



© 3D Scanned Model of c.1640 Clay Pipe | Artefact Ref. 199908290001

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**South West Maritime Archaeological Group**  
*'History from the Sea'*

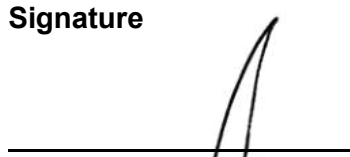
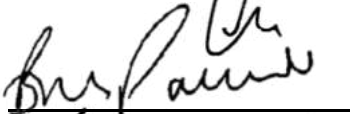
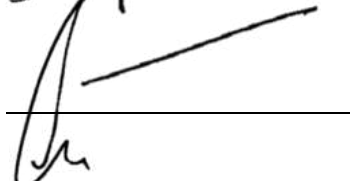
**Salcombe/Moor Sand Sites  
2016 End of Season Report**

**Licenses:**

<b>Site</b>	<b>Type</b>	<b>Date of Issue</b>
<b>Moor Sand</b>	<b>Survey</b>	<b>4<sup>th</sup> May 2016</b>
<b>Salcombe Cannon Site</b>	<b>Surface Recovery</b>	<b>4<sup>th</sup> May 2016</b>

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**Prepared by** Jim Tyson & Mick Palmer

<b>Approved by</b>	<b>Position</b>	<b>Signature</b>	<b>Date</b>
Mr. D. Parham	Licensee Moor Sand		<u>30 November 2016</u>
Mr. B. M. Palmer	Licensee Salcombe Cannon Site		<u>30 November 2016</u>
Mr. D. Parham	Nominated Archaeologist		<u>30 November 2016</u>



## Contents

1	Introduction.....	4
1.1	Moor Sand.....	4
1.2	Joint Project - Salcombe/Moor Sand .....	5
2	Summary .....	6
2.1	Qualified Dive Hours and Research Time .....	6
2.2	2016 Season Highlights .....	6
2.3	2016 Season Lowlights .....	7
3	Fieldwork Activity .....	8
3.1	Introduction.....	8
3.2	On-site Work.....	8
3.2.1	Site Action Plan.....	8
3.2.2	Artefact finds 2016 .....	9
3.2.3	Operational Field Work.....	9
3.2.4	Magnetometer Survey 2016 .....	10
3.2.5	Magnetometer Survey 2017 (proposed).....	11
3.2.6	Salcombe 17th Century Site.....	12
3.3	Off-site work.....	13
3.3.1	Terrestrial Work .....	13
3.3.2	Museum Liaison .....	13
3.3.3	Durham University.....	13
3.3.4	Development of replicas of artefacts using 3D scanning and rapid prototype methods ..	13
4	Contact with the Nominated Archaeologist and Other Parties .....	17
4.1	Salcombe/Moor Sand Communications.....	17
5	Illegal Diving .....	17
6	Media/Museum/Outreach .....	18
6.1	Media.....	18
6.2	Museums with SWMAG Artefacts on Display.....	21
6.2.1	British Museum - The 'Citi Money Gallery, Room 68, British Museum'.....	21
6.2.2	British Museum – 'Hoards: the hidden history of ancient Britain' .....	21
6.2.3	Plymouth City Museum and Art Gallery .....	21
6.3	Publications .....	22
6.3.1	Moor Sand / Erme Estuary Tin Ingots .....	22
6.3.2	Salcombe Cannon Site.....	22
6.3.3	2016 Publications which include SWMAG projects .....	23
7	Presentations/Outreach.....	24
7.1	SWMAG presentations 2015/16 .....	24
7.2	Outreach.....	25

[1]



South West Maritime Archaeological Group

Salcombe/Moor Sand Sites : 2016 End of Season Report

8	Potential for Further Work .....	26
8.1	Fieldwork .....	26
8.2	Outreach.....	26
8.3	Desk Based Artefact Review .....	26
9	Conclusions .....	27
Appendix I	British Museum - Letter of Support .....	30
Appendix II	Artefact Numbering System .....	32
Appendix III	Illegal Diving Activities & Security .....	33
Appendix IV	Salcombe/Moor Sand License .....	33
Appendix V	South West Maritime Archaeological Group .....	33
	Copyright Notice .....	34

[2]



**South West Maritime Archaeological Group**  
*'History from the Sea'*

## List of Figures

Figure 1 - Location of the Moor Sand & Salcombe Cannon Sites.....	5
Figure 2 – SWMAG Rescue of ‘Noah Gill’ from Anstey’s Cove Rocks.....	6
Figure 3 - Magnetometer Anomalies.....	10
Figure 4 - Magnetometer Tracks 2015.....	11
Figure 5 – Salcombe / Moor Sand Magnetometer - W21 Location .....	11
Figure 6 - Salcombe Cannon.....	12
Figure 7 - Underwater Visibility.....	12
Figure 8 - Engineer using the GOM Atmos Triplescan Unit .....	15
Figure 9 - 3D 'Watertight' Scanned Model of Clay Pipe.....	15
Figure 10 - SWMAG Web Site (typ. page).....	18
Figure 11 - SWMAG Web Site - Traffic Results 2016.....	19
Figure 12 - Copper 'Bun' Ingots: British Museum - Room 69a.....	21
Figure 13 - Twisted gold torc from the Sa'dian dynasty.....	21

## Glossary / Abbreviations

BM	British Museum
BU	Bournemouth University
CIA	Council for Independent Archaeologists
EH	English Heritage
RoW	Receiver of Wreck
SNR	Society for Nautical Research
SWMAG	South West Maritime Archaeological Group
Wessex	Wessex ADU

### Front cover:

© 3D Scanned Model of c.1640 Clay Pipe | Artefact Ref. 9908290001

### Images:

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## 1 Introduction

This document is the joint end of season report for the Salcombe/Moor Sand Sites; it details the activities and achievements of the South West Maritime Archaeological Group (SWMAG) for the 2016 season, both on and off site, in respect of the Survey Recovery License issued on 4<sup>th</sup> May 2016 until 30<sup>th</sup> November 2016 for the Moor Sand site, and the Surface Recovery License issued on 4<sup>th</sup> May 2016 until 30<sup>th</sup> November 2016 for the Salcombe Cannon Site.

All co-ordinates in the document are given as dd° mm.mmm' WGS84 unless otherwise stated.

This document will be available online at <http://swmag.org.uk/sites/scs/reports/2016eos.pdf>.

### 1.1 Moor Sand

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.

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 which are now at the British Museum.

In the intervening period the site has been monitored and surveyed but no further artefacts were located until SWMAG started investigating the area in 2009 as part of extending the area from the Bronze Age finds to the south east of the 17th Century site.

Field work is continuous

Licensee note;

Site licensees are;

- Moor Sand site - Dave Parham
- Salcombe Cannon Site – Mick Palmer

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.

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.

Continuing work in subsequent years has followed the archaeology towards Moor Sand and, as proposed as a possibility in the end of season report in 2010, the distribution of artefacts confirms that the archaeology encompasses both sites.

Further survey work has continued following a possible debris trail to Gammon Head and back to Rickham Cove. This sea bound line encompasses the terrestrial land where Bronze Age field systems and 3 Round Houses were located.

[4]





## 1.2 Joint Project - Salcombe/Moor Sand

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.

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.

