survey baseline (control point AA1 on the site plan). This copper bolt originally stood upright, its lower end still fastened to the timber of the wreck. As the timber rotted, the bolt eventually fell over and became detached. Loose copper fastening bolts seem to hold a singular attraction to visiting divers and they are often moved quite large distances around the site (usually back towards the mooring line).

There is a scatter of ten muskets to the south east of the stern site; these have been recorded during previous projects (Camidge, 2014). However a pistol was located during the present search C10.9 – only one pistol has been found on the site previously (recovered by the previous licensee in 2002). The pistol appears to be in very good condition with all its parts still in place.



Fig 34
A pistol C10.9 found in search area
10. Note the trigger guard and
flintlock mechanism are still in
place.

Two lead weights C10.15 were located in search area 10, just over 7m to the east of the seabed sign (close to the bottom line leading to the site from the mooring – again demonstrating that quite large objects can be overlooked by passing divers). The weights are rectangular, slightly curved and each has two holes 14mm in diameter, presumably for attachment. From the dimensions (see finds record appendix I) it has been calculated that each weight would be approximately 25kg in air. We have no idea what they were used for, and to date no concordances have been identified from similar sites. As they are in very good condition, it may be worth considering recovery of these objects to enable further study and possible identification.



*Fig 35
Two lead weights C10.15 found
to the east of the stern site.
Scale = 0.30m*

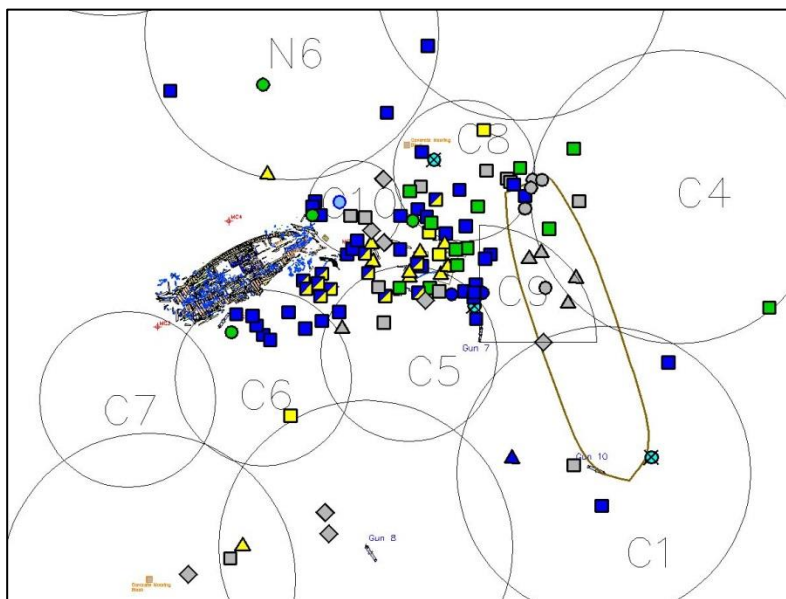
Conclusions

Sediment Levels

Although the mean sediment levels around the stern site have risen in the last three years, the rate of change varies on different parts of the site. It has been noted that the sediment cover on the north part of the site is higher than at the south – where timber remains exposed on the seabed. Recent reports (observations made by Tim Alsop in August) have stated that much new timber has been exposed. It was also noted on the central area searches that many artefacts were partly buried under 10-15mm of sand but that the sand was covering fresh weed growth on the objects. This is indicative of recent sediment movements. We must conclude that the sediment levels on the site remain dynamic.

The Wrecking

Sadly we are not able to say that we have conclusively proven the new wrecking theory. The absence of anchors in the southern search area and the ever-elusive keel and deadwood in the northern search area leaves us to rely on the distribution of material in the central search area to test the wrecking theory against. To avoid creating any further suspense, I can assert that the evidence to date makes the new wrecking theory the most probable of the available wrecking narratives. We shall now look briefly at why this is so.



*Fig 36
A simplified plan showing the hull outline at the point of abandonment with artefact distribution and areas searched. For a more complete illustration with wind and tide see fig 15. The key to artefact types can be seen in fig 18.*

At this point the ship is still riding to her anchors and is bows on to the wind. The ship has filled with water to at least the upper gun-deck gun ports and is bouncing on the bottom. The stern of the vessel is firmly aground in the shallower water to the north. At this point the crew abandon ship. Note how the stern window sash weights (grey circles) are clustered around the stern position in fig 36 – no doubt these fall from the stern windows as these are smashed by the sea. At some point one of the quarter-deck guns (gun 7) falls overboard complete with its carriage, as the ship rolls in the swell.

