

**A Report On The Moor Sands & Salcombe 'B'**  
**Protected Wreck Sites**  
**2011**



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## Acknowledgements

We would like to thank the Jubilee Trust for their help and support with the project without whom none of the work could have happened.

Thanks also need to go out to the project team for their dedication and hard work throughout the project.

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# **1 BACKGROUND**

## **1.1 Moor Sand**

- 1.1.1 Originally discovered in 1977 when a Bronze Age sword and eroded blade were found just off Moor Sand beach, the site was protected in 1978 by Protection of Wrecks Order 1978 - Statutory Instrument 1978 No. 199. The Statutory Instrument defines an exclusion zone centred at position Latitude 50° 12.700' North, Longitude 03° 44.333' West (OSGB36), extending for a distance of 300m from that point.
- 1.1.2 Moor Sand was surveyed and searched by the late Keith Muckelroy in 1977, 1978 and 1979 using visual and metal detector search techniques, and again in 1982 by Martin Dean. These surveys recovered a number of Bronze Age artefacts that are now at the British Museum.
- 1.1.3 In the intervening period the site has been monitored and surveyed but no further artefacts were located until this season.
- 1.1.4 The Moor Sand site was awarded a grant from the British Sub-Aqua Club Jubilee Trust this year. The Moor Sand team greatly appreciates the grant and the help it has given in continuing work on site.
- 1.1.5 They would also like to thank Harry Gould and Dr Paul Cragg for their help and hospitality.

## **1.2 The Salcombe Cannon Site**

- 1.2.1 First investigated by SWMAG in 1995, the Salcombe Cannon Site was protected in 1997 by Protection of Wrecks (Designation No. 4) Order 1997 - Statutory Instrument 1997 No. 2536. The Statutory Instrument defines an exclusion zone centred at Latitude 50° 12.696' North, Longitude 03° 44.679' West (OSGB36), extending for a distance of 250m from that point.
- 1.2.2 Activity in 2001 expanded the site to the south-east with the recovery of Bronze Age artefacts. That the site is Bronze Age in origin was confirmed during 2004.
- 1.2.3 Continuing work in subsequent years has followed the archaeology towards Moor Sand and, as proposed as a possibility in last year's report, the distribution of artefacts confirms that the archaeology encompasses both sites.

## **1.3 Joint Project - Salcombe/Moor Sand**

- 1.3.1 The licensees of the Salcombe Cannon and Moor Sand Sites have again agreed that the archaeology takes precedence over site boundaries and the sites are now being investigated as a single project; hence this document being a joint report. Mr. D. Parham is the nominated archaeologist for both sites and co-ordinates the project.
- 1.3.2 Figure 1 shows the areas designated under Statutory Instruments 1978 No. 199 and 1997 No. 2536 overlaid on an extract from Admiralty Chart 1613, together with a multi-beam sonar plot of the seabed.