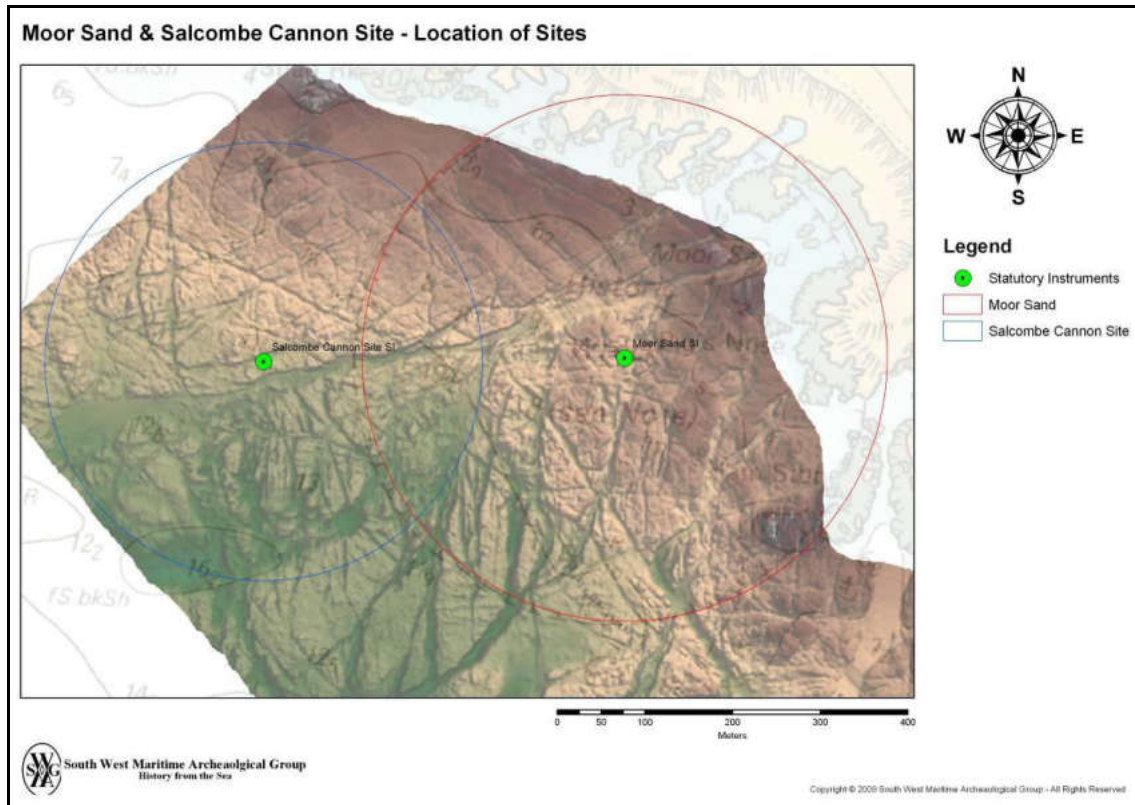


Figure 1 - Location of the Moor Sand & Salcombe Cannon Sites

## 2 Summary

### 2.1 Qualified Dive Hours and Research Time

Type	Hours
Divers Underwater	51
Dry Research (est.)	422
Magnetometer survey	28

### 2.2 2016 Season Highlights

- On site
  - Continued excellent support from Prawle Point National Coastwatch, Falmouth Coastguard and Devon & Cornwall Constabulary.
  - Magnetometer survey around Salcombe/Moor Sand site area, from Rickham Cove to Prawle Point. Continuous process.
  - Survey and appraisal of Cannon Site with re-viewed information throughout the '**Reduced License Period**' in the 2016 season
  - Continued examination of Bronze Age sites to ensure integrity of site and make datum lines secure.
  - Research at Records Office, Local and County, of records for both Bronze Ages sites and 17th Century sites to analyse and draw conclusions of patterns of wreckage and finds for future planning.
  - Saturday 18th June 2016, rescue by SWMAG of local fishing boat 'Noah Gill' from near rocks off Anstey's Cove, tasked by Falmouth Coastguard and working with Prawle NCI.



Figure 2 – SWMAG Rescue of 'Noah Gill' from Anstey's Cove Rocks

- Off site
  - Continued Display of Artefacts from the Salcombe B / Moor Sand site in the 'Citi Money Gallery (Room 68)', British Museum (see Section 6.2.1 for details)
  - New exhibition which includes Artefacts from the Salcombe B / Moor Sand site in 'Hoards, : the hidden history of ancient Britain' British Museum Room 69a (see Section 6.2.2 for details)
  - Artefacts from the Salcombe B / Moor Sand site continue to be displayed in the 'Uncovered Gallery', Plymouth City Museum & Art Gallery. (see Section 6.2.2 for details)

[6]



## South West Maritime Archaeological Group

### Salcombe/Moor Sand Sites : 2016 End of Season Report

- Work is progressing in association with support from Alan Aberg, Society for Nautical Research (SNR) and the British Museum for a SWMAG publication on the 17<sup>th</sup> Century Cannon Site, projected date for editing has been delayed due to slow submission of papers.
- Team members have continued making presentations on the teams projects in the South West regions (see Section 7 for details).
- Recognition Internationally, UK, and locally, with enquiries being made through our web pages for information and use of photographs
- SWMAG liaison with the British Museum in comparing Tin Ingots recovered from the Erme Estuary protected wreck site with those from Moor Sand Bronze Age 'A' site. Results were published in the Journal of Archaeological Science, March 2016, Ben Roberts, et al. (see Section 6.3.1)
- Development of replicas of artefacts and their production using high resolution 3D scanning techniques and rapid prototype methods (See Section 3.3.4)
- Increased support from The British Museum for long term acquisitions and co-operation of information and research (See Appendix I).

### 2.3 2016 Season Lowlights

- On site
  - Poor weather conditions at the back of the reduced Season Period contributing to more cancelled field work time
  - Late issuing of Season's License from Historic England
- Off site
  - Very few weekends that were good or reasonable for diving were missed.



## 3 Fieldwork Activity

### 3.1 Introduction

2016 seasons Field Work plan was to re-visit and resume survey and identification for the Cannon Site.

Field work in the areas of Bronze Age 'A' (Moor Sand) and Bronze Age 'B' (located in the Cannon site area) was to be limited to inspection and security checks with a view to then returning for the 2017 season.

### 3.2 On-site Work

#### 3.2.1 Site Action Plan

In March 2016 SWMAG issued their Site Action Plan for the year. Those actions outlined in the plan and their status are summarised below.

Objective	Activities	Status	Notes
Re-establish site for 17th Century Cannon site. Review previous sea bed surveys and accuracy. Examine any find areas	Renew mooring	Completed	Temporary anchor mooring only used
	Security checks and re-establish and straighten all datum lines.	Completed	Centre of site targeted No permanent mooring used. GPS fix for site only. MMO licensing not appropriate. As per MMO licensing exemption mooring will be removed every 28 days. New mooring placed on site.
	Recover Surface artefacts as seen and measured in position.	No recoveries	
Re-establish site for 1350BC Bronze Age site	Refresh known information for 2016	None completed	All areas
	Straighten lines Identify new and old positions	None Completed	Assess work necessary for 2017 season. Check site for security.
	Refresh known information for 2016	None No recoveries	All areas
Salcombe Bronze Age A (Moor Sand) Check previous lines and positions	Security checks only	No Recoveries	
	View to re-visit all areas 2017	Not possible	Work was prevented due to re-appraisal of allowed time after delays in dates of license re-issue.
17th Century Cannon Site	Field work centred on main axis area where gullies and lines meet.	Limited work only.	Continue work from Arc View generated sea bed maps



South West Maritime Archaeological Group  
Salcombe/Moor Sand Sites : 2016 End of Season Report

Objective	Activities	Status	Notes
Seabed mobility survey	Identify key datum	Not started	Objective is to continue to identify seabed movement and determine any potential areas of instability.
	Datum to seabed measurement	Not started	
Search	Area to the North West	Not started	Lack of season time on site
	Direct line search to Moor Sand	Not started	
Survey	Define areas to be surveyed	Open	
Accurately geo-reference the site	Fix real world locations for pre-determined datum and report to SWMAG	Open Not started	Endeavour to identify extent of site

**Additional Notes:**

The 2017 site field work plan is to re-explore and check previous areas of both Bronze Age 1350BC Bronze Age site and the 17<sup>th</sup> Century Cannon site. To identify the extent of these areas and also to re-examine the areas of previous artefact recoveries. Apart from previous years recoveries which were from E gully no further investigative work had been completed. Consideration has been given to the possibility that there may be overlapping issues into this area from the 17th Century site. 2017 should provide that completion.