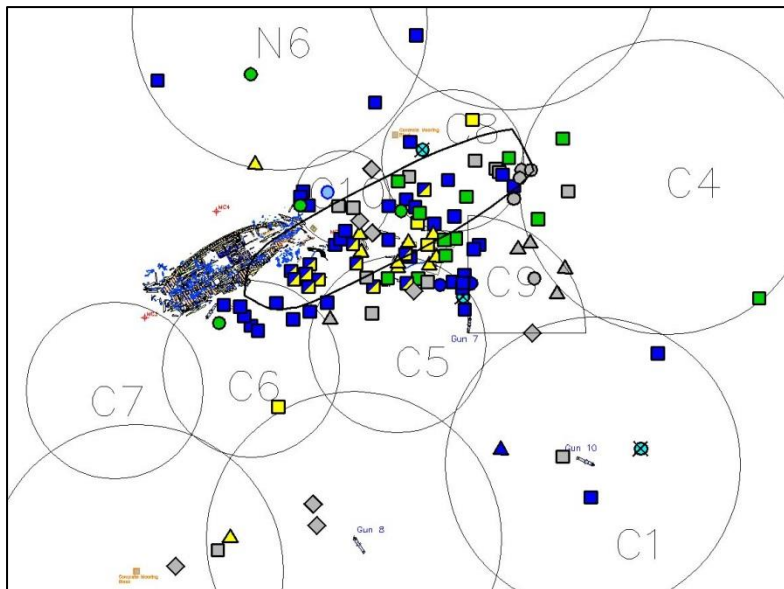


Fig 37

A simplified plan showing the hull outline after abandonment. The hull has pivoted on her stern into the position shown.

The ebbing tide pushes the hull to the west, and the hull pivots on her stern - which is in shallower water to the north. The anchors continue to drag – allowing this to happen. The hull passes over the gun carriage of gun 7 pulverising it as it does so – resulting in the shattered gun carriage parts recorded in 2015. The passage of the hull (probably bouncing) also causes the seabed undulations also noted in 2015. At some point one of the anchors bites and this along with the ebbing tide pushing the hull causes the vessel to fall onto her port side.

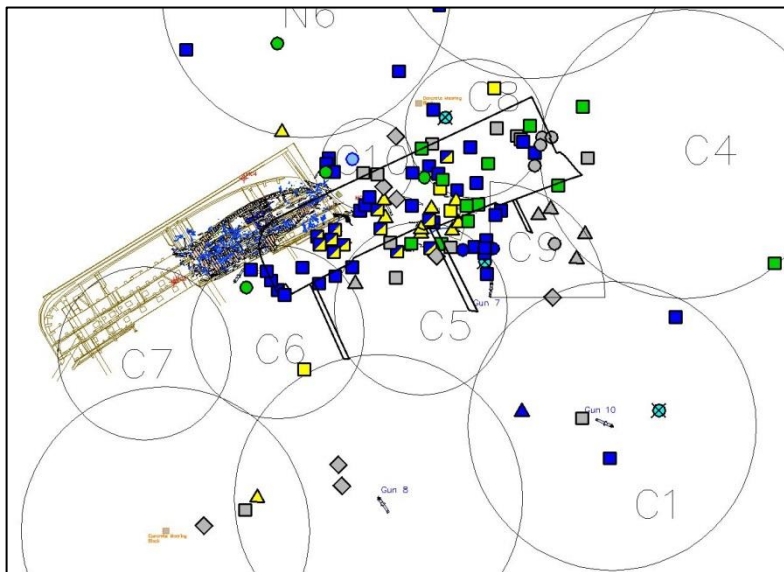


Fig 38

This shows an outline of the vessel lying on her port side relative to the finds distribution plot.

It is clear that the hull outline proposed above very neatly encompasses most of the object distribution recorded this year. In particular the lower deadeye chains (yellow triangles on fig 38), which we know came from the main or foremast, are clustered around the mainmast in the outline – making their current position very plausible. None of the other wrecking scenarios voiced to date can explain this.

At this point in the wrecking process, the port side stern is 47m to the east of where it currently resides on the seabed. The final part of the story involves the hull moving into its present location and the bow of the ship breaking up and drifting west towards the bow site. We will never know how many of the iron guns went with the bow wreckage which drifted west. We have already demonstrated that many of the 12 iron guns recorded by Morris were not part of the armament of *Colossus*. These guns were probably recovered by Morris and their current whereabouts is not known.

We know that at least 47 of the guns from *Colossus* were salvaged in the 35 years after the wreck. Until now, we have always assumed this salvage took place on the bow site. If the current wrecking theory is correct, then this salvage almost certainly took place around the stern site. This explains the sparsity of guns on the site – the starboard side guns should have rained down onto the port side remains when the hull turned onto her beam ends. We can only assume that these were salvaged.

