

Protocol for reporting finds of archaeological interest

Annual Report to BMAPA 2009-2010



British Marine Aggregate Producers Association,
The Crown Estate and
English Heritage

Protocol
for
Reporting finds of archaeological interest

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November 2010

prepared by
Wessex Archaeology

Project Background

Every licence area is studied intensively prior to the granting of a licence to dredge in order to protect our submerged heritage. Despite this, it was recognised that artefacts are still likely to be present in dredged loads. In August 2005 Wessex Archaeology (WA) drafted the Protocol, on behalf of English Heritage (EH) and the British Marine Aggregate Producers Association (BMAPA), to protect these finds and the sites of archaeological importance that they may signify. In 2009 The Crown Estate (TCE) joined BMAPA as a funding partner, recognising its role as an efficient and effective mitigation option to preserve our heritage.

BMAPA member companies have committed voluntarily to implement the Protocol across all existing operations, encompassing wharves, vessels and production licence areas. Under the Protocol, finds recognised within dredged loads; at wharves or on the seabed are reported to a Site Champion and then to a designated Nominated Contact who reports it to the curator. To expedite this process a Protocol Implementation Service run by WA was set up and WA is alerted to each new find through the dedicated reporting website of the Protocol Implementation Service. The protocol covers the full range of possible artefacts. Some munitions may be of archaeological interest, such as cannon balls, which being inert are safe to report. However, the reporting of munitions is

subordinate to the appropriate health and safety concerns as detailed in the BMAPA Guidance Note 'Dealing with munitions in marine aggregates'. Artefacts relating to military aircraft are frequently reported and these are considered with regard to an Annex to the Protocol published in February 2008 (both are available online or from WA).

WA is currently conducting some aspects of EH's role through the Protocol Implementation Service, although only where a find is deemed to be non-contentious and is unlikely to result in the creation of an exclusion zone. Finds that require a higher level of curatorial involvement are referred to EH in the first instance. Details of all dredged finds are reported to: EH, BMAPA, TCE; the National Monuments Record (NMR) and the appropriate local Sites and Monuments Record (SMR); Historic Environment Record (HER) and the Finds Liaison Officer for the Portable Antiquities Scheme (PAS). All finds are also publicised on WA's website and the good work done by BMAPA companies with regard to the Protocol is made accessible through various dissemination programmes, conducted both by WA and by other organisations.

The Implementation Service has now completed its fifth year of operation and this annual report covers the period from 1st October 2009 to 30th September 2010.

BMAPA Company	Nominated Contact	Position
Britannia Aggregates Ltd	Richard Fifield	Marine Resources Manager
Brett Aggregates	Richard Fifield	Marine Resources Manager
DEME Building Materials Ltd	Frank Devriese	General Manager
Hanson Aggregates Marine Ltd	Nigel Griffiths	Principal Resources Manager
Kendall Bros (Portsmouth) Ltd	Richard Kendall	Managing Director
Northwood (Fareham) Ltd	Tom Hills	Operations Manager
Lafarge Aggregates Ltd	Malcolm Whittle	Marine Aggregates General Manager
Norwest Sand & Ballast Ltd	Nick Brown	Site Supervisor
CEMEX UK Marine	Graham Singleton and Joe Holcroft	Resource and Systems Manager and Assistant Resource Manager
Tarmac Marine Dredging Ltd	Andrew Bellamy and Simon Lockett	Resources Manager and Resources Co-ordinator
Volker Dredging Ltd	Will Drake	Marine Resources Manager

The First Five Years of the Protocol

The first five years of the Protocol have demonstrated the success of this type of scheme as a mitigatory option.

A total of 205 separate reports have been filed since October 2005 detailing over 784 individual finds. These range in date from the Palaeolithic to the 20th century, with some fossil discoveries that pre-date the Palaeolithic. The material discovered is varied, including peat, flint and prehistoric animal bones, maritime artefacts and material derived from aircraft and domestic debris. Some of these artefacts represent chance finds which, were it not for the work of BMAPA companies, might not have been recovered. Others are indicative of significant sites of archaeological interest worthy of further archaeological investigation. For example, this reporting year several pieces of silverware, identified as belonging to the Earl of Stairs family, were found. These may be associated with a previously identified geophysical anomaly which may indicate a possible shipwreck in Licence Area 254 (see Case Study 1). In past years finds such as these have led to further research, including the 300 pieces of German aircraft found in Area 430 during the 2006-2007 reporting year.

Over the past five years the range and variety of material discovered by BMAPA staff has developed an archive of information about the marine historic environment. This archive is informing archaeological research and the planning of commercial development in specific regions, now and in the future. Details of all finds reported through the Protocol are uploaded to the National Monuments Record and can be found in the reports for the previous four years which are available on WA's website.

WA consults with finds experts, both in-house and from external companies and organisations, to ensure that artefacts are identified accurately and therefore

subsequent action is undertaken to ensure the historical value of each artefact found is recognised (see Case Studies 1 and 2). For example, WA's pottery specialist identified a fragment of pottery, found in Area 107, as part of a Roman mortaria, a vessel for grinding food. This type of vessel has rarely been found through an archaeological investigation on land or sea within this area of Britain, making it an interesting addition to the archaeological record. If it were to lead to the location of a Roman shipwreck, this would be a very important find indeed.