As previous surveys and searches concentrated on gully valley areas work in 2017 will endeavour to link reef plateau areas that are between the gullies. These are difficult areas to survey and search as they lie in the tidal run. These areas are quite extensive

SWMAG will use the underwater Survey Plans produced by the ADU and Wessex to plan out the search areas. Our priority here is determined in conjunction with archaeologist and the British Museum.

**3.2.2 Artefact finds 2016**

No artefacts were recovered during the 2016 season, however we should consider that this year is the 21<sup>st</sup> anniversary of working on the Salcombe / Moor Sand sites and the team have raised some 936 artefacts virtually all of which are all now at the British Museum.

**3.2.3 Operational Field Work**

Survey and sea bed recovery on the 17th Century cannon site was planned throughout the season.

The 2016 season period was reduced in time. The license was normally renewed in January of each year for the past 20 years. This year permission to dive **was not issued until 4<sup>th</sup> May 2016**. This resulted in 3 pre-planned site visits for field work being cancelled

Owing to very inclement weather, high winds, particularly at weekends when our pre-planned site visits were to be made, our seasonal planned work had to be cancelled and carried forward to 2017.

During the dives which were able to take place only observation of the seabed took place. It was noted a great deal of seabed scouring had taken place during the winter. Both Cannons and Anchors were heavily underscored exposing much material. Some deterioration of these objects was observed.

This has been recorded for our site records.

Evaluation of this will be made in 2017.



## South West Maritime Archaeological Group

### Salcombe/Moor Sand Sites : 2016 End of Season Report

During 2016 monitoring and security visits were made to both Salcombe A (17<sup>th</sup> c. Cannon) and Salcombe B (1350-1100BC) sites. No recoveries were made as the 2016 season was designed to concentrate on the 17th Century site and other visits for 2016 were to monitor previous years' work

It is planned to return to both Bronze Age sites in 2017 and in particular the area for 1350 BC.

SWMAG may have also identified an area of particular interest which may be directly related to both protected sites. This could be an extension to the site or a debris trail. This area near Gammon Head is to be extensively inspected. This could lead to a request for an extension of the designation area.

Planned 2016 work (uncompleted) has been transferred to the 2017 season with anticipated hope for early season start program

Field work continued and is ongoing in terms of magnetometer survey and is providing valuable information that can be used in 2017.

#### 3.2.4 Magnetometer Survey 2016

Magnetometer surveys have been carried out during this 2016 dive season, but we are developing plans for further work to be carried out during the late 2017 months and early 2018.

Our equipment (magnetometers) has been refurbished and is ready to resume work. We are reviewing the costs of replacing our magnetometers with new but are having to be realistic with costs to enable this

Example of the Magnetometer data and analysis provided. The team propose re-checking these 'hits' and then spot dive to see if they correlate to the main sites. Examination of results would then be able to conclude whether they are relevant.

It is considered that during 2017/18 the Magnetometer survey will extend as far as Prawle Point and include Elender Cove (Wreck of Clipper Lalla Rookh) and to the head where HMS Crocodile and De Boot were lost. There are stories of an ancient shipwreck being found towards Prawle Point (being investigated by unknowns). This we are trying to find out more information on. Whilst outside of the protected area it is unknown if it is associated or not.

Offsite, thoughts are that possibly the protected 17th Century site may be drifted off sections of De Boot or it may be part of the loss of the 17th Century story of the Spanish Vessels not so far found.

Stenuit, Dean and Crocker all searched many years ago for these exact sites but produced no more evidence than that already known. Examples of the Magnetometer data and analysis are shown below;

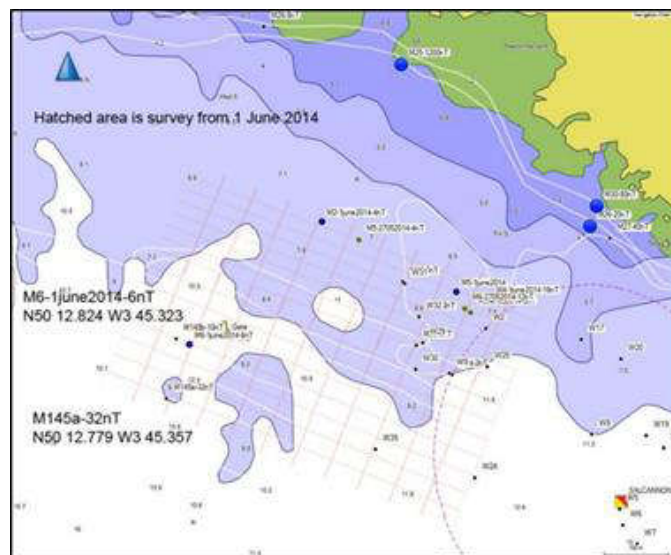


Figure 3 - Magnetometer Anomalies

[10]



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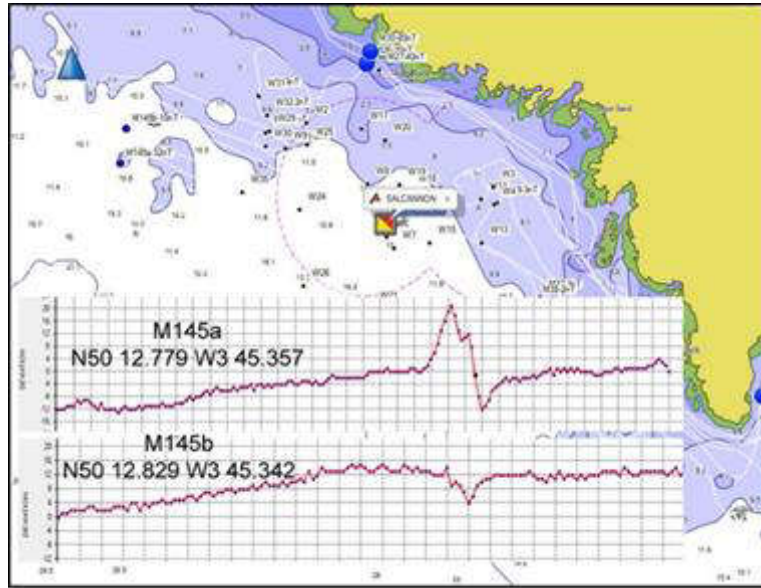


Figure 4 - Magnetometer Tracks 2015

3.2.5 Magnetometer Survey 2017 (proposed)

This work was still in progress during 2016 and will be carried on into 2017.