<i>Colossus</i> Guns Disposition		
Original salvage 1799-1802	13x9lb 17x18lb 15x32lb 2 Carronades	47
Dean brothers 1833	At least 3 guns 32,18 and a Carronade?	3
Unknown 1808	One gun recovered 'in a perfect state'	1
Roland Morris	10 guns	10
Still on site	1x9lb 6x18lb 3x32lb	10
TOTAL		71

Future discoveries on the site may enable modification or confirmation of the new wrecking process proposed here. Until then we advert the current theory, as the most plausible given the evidence currently available.

Postscript

Further work

The monitoring of the fluctuating sediment levels around the stern site has been carried out for the last 15 years. I feel it is important to continue this monitoring until the sediment around the site has become stable. I believe that this data set will be of importance in understanding site dynamics for years to come. The sediment monitoring points currently around the stern site are in good condition and past experience suggests these should last for at least a further five years.

The detailed survey of wreck material undertaken this year is of great potential use as a research tool. The value of this data set would be considerably enhanced by completing the areas not yet surveyed to the west and north-west of the stern site. If any further work on the *Colossus* site is ever contemplated, undertaking this survey should be given high priority.

Finds reburial trial

In 2012 a long term finds reburial trial was installed on the site. This uniquely employed real archaeological finds as well as the usual tokens employed in such trials. Two finds repositories are buried on site and their positions and contents are detailed in the Monitoring and Investigation report (Camidge, 2012). The retrieval of these objects is scheduled for 2022 and 2037.

In addition to the reburial trial objects there are two other collections of finds which have been reburied on the stern site. These are items recovered in the ADU excavation of 2001 and items from the excavation undertaken in 2002. Records of the finds can be found in the 2001 site report (Camidge, 2001) and the 2002 Excavation Report (Camidge, 2002). These objects could also be used as a useful research tool and will be relatively easy to retrieve.

Stabilisation trial at the stern

In 2008 an area of experimental site stabilisation was installed at the stern. Very detailed recording of the protected area and an unprotected control area were undertaken so that at some future date a detailed appraisal of the efficacy of the protection can be undertaken. Further details are contained in the Stabilisation and Recording report (Camidge, 2008). A good opportunity to undertake this appraisal would be at one of the reburial trial retrievals, in 2022 or 2037.

Appendix I – Search Results Record

Ref	Material	Description	Dimensions	Location	Northing	Easting
S1.1	Fe	Rectangular bar heavily concreted with attached stones	700x60x85	030/6.50	5535433.1930	260226.2187
S2		Nothing found				
S3		Nothing found				
S4.1	Copper	Thin copper sheet, rough edges	20x70x1	100/25m	5535404.2206	260202.5122
S4.2	Copper alloy	Small shallow box – possibly a lock cover	100x70x8	035/19m	5535384.1354	260216.2010
S4.3	Fe conc	Heavily concreted lump with attached shells and stones	360x120x40	060/5m	5535397.1894	260222.6191
S5.1	Fe	Flat semicircular fe obj	20 x 160Ø	040/8m	5535417.5283	260181.8111
S6		Nothing found				
S7		Nothing found				
N1.1	Fe	Fe conc	230x130x110	260/24.5m	5535674.0306	260192.2622
N2.1	Fe	Fe conc possibly round shot	170x120	070/17m	5535675.7980	260189.9968
N3		Nothing found				
N4		Nothing found				
N5.1	Copper alloy	Copper fastening bolt - worn	9 Ø x 250	280/16.5m	5535652.1184	260144.2919
N6.1	Fe	Rectangular lump – possibly a weight	150x100x100	065/23m	5535617.1038	260138.2109
N6.2	Wood	Wooden disk shaped sheave with traces of fe conc at the centre	190Ø x 20	000/24.2m	5535602.9552	260154.8812
N6.3	Fe	Fe concretion	100 x 30Ø	275/23m	5535624.9679	260181.9244
N6.4	Fe	Fe concretion, long, thin and roughly circular in cross section	350x40Ø	310/21m	5535613.3950	260175.0092
N6.5	Copper alloy	Copper fastening bolt, one end has chisel shape the other end has been slightly flattened (to retain rove – now missing)	360x24Ø	030/10m	5535618.2871	260154.0176
N7.1	Fe	Fe concretion	100x30Ø	225/21m	5535652.2012	260212.8978
C1.1	Fe	Iron concretion, roughly cylindrical with two protruding bosses	480x240x200	005/5.5m	5535546.4131	260211.7148
C1.2	Pb	Lead sheet, roughly rectangular	210x110x3	125/5.5m	5535553.3326	260206.8304
C1.3	Ceramic	Body sherd of green glazed medieval pottery – recovered for further study	130x105x6	250/8.5m	5535554.7072	260220.1466
C1.4	Fe	Iron anchor shaft and stock. Ring still in place – arms and flukes missing	1170x970	100/16m	5535554.5939	260196.4020
C1.5	Fe	Iron concretion	250x210x150	210/22m	5535570.8703	260223.0785
C2.1	Pb	Small lead tube, open at both ends	40x15Ø	130/8.9m	5535545.2767	260164.5428
C2.2	Pb	Small eroded lead object with central hole	30x30x25	110/6.7m	5535541.8120	260165.2693