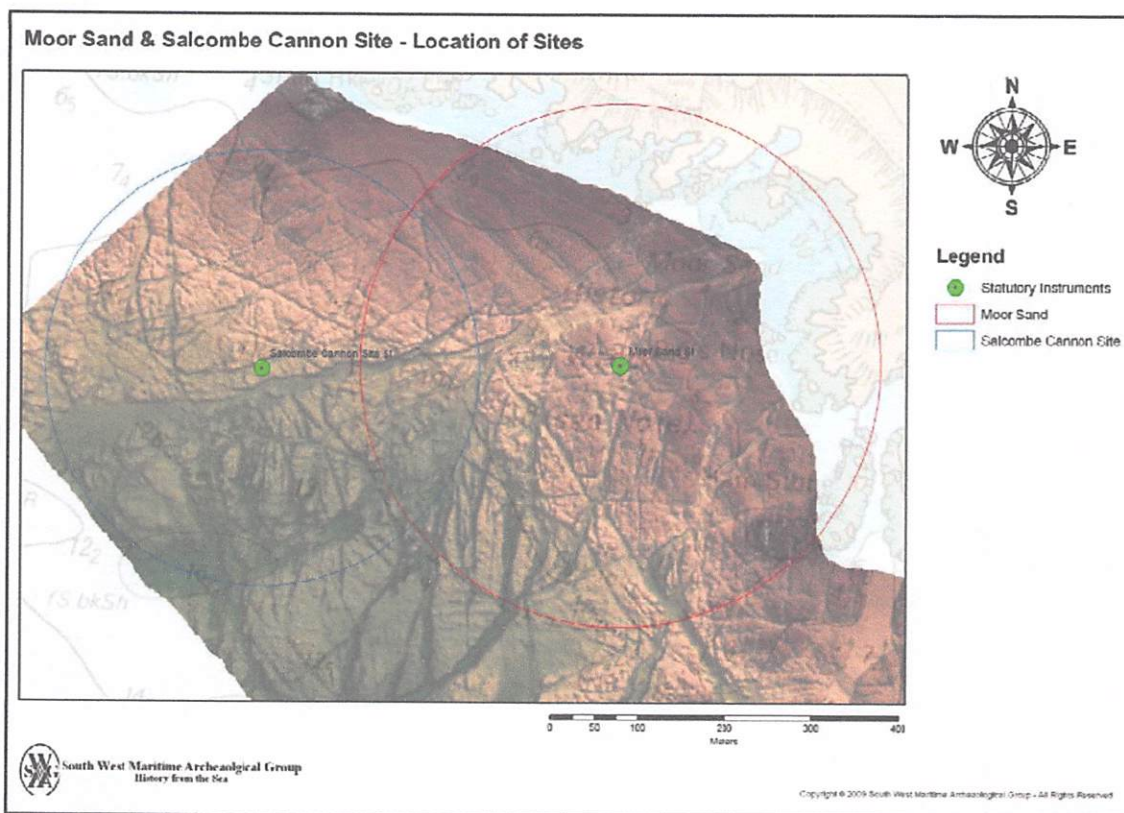


Figure 1 - Location of the Moor Sand & Salcombe Cannon Sites

## 2 PROJECT AIM

2.1.1 The members of SWMAG currently hold the archaeological licenses for both sites.

### 2.2 History of Site Investigations

2.2.1 The Moor Sands prehistoric wreck site was discovered in 1977 by Phil Baker of Doncaster BS-AC and subsequently investigated by him and the late Keith Muckelroy partially supported by funds from the BS-AC Jubilee Trust.

2.2.2 The Initial find from the site consisted of a well-preserved bronze sword and a more eroded sword blade close by, with a further eroded sword blade found in the immediate area later that year. In 1978 Baker and Muckelroy recruited volunteer divers from diving clubs all over the UK who conducted a detailed search of over 1.5 ha of seabed surrounding the original find spot over a period of 6 weeks. The search was meticulous, although hampered by heavy marine growth and uncovered a further 3 bronzes, an eroded sword blade and 2 palstaves.

2.2.3 In 1979 a much less intensive search consisting of widely spaced transects was conducted into deeper water covering over 5 ha of seabed found no finds further offshore, although a further eroded bronze sword blade was located in the area previously searched in 1978. A further single sword handle was found in 1982. The original find, a well preserved bronze sword is unparalleled in Britain or Ireland but has parallels with assemblages from Middle Bronze Age, c1300 BC, on the continent, particularly with material in the Seine basin

of northern France, with other material from the site having parallels in Brittany of which small numbers occur in southern England, thought to be imports.