Area of Interest will again be ADUWessex Ref. W21

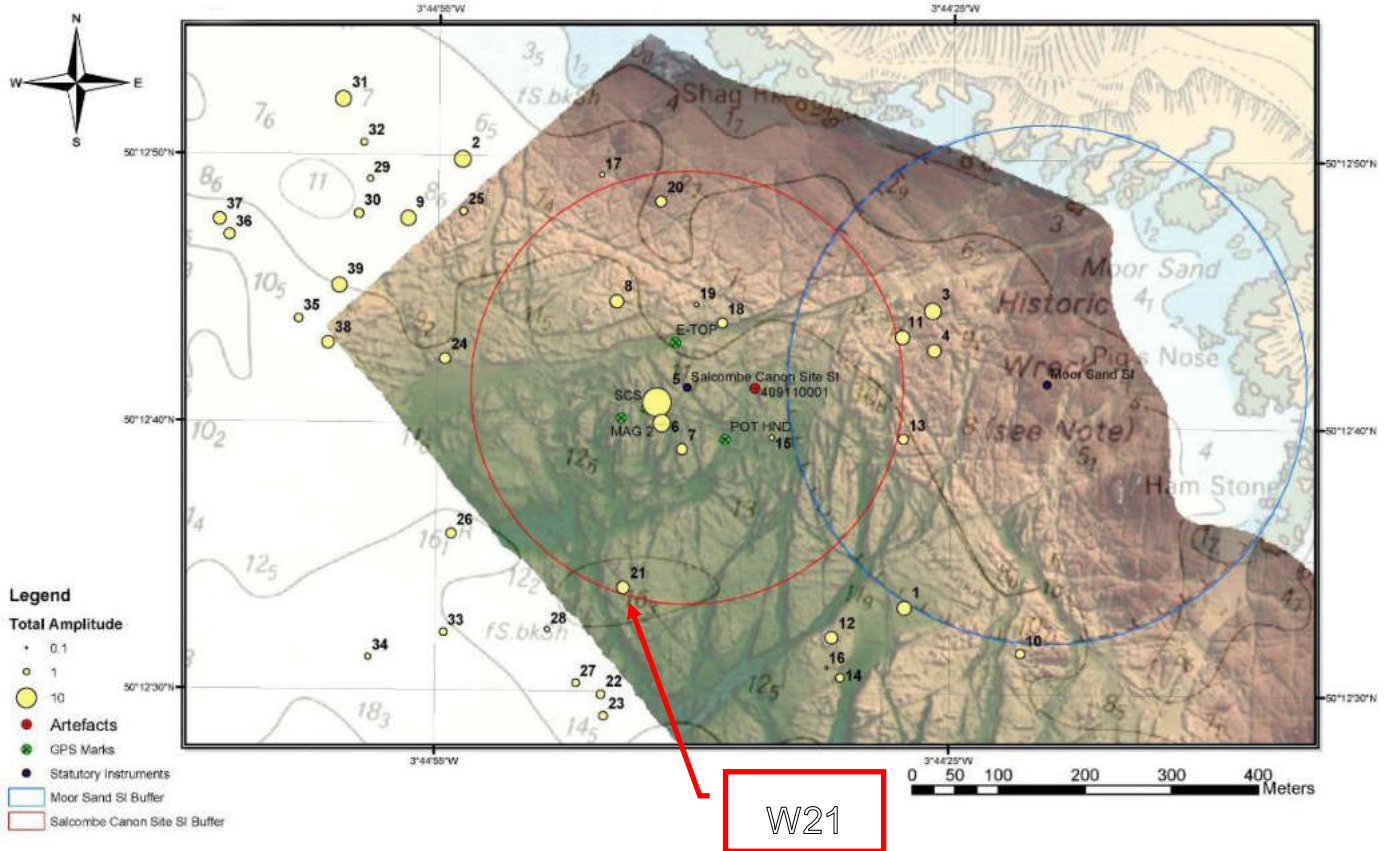


Figure 5 – Salcombe / Moor Sand Magnetometer - W21 Location



### 3.2.6 Salcombe 17th Century Site

Field work, whilst limited, this year concentrated on the central area of the 17th Century site, no recoveries were made and visibility was not very good. Typical visibility conditions are shown below in Figs. 5 & 6.



Figure 6 - Salcombe Cannon



Figure 7 - Underwater Visibility



### 3.3 Off-site work

#### 3.3.1 Terrestrial Work

SWMAG continues to enjoy close co-operation from the British Museum and Historic England as well as Local History Societies.

With Ben Roberts now at Durham University we continuously liaise and exchange information and gather opinions regarding the sites.

This metallurgical analysis and examination has now been completed by the BM, see Section 6.3.1.

The aim was to date and correlate to those tin ingots recovered and located at Moor Sand and Salcombe. This will prove localised trade along the south coast of Devon. Comparisons can then be made to terrestrial tin ingot recoveries from Dartmoor, Cornwall and inland Devon.

As reported previously, Tin bearing Ore Load has been seen at Deckler's Cliff plus Copper further up the cliff face.

##### a) British Museum – Letter of Support

Before issuing the site licence for this year Historic England raised the issue of requiring reassurances from the British Museum that they were willing to continue supporting SWMAG projects.

There was already a document to this effect from the BM which clearly stated this support and was not time limited, but HE considered that this was no longer sufficient and an updated confirmation was needed. The BM has now provided a new document stating their continued support of SWMAG projects on the 'Salcombe Cannon Site' and the 'Moor Sand Site' (see Appendix I).

##### b) Local Society Co-operation for Research

SWMAG has developed close relationships with local communities and interested parties. Through use of lectures, these 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 2017

#### 3.3.2 Museum Liaison

The team continues to be in close liaison with two major museums this year, British Museum and the Plymouth City Museum & Art Gallery, and Ben Roberts at Durham University.

#### 3.3.3 Durham University

Liaison continues to be developed with Ben Roberts (Ex British Museum) who is now the Head of Department at Durham University for Pre History. This is for research and opinion for the Bronze Age sites, find identifications, and new comparative findings.

Durham University has a tremendous record of Bronze Age research and it is considered that Salcombe Bronze Age sites will continue to benefit from the on-going relationships.

#### 3.3.4 Development of replicas of artefacts using 3D scanning and rapid prototype methods

SWMAG have previously used 3D scanning techniques and 'lost wax casting process' to create replicas of Palstave Axe Head Artefact Ref. 200409050011 to support our outreach presentations, and donated one to the Salcombe Maritime Museum for the public to gain 'hands on experience'. (See SWMAG End of Season Reports 2004 Section 3.3.2 & 2006 Section 4.4). Costs were very high and self-funded by the team.



To extend our outreach artefacts it was agreed that the team would investigate the latest high resolution 3D scanning techniques and rapid prototype methods to create replicas of the Clay Pipe Artefact Ref. 199908290001 Again costs would be self-funded by the team.

Aims of the project;

- The clay pipe was very fragile and a non- contact method of creating replicas was essential in order to capture the extraordinarily high quality and fine detail of the ornate and decorative features and to ensure that no damage occurred during the process.  
**NOTE:** The pipe was delivered and accompanied at all times during the scanning process to ensure that it was handled with due care and attention at all times!  
The 3D high-res scan to give us a full size 'watertight' 3D cad model which we could then use to have replicas made by another company after the scanning is complete and the data processed.
- Similar data captures of previous artefacts have been made in past years by SWMAG and it is hoped this data can be transferred into replica artefacts. Costs of each data collection was in the region of £ 600.00.
- A small quantity of high quality replicas is to be made in order to support outreach presentations by the team and would be made available to historical societies, schools, conferences, museums etc. These would be full size and in a robust material suitable for handling by the general public at presentations etc.
- Make the scan model available for visualisation review in the public domain.