Ref	Material	Description	Dimensions	Location	Northing	Easting
C2.3	Copper alloy	Small worn copper disk with central hole and three smaller holes – possibly a sheave coke	2x52∅	090/21m	5535539.5277	260150.5016
C2.4	Pb	Rectangular lead sheet, cut marks evident at the edges.	80x55x2	085/23m	5535537.5420	260148.4145
C3.1	Pb	Small lead object with sand concreted onto the surface and central hole (turnbuckle?)	25x20x15	72m along G7->MBS	5535534.6780	260141.3611
C4.1	Copper alloy	Thin, roughly rectangular copper sheet – sheathing?	150x120x1	115/19.2m	5535607.2918	260206.9852
C4.2	Pb	Three lead window sash weights. Rectangular in section with hole for attachment at one end	440x30x40	080/23.5m	5535595.1974	260201.3422
C4.3	Copper alloy	Small fragment of eroded copper sheet – one nail hole – probably sheathing.	25x30x2	079/23m	5535594.5633	260202.0966
C4.4	Copper alloy	Rectangular piece of thin copper sheet – no nail holes	150x30x2	320/24.5m	5535580.1010	260240.2360
C5.1	Fe	T shaped iron concretion formed from roughly circular section	300x190x10∅	220/15m	5535583.9397	260188.4339
C5.2	Pb	Small hollow bullet – probably a minie ball (mid 19 th C) – later than <i>Colossus</i>	28x14∅	230/14m	5535581.3463	260189.6480
C5.3		CP pin – prob E4		210/14.2m		
C5.4	Fe	Lower deadeye chains (recorded in 2015)		190/14m		
C5.5	Fe/wood	Musket. Buried in fresh sand (10mm) but covered in weed when exposed (No 1)	800 long	180/14.6m	5535587.1444	260178.9304
C5.6	Fe	Iron concretion – possibly a fastening bolt	200x50∅	120/14m	5535579.4101	260166.8459
C5.7	Fe	Complex iron object – u shaped bracket with fixing holes and central arm – pump handle?	650x400x55∅	110/16m	5535577.7633	260163.8695
C5.8	Fe/wood	Broken musket (No 3)	600 long	160/11m	5535582.5538	260175.1326
C5.9	Copper alloy	Thin copper sheet with a nail hole	70x30x2	195/10.5m	5535582.5291	260181.5923
C5.10	Fe/wood	Musket (No 2)	1350 long	190/10.5m	5535582.7037	260180.7185
C5.11	Pb	Small conical, hollow lead object – possibly a minie ball?	25x16∅	195/10m	5535582.0064	260181.4925
C5.12	Pb	Folded lead sheet with nail holes	25x30x3	200/12m	5535583.6590	260182.9557
C5.13	Copper alloy	Fragment of thin copper sheet with apparent nail holes – probably sheathing	150x50x2	170/11m	5535583.1861	260176.9715
C5.14	Pb	Large lead sheet, only partly exposed – full extent uncertain	360x500+x3	155/12.5m	5535583.6447	260173.6739
C5.15	Pb	Circular lead flange with central hole and a ring of nail holes Scupper flange	Outer 130∅ Inner 50∅ Inner 3	110/12.3m	5535576.5836	260167.4098
C5.16	Pb	Rectangular lead sheet	120x70x3	140/7m	5535577.6733	260174.3852
C6.1	Fe	Iron concretion – roughly bar shaped	790x140x50	180/7.3m	5535575.4723	260154.1181
C6.2	Fe	Iron concretion	210x120x25	185/7m	5535575.1666	260154.6714