- 2.2.4 The condition of the finds varied considerably, from excellent to very highly abraded. When the site was first discovered Muckelroy considered that the better-preserved finds could not have lain for long in the exposed position in which they were found. He concluded therefore that they must have originated from a deposit of archaeological material located elsewhere. The varying condition of the finds suggested to Muckelroy that objects were being intermittently released from this deposit, perhaps over many centuries, and re-deposited by wave and possibly tidal action to the locations in which they were found. Lack of erosion along the adjacent coastline, particularly any recent enough to have deposited the undamaged finds, and the fact that it would be extremely unusual for a terrestrial hoard to consist entirely of imported material, suggested to Muckelroy that this was not material originally deposited on land. Meanwhile, the dearth of modern rubbish suggested that the site was not a natural debris trap for material swept in from elsewhere along the coast, hence Muckelroy deduced that the original deposit must be underwater and close.
- 2.2.5 Corrosion on the finds indicated that they had been immersed in the marine environment for a long time and that prevailing environmental conditions would move material in towards the shore. There was also a clear environmental distinction between the zones where the two types of finds had been found. The blades had been found inshore whilst the palstaves came from further offshore. Muckelroy realised that thin blades had a high surface area to weight ratio and may have been more responsive to water movement than the denser palstaves.
- 2.2.6 Discounting a coastal origin for the finds Muckelroy considered that if the objects had entered the marine environment during the Bronze Age then it could only have been as a result of either ritual deposit or accidental loss. He thought ritual deposit was improbable as no other ritual assemblage limited purely to imported goods was known, leaving only accidental loss as a probable cause. Given the location, the most likely cause of accidental loss was a shipwreck and if so the site at Moor Sands bronzes is one of the earliest shipwreck sites anywhere in the world.
- 2.2.7 However, as he noted at the time, the exact nature of their deposition in the archaeological record was not as important as the connections that the origins of the objects suggested.
- 2.2.8 During 1978 and 1979 Muckelroy endeavoured to find the original deposit from which he believed was the source of the material that he had found. However after 3 years of hard work this had not been found, this lack of success led to a drying up of research funds for the site as its promise appeared to fade and after 1979 what attention the site received was related to considering it for designation as it was no longer worthy of the status of historic wreck.
- 2.2.9 Prior to the recent discoveries detailed below the site has been much discussed in academic circles, particularly in connection with the parallel site in Langdon Bay near Dover. Langdon consists of another marine continental metal work find, perhaps a 100 or so years older than the find at Moor Sands,

but one that was on a completely different scale with 360 items of Bronze Age metal work being recovered from Langdon. The two sites are unique in Northwest Europe being the only two sites where Bronze Age metalwork has been found on a clearly marine site in any quantity, indication of trade or cultural exchange in action being preserved through shipwreck. Whilst Langdon has always been seen as a 'cargo' site the failure to find archaeological material in any volume at Moor Sands has meant that this site has always been considered in another light, perhaps the physical remains, in the form of the weapons and tools of the crew, of a boat carrying a different kind of cargo, one that failed to survive the intervening 3,500 years on the seabed.

### **2.3 History of Site Investigations by SWMAG**

- 2.3.1 This picture potentially changed in 2004 with the discovery by divers from the South West Maritime Archaeological Group (SWMAG) working on the 'Salcombe Canon Site' (a 17th century protected wreck site situated some 500m to the west of Moor Sands) of Bronze Age objects the east of the objects within the area of the 17th century site, in an area now known as the Salcombe 'B' site.
- 2.3.2 By the end of 2008 finds from the site consist of bronze weapons and tools, gold jewellery and scrap gold and a bronze Strumento con immanicatura a cannone a type of artefact only previously found in Sicily and the earliest Mediterranean object found in a secure archaeological context in the United Kingdom. One of the items of gold jewellery, of which two have been found on the site, (shown to the left of the picture below) is very rare and has only just been recognised as a Bronze Age type It is one of the finest pieces of gold work from the Bronze Age and has few parallels. All of the identifiable objects, both gold and bronze are of the same phase of the Bronze Age, (circa 1300 – 1150 BC), as the finds from Moor Sands site.
- 2.3.3 The presence of this material so close to the 17th century Salcombe Cannon Site raised the obvious question of do they originate from this wreck as antiquarian quiros carried on board? However by this stage of the Bronze Age, material of this sort was not being deposited with the dead, which negates the possibility that the finds come from a barrow looted in 17th century or earlier. It is possible that the finds could come from a Bronze Age hoard located in the 17th century or earlier. However, the size of the collection suggests that this either have to be an exceptionally large hoard or two or more hoards of exactly the same phase of the Bronze Age. The composition of the assemblage indicates a British or North/West French origin (French hoards of this period very rarely mix gold with bronze). Therefore for the reasons outlined above it is considered that the balance of probabilities indicates that the Bronze Age material was not being carried on board the 17th century vessel.
- 2.3.4 By the end of 2008 the distribution of the Bronze Age material located within the Salcombe Designated Wrecksite area suggests that it may spread as far as the distribution of the Moor Sands material recovered by the National Maritime Museum in 1978-82. The aim therefore of the 2009 season was to join the areas searched 2004-2009 with the areas searched in 1978-82.