#### i) High resolution 3D Scanning

A number of companies were contacted with our requirements and we selected 3D Scanners UK Ltd, Coventry based on their ability to create the very high-res scanning capability, data processing for a 'watertight' 3D model and agreement that the Clay Pipe would be hand delivered and accompanied throughout the process. Figures below show the scanning in process and the final 'watertight' model.





Figure 8 - Engineer using the GOM Atmos Triplescan Unit



Figure 9 - 3D 'Watertight' Scanned Model of Clay Pipe

**ii) Clay Pipe Artefact Ref. 199908290001 – Rapid Prototype Replicas**

Bournemouth University (BU) supported SWMAG's request for creating the rapid prototype replicas and we now have two replicas available for both of our main outreach areas in the South West and East Midlands.

**iii) Clay Pipe Artefact Ref. 199908290001 – Visualisation Review**

A short video showing a 360 deg. visual of the Clay Pipe has been made publicly available.  
Link(s) to visual:

- <https://vimeo.com/195466496>

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or;

- <https://www.youtube.com/watch?v=7J3fgfb-2s0>



## 4 Contact with the Nominated Archaeologist and Other Parties

The Moor Sand team and SWMAG maintained close contact with our Nominated Archaeologist and other parties. Communications during the 2016 season are summarised below.

### 4.1 Salcombe/Moor Sand Communications

	Phone Calls	E-mails	Meetings
Nominated Archaeologist	8	8	2
English Heritage	6	10	-
British Museum	14	14	1
Royal Albert Memorial Museum	-	-	-
University of Oxford	-	-	-
Plymouth City Museum & Art Gallery	-	-	-
Receiver of Wreck	4	4	-
Durham University	4	4	-
Pewter's Society	-	-	-

## 5 Illegal Diving

No illegal diving has been noticed on either site although location identification is hampered by the site not being permanently buoyed. See comments reference MMO regulations plus interest from Trinity House requesting information regarding the buoying of the site.



## 6 Media/Museum/Outreach

### 6.1 Media

The team website, <http://swmag.org> has been further improved this year and is continuously accessed by others for research.

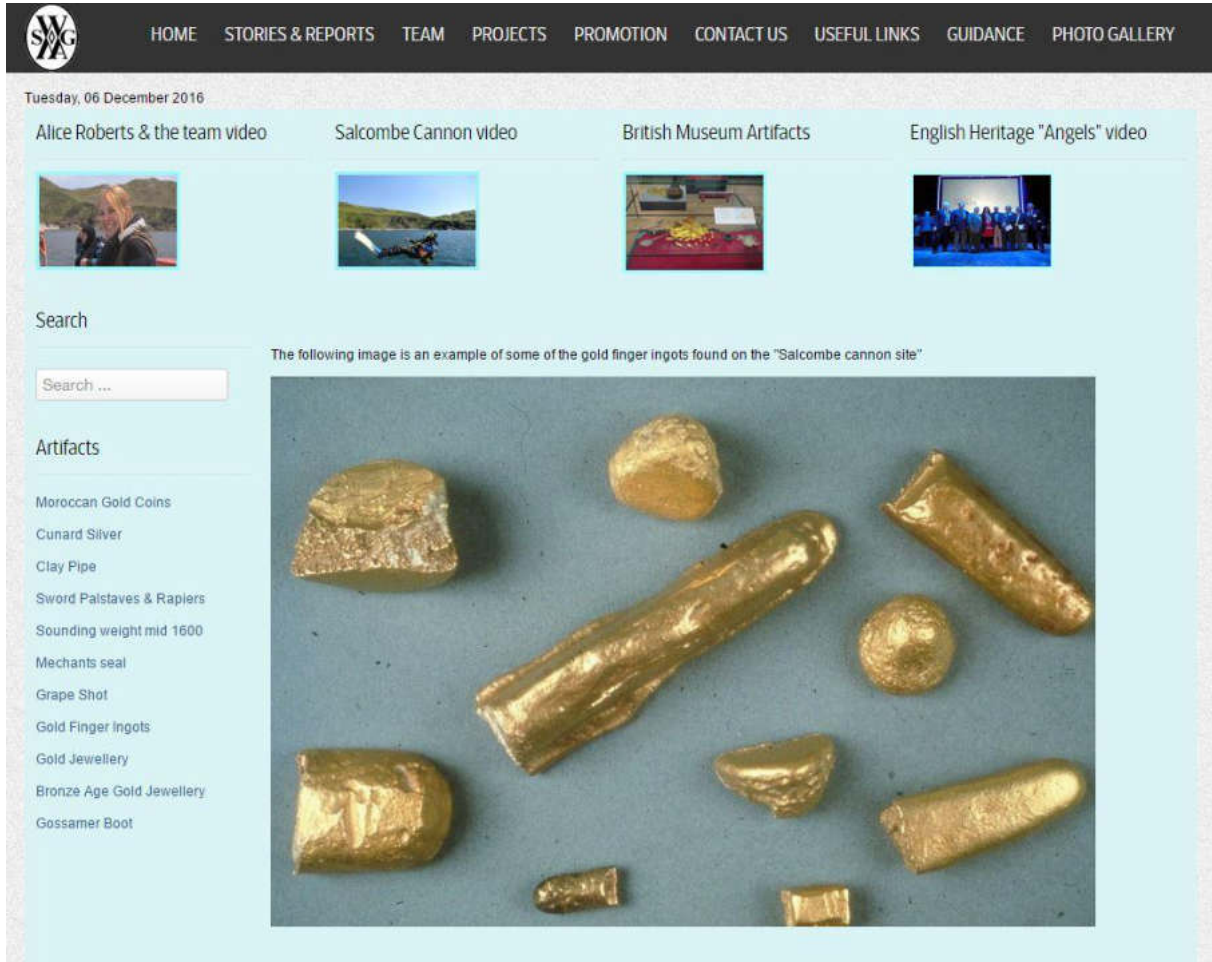
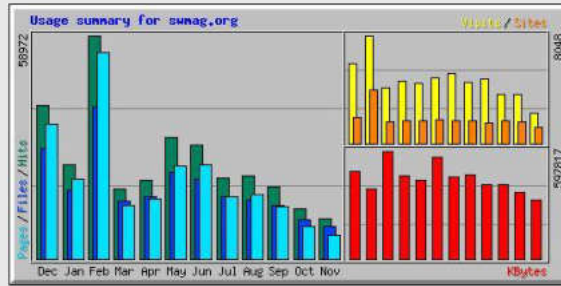


Figure 10 - SWMAG Web Site (typ. page)

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Salcombe/Moor Sand Sites : 2016 End of Season Report

**Usage Statistics for swmag.org**

Summary by Month  
Generated 20-Nov-2016 13:32 GMT



Month	Daily Avg					Monthly Totals				
	Hits	Files	Pages	Visits	Sites	KBytes	Visits	Pages	Files	Hits
Nov 2016	535	432	310	113	1185	326091	2279	6209	8649	10714
Oct 2016	427	337	280	116	1613	368772	3620	8681	10447	13243
Sep 2016	629	471	460	121	1652	411720	3657	13806	14134	18887
Aug 2016	709	504	546	153	1559	412114	4769	16940	15636	21985
Jul 2016	685	530	530	147	1649	466936	4572	16439	16459	21243
Jun 2016	1000	702	830	174	1724	456959	5230	24909	21074	30014
May 2016	1039	738	791	158	1729	566910	4922	24544	22908	32224
Apr 2016	691	547	523	150	1668	437956	4514	15705	16428	20746
Mar 2016	596	489	451	149	1708	458596	4637	13996	15163	18501
Feb 2016	2033	1386	1873	142	1589	597817	4141	54325	40194	58972
Jan 2016	797	589	677	259	3955	388168	8048	20988	18264	24709
Dec 2015	1303	939	1145	191	1901	487309	5942	35524	29123	40403
<b>Totals</b>						<b>5379348</b>	<b>56331</b>	<b>252066</b>	<b>228479</b>	<b>311641</b>