Ref	Material	Description	Dimensions	Location	Northing	Easting
C6.3		Finds reburial site inc sand bags		185/8m		
C6.4		MC2		183/10m		
C6.5		Finds reburial site inc sand bags		190/10m		
C6.6		Survey pin		310/6.7m		
C6.7	Wood	Fragment of wood – possibly planking	380x70x40	325/8m	5535561.6486	260158.6325
C6.8	Fe	Length of iron pipe	840x50Ø	170/8.9m	5535576.9944	260152.5379
C6.9		G5c		150/13m		
C6.10	Fe	Iron concretion – appears to be a section of pipe	660x60Ø	150/12m	5535578.6356	260148.2520
C6.11	Copper alloy	Copper fastening bolt – one end splayed to retain a rove (missing)	350x21Ø	150/11m	5535577.7356	260148.8025
C6.12	Fe	Iron ring (part of ring bolt?)	Outer 127Ø Inner 70Ø Section 30	170/10.5m	5535578.7464	260152.2071
C6.13		G6c		145/9.5m		
C6.14		CP Survey Point		215/10.4m		
C6.15		Sandbag pile		330/11m		
C6.16		Finds Reburial		190/11m		
C6.17	Fe	Iron object	1320x340x60Ø	220/11.1m	5535576.7383	260161.2247
C6.18		Finds reburial under sandbags		340/12m		
C6.19	Fe	Complex iron object in the shape of a crank	1500x340x60	200/12m	5535579.4782	260158.2370
C6.20	Fe	Complex iron object – same as C5.7	650x400x55Ø	240/12.5m	5535574.4936	260164.9261
C6.21		M3 sediment monitoring point		190/8.6m		
C6.22		M14 sediment monitoring point		195/14.3m		
C7		Nothing found				
C8.1	Fe	Iron concretion – bar shaped	850x150x60	015/3.4m	5535600.2926	260187.4014
C8.2	Copper alloy	Thin copper sheet – eroded. Possibly sheathing fragment	130x80x1	340/6.4m	5535597.5437	260190.4783
C8.3	Fe	Heavily concreted iron chain – possibly modern	c.900x300	110/5.5m	5535605.4485	260183.1431
C8.4	Pb	Lead sheet, roughly rectangular with some nail holes	230x65x2	070/8m	5535600.8290	260180.7866
C8.5	Pb	Lead sheet, roughly rectangular with possible nail holes	190x70x2	280/7.5m	5535602.2503	260195.6891
C8.6	Fe	Iron concretion	150x100x100	280/7.5m	5535602.2503	260195.6891
C8.7	Pb	Lead sheet, rectangular	190x80x2	280/7.5m	5535602.2503	260195.6891
C8.8	Wood	Plank with trenails (4)	1940x330x80	205/7.7m	5535610.5227	260191.5692
C8.9	Fe	Iron concretion, roughly L shaped	330x150x20Ø	115/8m	5535606.8061	260181.0451
C8.10	Copper alloy	Thin copper sheet, eroded. Possible nail holes	115x75x1	070/10m	5535600.1368	260178.9072
C8.11	Fe	Complex iron object – three bars evident concreted together	1330x800x70Ø	050/11m	5535596.4978	260179.8232
C8.12	Fe	Iron concretion	460x210x50	055/12.5m	5535596.3928	260178.0760
C8.13	Fe	Iron concretion	340x120x40Ø	000/10m	5535593.5556	260188.3629
C8.14	Pb	Three window sash weights – same as C4.2		280/12m	5535601.5133	260200.1720
C8.15	Copper alloy	Thin copper sheet, triangular with possible nail holes	67x40x1	270/9.5m	5535603.4687	260197.8257