### 3 2011 SEASON

#### 3.1 Aims

3.1.1 This year the fieldwork plan was to continue on from the area of finds during 2009/10 in order to establish the dispersal limits for the finds related to the 900BC collection. This was to be achieved by completing the following Objectives:

Objective	Activity	Status	Notes
Re-establish site for 900BC Bronze Age site	Renew Mooring	Complete	
	Re-establish 2nd and 3rd mooring Fixed Points	Complete	2nd and 3rd mooring established at Wash Gully centre adjacent to centre of Bronze Age wreck site.
	Replace datum as required	Ongoing	All Areas
	Straighten Lines	Continuing	All Areas
Re-establish new datum for use in season. These to be removable to avoid interference	Identify positions East West axis following existing gully	Ongoing	Bronze Age site Moor Sand area towards Moor Sand to Pigs Nose Outer Rock
	Fix Datum	Ongoing	Following above lines
	Measure in Datum	Ongoing	Selective areas
Revisit and security check of SE area	Datum as required	Ongoing	Further expansion to find limits of area of both Bronze Age centres
	Meeting Police Forum		
To search for extremity to east and South		Ongoing	Continue work from Arc View generated sea bed maps
Survey Towards Moor Sand	Line from Wash Gully to Moor Sand at 90°	Continuing	'J' Line. Tagged at 5m Intervals eg 5,10, 15, 20 etc
Bronze Age area	Similar line as above but at an angle.	Ongoing	'K' Line. 80m Tagged at 5m Intervals
Seabed mobility Survey	Identify key datum	Continuing	Objective is to continue to identify seabed movement and determine any Datum to seabed potential areas of instability
	Datum to seabed potential areas of instability.	Not Started	
Search	Area to the North West	Not Started	Objective is to determine extent of site and possible Debris Trail.
	Direct line search to Moor Sand	Started and Ongoing	To identify Bronze Age or 17C debris trail, or Portuguese
Survey	Define areas to be Surveyed	Open	
Accurately geo-reference the site	Fix real world locations for predetermined datum and report to SWMAG	Open Not Started	Endeavour to identify extent of site

#### 3.2 Fieldwork Undertaken

3.2.1 2011 field work continued to progress on the centre of the Bronze Age site of 900BC. The season has proven to be exceptionally demanding owing to difficult weather conditions throughout the year.

3.2.2 Fieldwork progressed in these exceptional conditions. Both continued survey and search was maintained in the known Bronze Age site areas. Little new

evidence was found outside this area. The limited dive time allowed no further conclusions from the previous season.

- 3.2.3 Dive time only allowed the team to maintain existing fixed datum and datum lines as weather reduced productive time for further work.
- 3.2.4 Despite the bad weather conditions and other setbacks to the project the team managed to search many of the areas and confirm that they were clear of archaeological material. Spot inspection dives were also carried out into the central area of the original Muckleroy area.
- 3.2.5 The limited fieldwork carried out in 2011 allowed the project team to narrow down the area for the work to continue in 2012 where dive time will be concentrated to specific areas thought to have high concentrations of archaeology.
- 3.2.6 Interestingly, an artefact thought to be copper ore was recovered and is being analysed at Bristol University. The artefact is undergoing XRF analysis where it will be interesting to compare to the results gained previously from Northover, British Museum
- 3.2.7 Several days were spent clearing the modern debris and wreckage from the *MV Juran* a modern fibreglass motor cruiser that burnt and sank of moor sands on the 5<sup>th</sup> August 1994.
- 3.2.8 Success too was made in laying a fresh main search line into Muckleroy area 'D' Line. Both line ends affixing to concrete blocks, which double up as boat anchor points. Preliminary searches along this 100-meter line showed promise and will form one of the core search areas for 2012.
- 3.2.9 Fieldwork continued in terms of magnetometry and has provided valuable information that can be used in 2012. The team rented two magnetometers for the duration of the project for this purpose and work will continue throughout the season.
- 3.2.10 In concluding this synopsis, the weather conditions throughout the season have prevented meaningful fieldwork and all 2011 plans have been carried forward to 2012.

### 3.3 2011 Artefact assemblage

Artefact Number	Description	Location
201110160001	Copper Ore fragment (possibly Bornite)	Moor Sands
201110160002	Tin (small round fragment - casting overspill?)	
201110160003	Silver fragment (possibly)	
201110160004	Iron Cleat	

### 3.4 Magnetometer Survey

- 3.4.1 The first magnetometer survey of the year was carried out in July 2011.
- 3.4.2 The objective was to cover both historic sites including approx 200m off the boundaries of the known sites.