Generated by [Webalizer Version 2.23](#)

**Figure 11 - SWMAG Web Site - Traffic Results 2016**

Other media as follows;

Ref	Media - Internet	Details
1	South West Maritime Archaeological Group web site	The web site continues to be a valuable resource to visitors for updates and information on the group's activities. e.g. 13,243 hits in October 2016
2	British Museum Collections Database	Collections online database 'Compass' by the British Museum currently lists;  <b>Salcombe Bronze:</b> 390 artefacts related to the Salcombe/Moor Sand Bronze Age sites, use the following link to view the images and details of the artefacts; <a href="http://www.britishmuseum.org/research/collection_online/search.aspx?searchText=South+West+Maritime+Archaeological+Group">http://www.britishmuseum.org/research/collection_online/search.aspx?searchText=South+West+Maritime+Archaeological+Group</a>  <b>Salcombe Cannon:</b> 546 artefacts related to the 17th Century cannon site, use the following link to view the images and details of the artefacts; <ul style="list-style-type: none"><li><a href="http://www.britishmuseum.org/research/collection_online/search.aspx?searchText=Salcombe+Cannon">http://www.britishmuseum.org/research/collection_online/search.aspx?searchText=Salcombe+Cannon</a></li></ul> Note: Use the above links with the 'advanced search' facility to



South West Maritime Archaeological Group  
Salcombe/Moor Sand Sites : 2016 End of Season Report

Ref	Media - Internet	Details
		search within the results.
3	Clay Pipe Case Study	Link to Clay Pipe case study: <ul style="list-style-type: none"><li>• <a href="http://3dscanners.co.uk/wp-content/uploads/2016/02/clay-pipe-compressed.pdf">http://3dscanners.co.uk/wp-content/uploads/2016/02/clay-pipe-compressed.pdf</a></li></ul>
4	Clay Pipe 3D Scan 360 deg. Visualisation	Link(s) to 3D scan image visualisation of Clay Pipe: <ul style="list-style-type: none"><li>• <a href="https://vimeo.com/195466496">https://vimeo.com/195466496</a></li></ul> or; <ul style="list-style-type: none"><li>• <a href="https://www.youtube.com/watch?v=7J3fgfb-2s0">https://www.youtube.com/watch?v=7J3fgfb-2s0</a></li></ul>

[20]



**South West Maritime Archaeological Group**  
*'History from the Sea'*



## 6.2 Museums with SWMAG Artefacts on Display

Artefacts found by SWMAG are currently on display in two national museums as follows;

### 6.2.1 British Museum - The 'Citi Money Gallery, Room 68, British Museum'

This gallery was fully refurbished in 2012 and displays the history of money around the world. SWMAG artefacts are featured in two of the display cases.

- a) Salcombe / Moor Sand Bronze Age artefacts  
Representing pre-monetary trade, these are in the early prehistory case and feature the 'Leaf Sword', two copper bun ingots and two tin ingots. This represents Europe about 2000-800 BC when trade and exchange of goods took place over long and short distances.
- b) Salcombe 17th Century Cannon Site artefacts  
This display shows a selection of gold coins, fragments of jewellery as well as a fish shaped sounding lead, musket balls, a spoon and shards of pottery and glass. All finds from the 17th Century cannon site.

### 6.2.2 British Museum – 'Hoards: the hidden history of ancient Britain'



This exhibition (Room 69a) 3<sup>rd</sup> Dec. 2015 to 22<sup>nd</sup> May 2016, gives an introduction to hoarding in prehistoric and Roman Britain and features artefacts from the Salcombe B / Moor Sand Bronze Age site.

Three ingots from Salcombe B / Moor Sand Bronze Age wreck sites are on display as part of this (BM Ref. No's: 2010, 8032.296; 2010, 8032.159; 2010, 8032.97).

**Figure 12 - Copper 'Bun' Ingots: British Museum - Room 69a**

© Neil Wilkin British Museum

### 6.2.3 Plymouth City Museum and Art Gallery

Artefacts (on long term loan from the British Museum) from the Salcombe B / Moor Sand sites continue to be displayed in the 'Uncovered Gallery', Plymouth City Museum & Art Gallery. This exhibition has been very successful and is now in its fifth year of display.



*"When did people first arrive in the Plymouth area and what did they do when they got here? Uncovered, the new permanent gallery at the Plymouth City Museum and Art Gallery, contains hundreds of artefacts discovered in the local area such as skulls, domestic items, porcelain, pottery, urns, ingots, axes and coins".*

The gallery spans a time period that stretches from prehistoric times through to the present. The British Museum has lent items from the Salcombe Treasure to help tell this story.

**Figure 13 - Twisted gold torc from the Sa'dian dynasty**

(Morocco 16th-17th Century AD)

## 6.3 Publications

### 6.3.1 Moor Sand / Erme Estuary Tin Ingots

'Tin ingots from a probable Bronze Age shipwreck off the coast of Salcombe, Devon: Composition and microstructure'

**Abstract:**

The seabed site of a probable Bronze Age shipwreck off the coast of Salcombe in south-west England was explored between 1977 and 2013. Nearly 400 objects including copper and tin ingots, bronze artefacts/fragments and gold ornaments were found. The Salcombe tin ingots provided a wonderful opportunity for the technical study of prehistoric tin, which has been scarce. The chemical compositions of all the tin ingots were analysed using inductively coupled plasma mass spectrometry (ICP-MS) and inductively coupled plasma atomic emission spectroscopy (ICP-AES). Following the compositional analysis, microstructural study was carried out on eight Salcombe ingots selected to cover those with different sizes, shapes and variable impurity levels and also on the two Erme Estuary ingots using metallography and scanning electron microscopy coupled with energy dispersive X-ray spectrometry (SEM-EDS). An extensive overview of archaeological tin in Europe is also provided.

All the Salcombe tin ingots analysed appeared to be quite pure with little variation in composition between them. Only two samples were found to contain over 0.1% iron and one contains over 0.1% copper. The compositions of the Salcombe tin ingots have been compared to the very few compositional analyses of tin objects found elsewhere such as the Late Bronze Age shipwreck of Uluburun but do not seem to have any connection between them. Further studies including lead and tin isotope analysis are needed to answer the question of provenance of the tin ingots, so as to contribute to the study of metal trading.

Wang, Quanyu, Stanislav Strekopytov, Benjamin W. Roberts and Neil Wilkin

**Journal Name:** Journal of Archaeological Science, Volume 67, Pages 1-92

**Publication Date:** Mar 1, 2016

Link:

- <http://www.sciencedirect.com/science/article/pii/S0305440316000273>

### 6.3.2 Salcombe Cannon Site

Publication is progressing very slowly on the 17th Century Salcombe Cannon Site, supported by Alan Aberg, Society for Nautical Research (SRN) and for which SWMAG received a donation of £600.00 towards artefact drawings and photographs.

A lot of material had been prepared in draft form by the various experts at the British Museum and Peter Davey of the National Pipe Archive on the baroque clay pipe etc. but we still await draft details for review.

Jim Tyson & Dave Parham have been liaising with JD Hill, Head of Research at British Museum, to review availability of the material they have so far, but the BM has not released any of the material to date.