Ref	Material	Description	Dimensions	Location	Northing	Easting
C8.16	Copper alloy	Copper fastening bolt, bent. One end splayed to retain rove (missing)	590x23Ø	045/12m	5535595.1047	260179.7182
C8.17	Fe	Iron concretion	120x60	040/10.5m	5535595.4776	260181.5517
C8.18	Wood	Long thin worn fragment of wood	2980 long	030/11m	5535593.8825	260182.8190
C8.19	Copper alloy	Copper alloy sheet with iron concretion attached. Probably hull sheathing	120x90x1	030/10.6m	5535594.3691	260183.0624
C8.20	Fe	Iron concretion	330x50Ø	015/11m	5535592.8877	260185.5302
C9.1	Wood	Timber – same as C8.18		160/21.2m	5535594.2247	260183.6354
C9.2	Pb	Lead pipe – probably part of a scupper	350x100Ø	215/18.5m	5535589.5178	260201.3719
C9.3	Pb	Lead pipe, bent – probably part of a scupper	1110x110Ø	210/16.5m	5535588.6242	260199.1369
C9.4	Fe/wood	Wood fragment with iron concretion – probably the remains of a hull fastening	130x100	155/16.9m	5535589.3025	260184.0082
C9.5	Pb	Lead window sash weight, rectangular in cross section, one end tapered with hole for attachment of sash cord	390x35x30	230/14.5m	5535583.7845	260202.0991
C9.6		Survey CP 'E2' (2015)		180/12.88m		
C9.7		Survey CP 'E3' (2015)		185/13.7m		
C9.8	Pb	Small lead object, hollow tube with flared end	25x15 to 20Ø	270/11m	5535574.3283	260201.8789
C9.9		Survey CP 'XX5' (2015)		195/7.51m		
C9.10	Fe	Iron concretion	160x120x120	180/9m	5535583.3033	260190.7285
C9.11	Fe	Iron concretion	c.210 long	173/8.5m	5535582.7777	260190.1562
C9.12	Fe	Iron round shot, concreted	c.100Ø	173/8.5m	5535582.8881	260190.0120
C9.13	Fe	Iron ring bolt – from a gun carriage?	c.250 long	170/8m	5535582.1453	260189.5219
C9.14	Fe	Part of an iron ring bolt – from gun carriage?	c.160 long	168/7.8m	5535581.8642	260189.3055
C9.15	Fe	Iron concretion and rock	c.200 long	168/7.8m	5535581.7503	260189.7108
C9.16	Fe	Iron round shot	c.150Ø	168/7.8m	5535581.6127	260189.7505
C9.17		Survey Cp 'E4' (2015)		150/9.5m		
C9.18	Fe	Iron concretion. Possibly an eye bolt of a bent fastening	c.250 long	170/4m	5535578.3133	260190.2100
C10.1	Wood/fe	Wooden deadeye with iron around the edge. Three deadeye holes (53Ø) each with traces of rope within. The deadeye stands almost vertical, with the chains and bottom quarter buried in the seabed	490Ø 65 thick Eyes 53Ø		5535588.2093	260172.6595
C10.2	Fe	Hollow iron concretion	120x80x80	100/7m	5535598.4578	260162.7847
C10.3		CP 'PP1'		100/7.9m		
C10.4	Fe	Iron concretion, L shaped bar with protrusions	480x180x50Ø	082/6.9m	5535596.3762	260162.8766
C10.5	Copper alloy	Copper alloy fastening bolt, both ends splayed, remains of copper rove on one end	910x40Ø	082/7m	5535596.3499	260162.7711

Ref	Material	Description	Dimensions	Location	Northing	Easting
C10.6	Fe	Iron concretion	300x150x60	080/6.9m	5535596.0484	260162.8868
C10.7	Fe	Iron concretion	760x230x140	010/8m	5535589.4392	260168.3026
C10.8	Fe	Iron concretion	210x30∅	005/7m	5535590.3425	260169.0178
C10.9	Wood/fe	Pistol	520 long	345/7.5m	5535590.0312	260171.5609
C10.10	Wood	Eroded timber fragment with iron fastenings attached	940x900	340/7m	5535590.7907	260172.0667
C10.11	Fe	Iron concretion	800x370	000/6m	5535591.3257	260169.6631
C10.12	Pb	Small lead object	80x90	320/7.8m	5535591.2994	260174.6101
C10.13	Pb	Small lead object	60x55	225/7m	5535602.2741	260174.6255
C10.14	Organic	Fragment of fibrous material – fabric or rope? Possibly hemp	130 long	110/2.75m	5535598.2550	260167.0879
C10.15	Pb	Two lead weights. Each is slightly curved (one convex and one concave face) with one end slightly domed (see photos). Two holes at one end (14∅) presumably for attachment. Weight of each about 25kg. Function uncertain	230x175x58	325/4.8m	5535593.3828	260172.4413
C10.16	Pb	Rectangular lead sheet with nail holes along two parallel edges	135x100x3	315/2.5m	5535595.5220	260171.4280
C10.17	Pb	Lead sheet	150x50x3	030/1.5m	5535595.9781	260168.9202

The reference field comprises a letter (N, C or S) denoting the Northern, Central or Southern search area; a number denoting the individual search area; a period and lastly a sequential number denoting the object found. So for example C10.15 is search 10 in the central area and object number 15 found in area 10. Fig 18 shows all the search areas and a plot of the objects found.