- 3.4.3 An Aquascan AX200 magnetometer was used for the survey and the first pass included known objects such as the cannon on the site, which enabled us to confirm the calibration of the equipment.
- 3.4.4 Figure 2 shows the results with new anomalies identified with the code 'mmXX'.
- 3.4.5 One of the cannons is identified [mm7], on the chart (Figure 2) in order to provide a reference point on the sites.
- 3.4.6 The larger anomalies were mm14, 15, and 19 and these will need to be investigated further. The area has been heavily potted over the years so we will need to eliminate any hits relating to fisherman's pots. Chart was produced using PC Planner with the waypoints imported from the AX200.

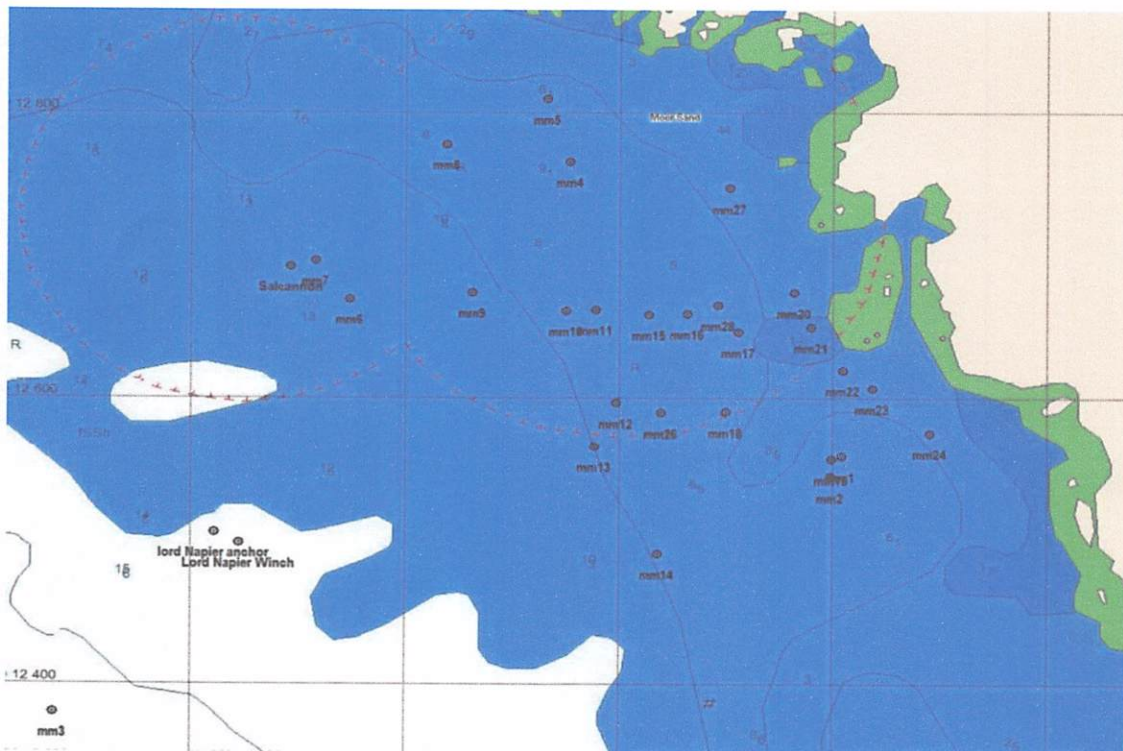


Figure 2 Magnetometer results – July 2011

- 3.4.7 The second survey was carried out in August 2011. Objective of this survey was to get as close to the shore as possible and cover the area from Gammon Head to Shag rock including Moor Sand area.
- 3.4.8 This would help to establish what lay either side of the protected site and included areas on the Moor Sand site not covered by any previous survey due the closeness to the shore and shallow rocks.
- 3.4.9 An MX 500 magnetometer was used and the results recorded as waypoints in a Raymarine Raytech P.C. Chartplotter application.
- 3.4.10 Although no latitude and longitude data is shown on Figure 3 the hits can be seen relative to the Moor Sand site. At this point they are numbers 0001 to 0022 and we believe at least two of these are probably fisherman's pots. One of the hits is believed to be a steel pin [anchor stock] but further investigation needs to be carried out to establish what these hits are.