However, the support and interest by the British Museum seems to have declined and it is now uncertain that they will take part in the publication. In this event SWMAG will use its own material to publish the shipwreck without the scientific background.

Provisional dates; not available at present.



### **6.3.3 2016 Publications which include SWMAG projects**

No further publications including SWMAG current and previous projects have been identified this year.

However, as a result of the work with 3D Scanners (UK) Ltd (see section 3.3.4) a case study on the Clay Pipe Artefact Ref' 199908290001 is available.

Link to case study

- <http://3dscanners.co.uk/wp-content/uploads/2016/02/clay-pipe-compressed.pdf>



## 7 Presentations/Outreach

### 7.1 SWMAG presentations 2015/16

SWMAG team members continue to make presentations to various groups and societies in and around venues in the South West and East Midlands regions.

Event	Date	Details
Totnes Ladies Probus Group	4 <sup>th</sup> Nov. 2015	Diving into History...The Salcombe Bronze Age Wrecks by Ron Howell
Strete Social Club	10 <sup>th</sup> Nov. 2015	'Treasure from Under the Sea' by Ron Howell
Brixham Royal Naval Assn. Charity Night	4 <sup>th</sup> Dec. 2015	'Treasure from Under the Sea' by Ron Howell
Topsham Society	18 <sup>th</sup> Feb. 2016	'To Sail no More...The Lord Napier' by Ron Howell
Brixham Probus Group	25 <sup>th</sup> Feb. 2016	'The Silver Pit' by Ron Howell
Paignton Probus Group	2 <sup>nd</sup> March 2016	'To Sail no More...The Lord Napier' by Ron Howell
Clipston, Northamptonshire WI	8 <sup>th</sup> March 2016	'Salcombe Wrecks: 1995 - 2015' by Jim Tyson
Torquay Probus Group	10 <sup>th</sup> March 2016	'The Silver Pit' by Ron Howell
Stoke Fleming Probus Group'	27 <sup>th</sup> April 2016	'The Gold Wreck' by Ron Howell
Bournemouth University Marine Archaeology Students	13 <sup>th</sup> May 2016	'3000 Years of History from the Sea' by Ron Howell
Wembury WI	18 <sup>th</sup> May 2016	'3000 Years of History from the Sea' by Ron Howell
Churston WI	1 <sup>st</sup> June 2016	'3000 Years of History from the Sea' by Ron Howell
Dartmouth WI	9 <sup>th</sup> June 2016	'3000 Years of History from the Sea' by Ron Howell
Chickerell & District Townswomen's Guild	19 <sup>th</sup> July 2016	'The Silver Pit' by Ron Howell
Yealmpton and Modbury Probus Group	16 <sup>th</sup> Aug. 2016	'3000 Years of History from the Sea' by Ron Howell
Lympstone U3A Group	7 <sup>th</sup> Oct. 2016	'3000 Years of History from the Sea' by Ron Howell
Newton Ferrers Probus Group	11 <sup>th</sup> Oct. 2016	'The Silver Pit' by Ron Howell



South West Maritime Archaeological Group  
Salcombe/Moor Sand Sites : 2016 End of Season Report

Event	Date	Details
The Devonshire Association East Devon Group	14 <sup>th</sup> Oct. 2016	'3000 Years of History from the Sea' by Ron Howell
Teignmouth NCI	10 <sup>th</sup> Nov. 2016	'3000 Years of History from the Sea' by Ron Howell
Dawlish Warren Probus Group	14 <sup>th</sup> Nov. 2016	'3000 Years of History from the Sea' by Ron Howell
Devonshire Association, Axe Valley Branch	16 <sup>th</sup> Nov. 2016	'3000 Years of History from the Sea' by Ron Howell
Royal Dart Yacht Club, Kingswear	23 <sup>rd</sup> Nov. 2016	'3000 Years of History from the Sea' by Ron Howell
<p><b>2016 Donations:</b></p> <p>a) Southwest Presentations: Monies raised as a result of the talks to 'Brixham Royal Naval Association' and the 'Probus Group of Newton Ferrers' was £90.00 and donated to the Rowcroft Hospice.</p> <p>b) East Midlands Presentations: Monies raised were donated to Arthritis Research UK</p>		

## 7.2 Outreach

**Local Community:** SWMAG had a full static display at the Strete Village day on the 6th August 2016 and collections made at the display were included in the overall village donation to Rowcroft Hospice.

[25]



**South West Maritime Archaeological Group**  
*'History from the Sea'*

## 8 Potential for Further Work

### 8.1 Fieldwork

The farmer of the land behind the Salcombe/Moor Sand sites, Mr Tucker, is willing for the team to carry out field walking during 'out of season' periods. This could prove very interesting and lead to a better understanding and perhaps provide evidence as to why there seems to be multiple period wrecks in the adjacent waters.

This field work is planned for 2017 in conjunction with onsite work.

### 8.2 Outreach

During 2017 SWMAG will continue to;

- i. Make presentations to various groups and societies in and around venues in the South West and East Midlands regions.
- ii. Show displays of our work at national conferences.
- iii. Respond to all inquiries generated from our web site for research and information.
- iv. We are in still in ongoing discussions with the 'Garra Rock Hotel' on the possibility of providing an 'Archaeological Day' with talks and displays by SWMAG and local land archaeologists and other interested parties.

### 8.3 Desk Based Artefact Review

SWMAG will continue with reviewing artefacts from both the 17<sup>th</sup> Century and Bronze Age sites.



## 9 Conclusions

2016 season was given a poor start. The start was delayed by 3 months with the non-renewal of licenses owing to Historic England requiring more confirmation documentation from the British Museum. Agreements that were already in place and on record and valid.

It was then decided, by HE, that it was necessary to request the British Museum to re-assert their position in respect of artefacts and that they still wished to acquire them.

This they have done and made the note that this is applicable for the next 5 years.

The British Museum is carrying out extensive research into Salcombe Bronze Age and looks forward with SWMAG to providing more historical evidence.

These fresh documents are deposited at Historic England.

It is now hoped that this provides a stable position for continued work on site without future delays

The Bronze Age sites during 2016 were only inspected for stability and security and the team concentrated on revisiting the original 17th Century site. This was initially to inspect and re survey the site verifying our previous data and for records. We wished to combine this with further recent off site research knowledge gained over the interim period to see if the extremities and identification of the site could finally be made.

Whilst identification (of previous season's recoveries) has still not been made it can be concluded that much more field work is necessary and can be deemed as ongoing. Photographs and drawings are currently being done for the sites official archive. Transfer to the British Museum can then be made.

Two separate areas of interest have been established in conjunction with spot dives and analysis of SWMAG/ADU Bathymetric Survey. This will be examined during 2017. Also to be investigated is the possibility of either it being a new site or that of a debris trail. This is slightly off the designated area but close enough to be considered as associated.

The three Bronze Age areas (differing by date and referred to in the report) have been subject to intense desk based discussions and assessments and the team will resume field work in 2017. Areas of interest for the Bronze Age sites are not only the continuing development of the known sites, but the sea bed areas between.

It was interesting to have the initial feedback from Ben Roberts and Neil Wilkins on the British Museums analysis of the age differences of the Erme Estuary Ingot recoveries and the Salcombe Tin Ingot recoveries. The British Museum is particularly enthusiastic regarding the interaction of communities with continental trade.

As always it was a very successful year again with Outreach. Successful with institutions and researchers accessing our data base and web pages for material. Not only did this research come from the UK but countries far afield such as America and Europe.

SWMAG and the Salcombe sites look forward to a successful 2017 season

2016 has proven a very difficult season throughout the whole southern coastline especially on exposed areas of coastline with weather being the deciding factor added to the fact of licence renewal dates restricting the diving season.