Appendix II – The Captain's Account of the Loss

ADM1/2136

Duplicate

St Mary's Scilly December 12th

Sir

It is with great concern I am to request you will inform their Lordships of the loss of His Majesty's Ship Colossus, late under my Command on the night of the 10th Inst. In my letter of the 8th I informed you of my having put into St Mary's with the Convoy, the wind being from the Eastward – on the 9th it blew strong from the ESE & SE but as the wind was from the shore and the water in consequence smooth I had not the smallest apprehension that the ship would drive – On the 10th the wind considerably increased – I sent the master to sound for some distance round the ship, to see if there was any foul ground – he returned with an account of its being perfectly clear, and that it shoaled very gradually towards each shore, we were then in eleven fathom water & apparently good holding ground, with a whole Cable out, which cable had never been used before – The Top Gallant Masts were struck & the other two anchors were ready for letting go – The third anchor having been supplied to the Vanguard at Naples – about four in the afternoon the Cable parted – the small Bower was immediately let go, & after Veering to a Cable she bought up, having then the Sheet anchor only left, & every appearance of its' continuing to blow hard – I wished to go to sea, but the Pilot told me it was impossible, as we should not have daylight to go through the Rocks – In this case it became necessary to prepare the ship for riding the Gale out – The Sheet anchor therefore was let go, & the Yards & Top Masts struck- I flattered myself the Cables & anchors would then hold, but about half past five, the Small Bower anchor came home, & we were obliged to veer & let her ride between both – About six she struck the Ground – but not so hard as to be of consequence – The throwing the Guns overboard & cutting the Masts away was then an object – I therefore consulted Captains Peyton & Draper, the first Liut. & the Master - & having taken everything into consideration, we were all of opinion that it would be better not to throw the guns over, as the ship might beat on them, or to cut the Masts away, there being a prospect of getting to Sea at daylight with the flood tide, should the wind either draw off the Shore, or even not get more to the Southward- It was likewise taken into consideration that should she bulge the tide might flow over her - & by keeping the Masts, the lives of the People might be saved by hanging in the rigging & tops till relief could be got – About 8 O'Clock the Wind unfortunately drew more to the Southward, by which she tailed in Shore. It then blew a very hard Gale of wind – we still kept her free with our pumps & I had hopes by heaving on one Cable & bousing in the Slack of the other, as the tide ebbed to keep her afloat – having then seven fathom water under her Stern, & knowing, by having tried with the Boat, that there was more water ahead of us, as the water decreased we continued to heave till we got to near half a Cable on each anchor, when she again struck with great violence & shortly after gained on our Chain Pumps – We then man'd all the pumps baled with half-tubs & Buckets. About Midnight the Rudder went, it still continuing to blow very hard, & the night very dark – Signals of distress were repeatedly made from the first of our driving, but situated as we were, we could expect no relief till daylight. The ship was now gaining on us very fast, and we were apprehensive should the Ebb force the ship to the Southward, that the next flood might be over the ship. The Masts therefore became a serious object to keep for the reasons I before stated – before daylight in the Morning, I had assembled the people on the Quarter Deck & Poop – the water then being up to the Cills of the Ports

of the Upper Deck, & with her rolling frequently struck on the Quarter Deck with great force. About 8 we saw Boats coming to our assistance & as the saving of the People then became the only object, I directed the Sick & Invalids to go in the first Boat, and the People by Divisions in the other Boats as they came. By the exertions of the People belonging to the Islands of Scilly in bringing their Boats to our assistance, I am happy to say, that before three O'Clock in the afternoon I saw the last man safe out of the Ship, one only having been drowned, who had fell overboard in the night – had we waited another hour, we could not have got away, as the People of the Boats said they could not have stayed there without almost a certainty of being lost. The whole of the Crew were landed on St Mary's except about one hundred which I was obliged to send in the Ship's Boats to the Island of Bryer – that Island being to Leeward, & the Boats not being able to pull to windward – I directed the Officers to come to St Mary's with the People, as soon as the weather would permit, but the Gale not having abated, I have not yet heard from them. At Daylight this morning I observed the Ship on her beam ends, so that she must have fell over early in the night. I am happy in the reflection that the People were all safe out of her before this took place, as no Boat could have gone to our assistance to-day. Whenever the weather moderates, I hope many of the Stores may be saved as well as her Guns. I feel myself much obliged to Captains Peyton & Draper for the great assistance I received from them – every exertion was made by the Officers & Ship's Company, & it is not possible for any Crew to have behaved more orderly & Obedient. I beg you will inform their Lordships, that had it not been for the great energy & attention of Major Bowen the Commanding Officer of the Fort, in sending Boats to our assistance the moment the signals of distress were heard, many must have Perished. He has likewise been unremitting in his services since we have landed in allotting houses to receive the People & procuring food &c for them on their landing. I shall send to the Commanding Officer of the Ships that may be at Falmouth, to acquaint him with our situation & to request some ship may be immediately sent to take off part of the Crew, & shall wait their Lordship's order for my further proceedings with the remainder. Whenever their Lordships may think proper to order a Court Martial to inquire into the loss of the Ship, I request they will be pleased to direct that Captains Peyton & Draper may attend - & flatter myself that the result of the enquiry will acquit me in their Lordships Opinion of any neglect or blame.