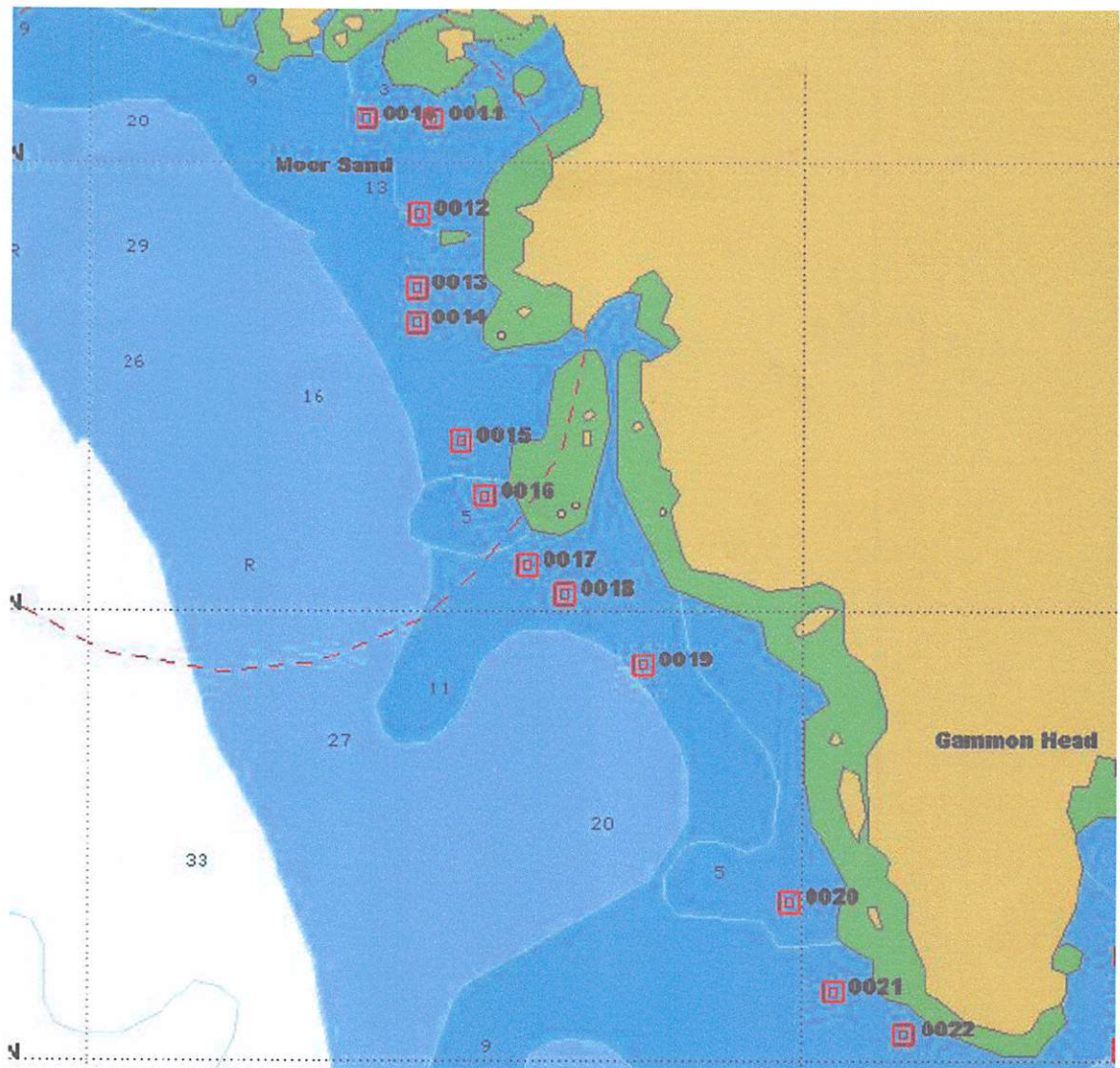


Figure 3 Magnetometer results August 2011

### 3.5 Off Site Work

3.5.1 SWMAG enjoys close co-operation from the British Museum and English Heritage as well as Local History Societies.

#### *British Museum*

1.1.1. Through the close relationship in research with the Curator of Antiquities, Ben Roberts, SWMAG is involved with dialogue and co-operative research. The BM is at present trying to raise funds for analysis of Ingots, which will determine their origin. This will be done by comparison of results from XRF analysis with finds and recoveries from other parts of Western Europe.