### Media Outreach

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

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.

The unveiling of the interpretation plaque by the local MP in 2014 has continued to raise the awareness in the area of the importance of the Salcombe sites.

[27]



South West Maritime Archaeological Group

Salcombe/Moor Sand Sites : 2016 End of Season Report

General public outreach has also been greatly improved this year by Salcombe/Moor Sand finds continuing to be on display in two major museums with SWMAG credit being given for the recoveries.

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.





## Acknowledgements

The team would like to extend its grateful thanks to all the people and organisations that have supported us, in many ways, through all the years.

The following list is by no means comprehensive, or in any particular order, and we apologise to anyone we may have missed;

Alison James	Historic England
Ben Roberts	Durham University
Stuart Needham	British Museum
Alison Kentuck	Receiver of Wreck
Alan Aberg	Society for Nautical Research
Coastwatch Team	Coastwatch Team Prawle Point
Coast Guard Team	Falmouth
Neil Wilkins	British Museum
Ian Oxley	English Heritage
Mark Dunkley	English Heritage
Fiona Pitt	Plymouth Museum
Dan Fox	3D Scanners (UK) Ltd
Tom Cousins	Bournemouth University

We would also like to make a special thanks to our archaeologist Dave Parham for all the good work and time that he gives the team together with the services of Bournemouth University.



## Appendix I                      **British Museum - Letter of Support**

The British  
Museum

Great Russell Street  
London WC1B 3DG  
britishmuseum.org

**Letter of support for Investigations on the Salcombe 'B' Bronze Age seabed assemblage by the South-West Maritime Archaeology Group for the period: April 2016 to April 2021**

**8<sup>th</sup> April 2016**

To whom it may concern,

Please accept this letter as confirmation of support for the project to conduct appropriate archaeological exploration of the Bronze Age concentration of finds known as 'Salcombe B', found by the South West Maritime Archaeology Group in 2004. The definition of this concentration of Bronze Age finds is understood to be that given in S. Needham, D. Parham, and C.J. Frieman, *Claimed by the Sea: Salcombe, Langdon Bay, and other marine finds of the Bronze Age* (2013). Acquisition of all the finds and the site archive by the British Museum is agreed by all interested parties and is facilitated by the Receiver of Wreck through her jurisdiction over material salvaged from the seabed, dependant on available funds and storage facilities. British Museum acquisition would permit appropriate loans of the material for display in the region of discovery.

The terms of the British Museum's current acquisition policy states that acquisitions that are valued at over £25,000 must be approved by the British Museum's Acquisition Committee. This threshold is subject to change and the Department of Britain, Europe and Prehistory (or future configurations of the same) cannot, therefore, guarantee that acquisition will be supported for collections or objects that are over and above this threshold. The British Museum will also review whether material that is deemed to be unconnected to the 'Salcombe B' concentration (spatially or chronologically) is appropriate for acquisition. It may be more appropriate, in these circumstances, for a suitable local or regional museum to acquire the objects. The British Museum will offer advice on this arrangement should it arise.

The Bronze Age objects already recovered from the 'Salcombe B' site fully comply with the criteria of the British Museum's Acquisition Strategy to 2020. The assemblage is of international significance, demonstrating the seaway connections between Britain and Europe during prehistory. Indeed, amongst the assemblage is an object of Sicilian origin, the only example of a Mediterranean object of Bronze Age date from the coastal waters of Britain. The public-facing significance of the existing of the 'Salcombe B' material to the Museum's collection has been demonstrated by its display a selection of objects from the site currently on display in the Citi Money Gallery (Gallery 68), the loans of other objects from the site to Plymouth Museum and the inclusion of yet more objects from the site in the temporary exhibition: *Hoards: the hidden history of ancient Britain* (3 December 2015 – 22 May 2016) in Gallery 69a. The research potential of the existing collection is demonstrated by the aforementioned Council for British Archaeology *Claimed by the Sea* volume, the lead author (Stuart Needham) is emeritus curator of the Bronze Age collection at the British Museum. The volume was awarded The Keith Muckelroy Memorial Award 2015 by the

[30]



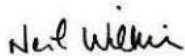
**South West Maritime Archaeological Group**  
*'History from the Sea'*

South West Maritime Archaeological Group  
Salcombe/Moor Sand Sites : 2016 End of Season Report

Nautical Archaeology Society. An ongoing programme of research and publication on the material has included the recent publication of, 'Tin ingots from a probable Bronze Age shipwreck off the coast of Salcombe, Devon: Composition and microstructure', in the *Journal of Archaeological Science* (March 2016) by Quanyu Wang (BM), Stanislav Strekopytov, Benjamin Roberts (ex-BM), and Neil Wilkin (BM). Future discoveries are only likely to contribute to these public and research outputs.

There is no doubt that the work of the South West Maritime Archaeology Group, with support from other bodies (Bournemouth University Department of Archaeology and Historic England), is of the utmost significance for understanding maritime contacts, trade and exchange in Bronze Age Europe (and beyond) and should be commended and supported as much as possible within the restrictions of available funds and space.

Yours sincerely,



Neil C. A. Wilkin, BA, M.Phil, PhD, FSA Scot

Dr. Neil Wilkin  
Curator, European Bronze Age collection  
Department of Britain, Europe & Prehistory  
Tel. (UK +44) 02073238579  
The British Museum  
Great Russell Street, WC1B 3DG

Andy Wagstaff



## Appendix II      **Artefact Numbering System**

### **SWMAG Artefact numbering system:**

All artefacts raised are given a unique record number generated, on the day of the find, as follows;

Artefact Number: YYYYMMDDxxxx (e.g.-201407270001)

Where;

YYYY = year found (e.g. 2014)

MM = month found (e.g. July = 07)

DD = day found (e.g. 27)

xxxx = series number for the items found on that day (e.g. 0001 for the first item etc.)



## Appendix III **Illegal Diving Activities & Security**

The SWMAG security document for 2016 is annually distributed, usually in February. We issue it to the appropriate persons and to others on request.

The closure of Brixham Coastguard resulted in the alteration of security procedures, the site security document was amended and re-issued accordingly.

Security procedures currently have proved to work successfully and SWMAG wish to thank the Prawle National Coastwatch team for their diligence.

## Appendix IV **Salcombe/Moor Sand License**

Participating persons on the Salcombe/Moor Sand license during 2016 were:

Steve Clarkson	Mick Palmer
Dave Dunkley	Rob Dunn*
Trish Dunn*	Dave Parham
Andy Elliott	Jim Tyson
Ron Howell	Mick Kightley
Mike Kingston	Sophie Rennie*
Andy Wagstaff	Julie Williams
Mike Williams	

Note: \* new members in 2016

## Appendix V **South West Maritime Archaeological Group**

South West Maritime Archaeological Group members:

Dave Dunkley	Mick Kightley	Dave Parham	Andy Wagstaff
Andy Elliott	Mike Kingston	Mike Turner	Julie Williams
Ron Howell	Mick Palmer	Jim Tyson	Mike Williams
	Robert Paul Dunn*	Trish Dunn*	Sophie D. Rennie*

\* New members of the South West Maritime Archaeological Group in 2016;

- Robert Paul Dunn  
BSAC Sports Diver, based at Britannia Royal Naval College, Dartmouth. Devon.
- Trish Dunn  
PADI Advanced Diver, based at Britannia Royal Naval College, Dartmouth, Devon.
- Sophie D. Rennie  
BSAC Advanced Diver & National Instructor, based at Dartmouth, Devon.



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