I have the Honor to be

Sir,

Your Obedt humble Servt

Geo Murray

December 14th

P:S: - As no boat has yet been able to get out, I have further to observe, that since my writing the above, the Colossus's Main Mast is gone, part of her Larboard side appears beat in, & the Guns of course fell over. I am therefore apprehensive there will not be many of her stores saved.

GM

Appendix III - Summary of the Wrecking of *Colossus*

Date & time	Wind	Tide	Event
6 Dec 1798	E strong		At sea, returning with convoy to England – (17 merchantmen)
7 Dec			<i>Colossus</i> (and convoy) anchored in St MARYS SOUND in 11 fathoms of water with the BEST BOWER and veered to a whole cable
8 – 9 Dec	SE to ESE strong		Wind being offshore the water was smooth
10 Dec	Gale increased considerably	SPRINGS LW 0015 1.06m HW 0607 5.57m LW 1240m 1.07m HW 1828 5.21m	Master sent to sound around the ship – found the ground clear and shoaling to EACH SHORE. Other two anchors READY TO GO – Spare (bower?) anchor supplied to VANGUARD at Naples
About 1600		Flood 3.52m	Cable parted (new cable) Small bower let go - Only sheet anchor left Could not put to sea as not possible to clear the rocks before dark Yards & topmasts struck Sheet anchor let go
1730		Flood 5.05m	Small bower came home Obliged to veer and ride between both
1800		Flood 5.14m HW 1828 5.21m	Struck ground (but not too hard) Still hopes of getting to sea at daylight with the flood tide Guns NOT jettisoned but everything else to lighten ship was done
2000	Veered to southward	Ebb 4.59m	Ship tailed more inshore Tried with boat and found more water ahead of the ship. <i>We still kept her free with our pumps</i> <i>Having then 7 fathom water under her stern</i> Hove in to half cable on anchors (to pull forward?) As the tide ebbed the ship struck with great force Water gained, all pumps manned, baled with buckets and tubs
11 Dec midnight	Continued to blow hard	Ebb 1.49m LW 0056 1.27m	Rudder beaten off Distress signals (made from the first of the ships driving) were constantly repeated Water gained fast
Before daylight Sunrise 0800		HW 0648 5.36m	Obliged to order people on the quarter deck and poop. Water up to the CILLS of UPPER DECK [ship now drawing MID 35', 10.66m, 5.8 fathom – Stern 11.3m] As the ship rolled [the sea?] struck with so much violence against the quarter deck broke several of the beams.
0800		Ebb 4.97m	Saw several boats coming to assist
1500		LW 1321 1.29m HW 1909 4.96m	All saved except 1 <i>Colossus</i> boats forced to bear away to Bryher – not being able to pull to windward.
12 Dec 0800	ESE Heavy gales	HW 0738 5.2m LW 1408 1.6m	The <i>Colossus</i> fell on her beam ends at 8 (HECATE log).
13 Dec	ESE Strong gales		FEARLESS log
14 Dec	SE or Variable Strong gales	HW 0912 4.7m LW 1545 2.0m	Sent cutter to assist in getting some things out of COLOSSUS (HECATE log) Fearless ordered to Plymouth with 'some of the officers from the <i>Colossus</i> ' (FEARLESS log)
14 Dec (or later)			<i>Since writing the above Colossus main mast is gone Part of her larboard side appears beat in & the guns of course fell over (Murray)</i>
15 Dec	SW & variable Strong gales	HW 1008 4.5m LW 1644 2.2m	FEARLESS & HECATE logs

Date & time	Wind	Tide	Event
16 Dec	NbW Strong gales		Received on board supernumeraries from <i>Colossus</i> then departs for Plymouth (HECATE log) HECATE and FEARLESS depart for Plymouth
6 Jan	NNE strong gales		FEARLESS returns to Scilly
7-13 Jan			Getting <i>Colossus</i> stores on board transports (FEARLESS log)
14 Jan			People employed breaking up the wreck same entry for 15 th and 16 th (FEARLESS log)
Compiled from Captain Murray's account (ADM 1/5348) and Murray to Napean from Scilly (ADM1/2136) and FEARLESS and HECATE logs ADM 51 4015 and 4456			

Tidal flow for the *Colossus* Stern Site (From Jo Williams – local boat skipper – pers comm 2017)

The tide runs hard to the east 45 minutes after low water until 4 hours after low water. It then runs to the west from about half an hour after high water until about 2 hours before low water – but this is only strong for about an hour of that time.

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