#### *Reson Survey Analysis*

3.5.2 SWMAG is unable to find the resource to interpret the Data fully that was provided by the Reson Survey carried out by ADU and SWMAG in 2002.

3.5.3 Both extra Computer software resources are required as well as expertise for interpretation. This is essential work that is needed to further site interpretation as well as spread of the site. SWMAG has contacted Reson but with little results. A financial package as well as expert package is required.

### *Local Society Co-operation for Research*

3.5.4 SWMAG has developed close relationships with local communities and interested parties. These through use of lectures provide interesting comments on past terrestrial finds and recoveries. What is considered a valuable developing local resource is the use of the involvement of all local interested parties. This will continue throughout 2012

### **3.6 Museum Liaison**

3.6.1 The team has again been in close liaison with two major museums this year, British Museum and the Plymouth City Museum & Art Gallery.

### **3.7 British Museum**

3.7.1 The team agreed with Ben Roberts in 2010 that there was a need for the collection of artefacts from the Salcombe 'B' area, the 2009 finds area and Moor Sand to be integrated as a single 'find spot' on the BM database to be externally visible. The database has been updated and now shows details for 348-catalogued artefacts to date.

3.7.2 The agreed 'find spot' identifier for the BM database was 'Salcombe/Moor Sand' and to support that this report continues to use the same reference (refer to Section 7 Ref.5 for further details and link to database).

### **3.8 Conclusions**

3.8.1 On site diving time this year has been extremely disappointing due to the high number of adverse weekend weather conditions where the wind was >force 4/5 [limit of the safe conditions for the team's boats]. Certainly the worst year since we started diving on the site since 1995.

3.8.2 In eight years of diving this area, 2011 has been the team's worst year for planned weekends diving having to be abandoned due to winds >force 4/5.

### **3.9 Bronze Age Sites**

3.9.1 On site diving activity this year has been very low, due to adverse weather conditions through the season, and only a few artefacts have been found. Hopefully the XRF analysis will provide useful results on their provenance.

3.9.2 However, the team still feels the Salcombe / Moor Sand bronze age sites will continue to reveal more information as the area is further investigated.

3.9.3 We still need to understand why, in this relatively small area, there appears to be 'Two time periods and at least three wrecks' (see 2010 Salcombe /Moor Sand End of Season Report Section 10 Conclusions).

3.9.4 The area between the three sites remains unexamined and not surveyed; hopefully future fieldwork into this area will provide more answers.

### **3.10 Media Outreach & Awards**

3.10.1 The team is very pleased with the level of outreach that it has achieved this year.

- 3.10.2 In addition to our longstanding commitment to delivering lectures/presentations about our work on the Bronze Age and 17th century sites we have also enjoyed a considerable amount of media coverage, in all its formats.
- 3.10.3 The discovery of the ingots has continued to generated reports in both the national and international media.
- 3.10.4 The team's website <http://swmag.org> currently attracts over 450 hits/month with 50% being non-UK visitors.
- 3.10.5 In these difficult times we hope that this coverage has contributed to demonstrating the value of maritime archaeology to the public at large, achieved by a dedicated avocational team.
- 3.10.6 Material from the site may be put on display by the National Maritime Museum Cornwall over the summer of 2012.

## **APPENDIX ONE - FINANCIAL REPORT**

The project spend was roughly in line with the planed cost. A detailed spreadsheet and receipts are available if required.

Some members of the team provided all their own personal boats and equipment at no charge to the project (Except Fuel).

### **Summary of Expenditure**

Hire Equipment	Magnetometers/Metal detector hire	£600-00
Equipment bought	Rope, buoys, slates, tapes etc	£230-00
Air		£1200-00
Boat Fuel	Fuel for team & private boats	£1300-00
Boat hire	Bare boat charter	£600-00
Research	Trips to Exeter, Plymouth, & BM London	£450-00
	<b>Total Spend</b>	<b>£4380-00</b>
	<b>Jubilee Trust Funding</b>	<b>£2000-00</b>

On behalf of the team I would like to thank the BSAC Jubilee Trust for their continued help.