As a mitigatory option the Protocol has proven to be a successful procedure. This has been recognised by other marine industries and WA is currently developing a Protocol Implementation Service for offshore renewables, on behalf of TCE, and possibilities for other industries are also being investigated. The combined protocols will lead to a better overall understanding of the heritage of our British coastal waters.

The example established by the BMAPA Marine Aggregates Protocol over the past five years has demonstrated that such protocols are effective, following appropriate environmental impact assessment, in acting as a safety net to protect our marine heritage, discharging licensing conditions and demonstrating best practice by all parties involved. As the Protocol enters its sixth year we are confident that it will continue to add benefit to both public and professional audiences, and industry staff are highly commended for their dedication and enthusiasm, which is evident from the high level of reporting.

Further information about the Protocol and the Implementation Service can be found at:

<http://www.wessexarch.co.uk/projects/marine/bmapa/index.html>

Or by internet searching 'BMAPA Protocol'.



Raising awareness

Raising Awareness

WA operates an Awareness Programme to ensure that industry staff are aware of all aspects of the Protocol and to encourage its use. This has received three phases of funding from EH through the Aggregate Levy Sustainability Fund (ALSF), the most recent of which supports the Awareness Programme from 2009 to 2011.

The 2009 - 2011 Programme consists of:

- Visits to wharves receiving aggregate from BMAPA companies, including those in Wales and on the continent;
- Visits to geophysical and environmental survey companies that service the industry;
- Two seminars for Nominated Contacts and staff in related marine industries including heritage professionals. The first was undertaken in October 2009 and the second was in October 2010;
- Five new issues of the popular 'Dredged Up' Newsletter continuing on from the previous programme's three issues. The aim of this bi-annual publication is to publicise the service and highlight recent finds. Thus far seven issues have been published and an eighth is forthcoming in Spring 2011.

Visits to Wharves and Vessels

Visits to wharves and vessels were deemed crucial to provide staff with the knowledge and confidence to recognise and report archaeological material amongst dredged loads. Since April 2009 WA staff have undertaken 26 visits to wharves and 2 visits to survey companies. These visits will continue on a 'drip-feed' basis until the 2009-2011 funding programme ends.

Whilst visits to ships have proved difficult to organise they have all been sent an Awareness pack to keep them informed of what to look out for. This includes a DVD presentation, which can be shown to the vessel's crew, particularly new members.

As outlined in detail in the 2008-2009 Protocol report, the visits utilise a combination of formal and informal techniques, including presentations, artefact handling sessions, group discussions and one-to-one discussion, as appropriate to the circumstances and facilities. Priority for visits is given to those wharves that have not had an Awareness visit recently as it is understood that WA may need to reinforce the message from previous visits and provide further information and guidance, and it is likely that new staff will have joined the company since previous visits. The visits have proved successful, often highlighting or clarifying any issues BMAPA staff have with the Protocol, leading to direct improvements in the programme, such as revised guidance, as well as providing the opportunity to distribute new resources, for example photographic scaled templates.

Many continental wharfs receive aggregate material from British waters. To ensure that they are aware of the Protocol and their responsibilities to report artefacts found in these waters EH provided additional funding this year to extend the Awareness programme to the continent. This involved a week-long trip visiting 7 wharves in Holland and Belgium and the translation of the Awareness pack into Dutch and French, for distribution to wharves and ships. The trip provided opportunities to meet with wharf managers, some of whom were unaware of the existence of the Protocol, but all found the Protocol of interest. The visits also highlighted the issue of automated systems at wharves, which is examined further in the Discussion section of this report. It is important that this successful initial contact is followed up to encourage continental counterparts to report any finds. While the Awareness programme continues WA intends to email digital copies of 'Dredged Up' to continental contacts as a way to maintain a line of communication, and would recommend that any further awareness programmes continue to target continental wharves.

Visits to the wharves continue to highlight how vital the Awareness programme is to the successful operation of the Protocol, as without these visits the lines of communication will deteriorate over time.

If you would like to arrange an Awareness visit, or would like to receive more advice on finds and finds reporting, please contact WA via protocol@wessexarch.co.uk. You can also view our Awareness information pack, in English, Dutch and French, online at <http://www.wessexarch.co.uk/projects/marine/bmapa/docs.html>

Seminar October 2009

On 19th October 2009 WA hosted the first of two seminars providing the opportunity for different parties involved in the Protocol to gather and discuss issues and results of its operation face to face.

A useful example was the opportunity for the Receiver of Wrecks (RoW) to discuss with BMAPA staff representatives, EH, TCE, WA's Protocol Implementation staff and experts the artefacts and their historical value. Another topic was how to deal with the growing collection of maritime finds resulting from the Protocol system. Initially it was not anticipated that so many artefacts would be discovered through the Protocol and therefore the seminar provided an opportunity to discuss issues such as long-term storage, and how best to disseminate these artefacts as appropriate. Whilst no single solution was identified, the seminar raised general awareness about individuals' responsibilities and the potential of collections to be sent to museums or used in other public accessible work. This has improved the overall consistency of the implementation of the Protocol in relation to such issues.

The second seminar was held on 19th October 2010 in London, where many of the key issues outlined in this paper were discussed.

Newsletter

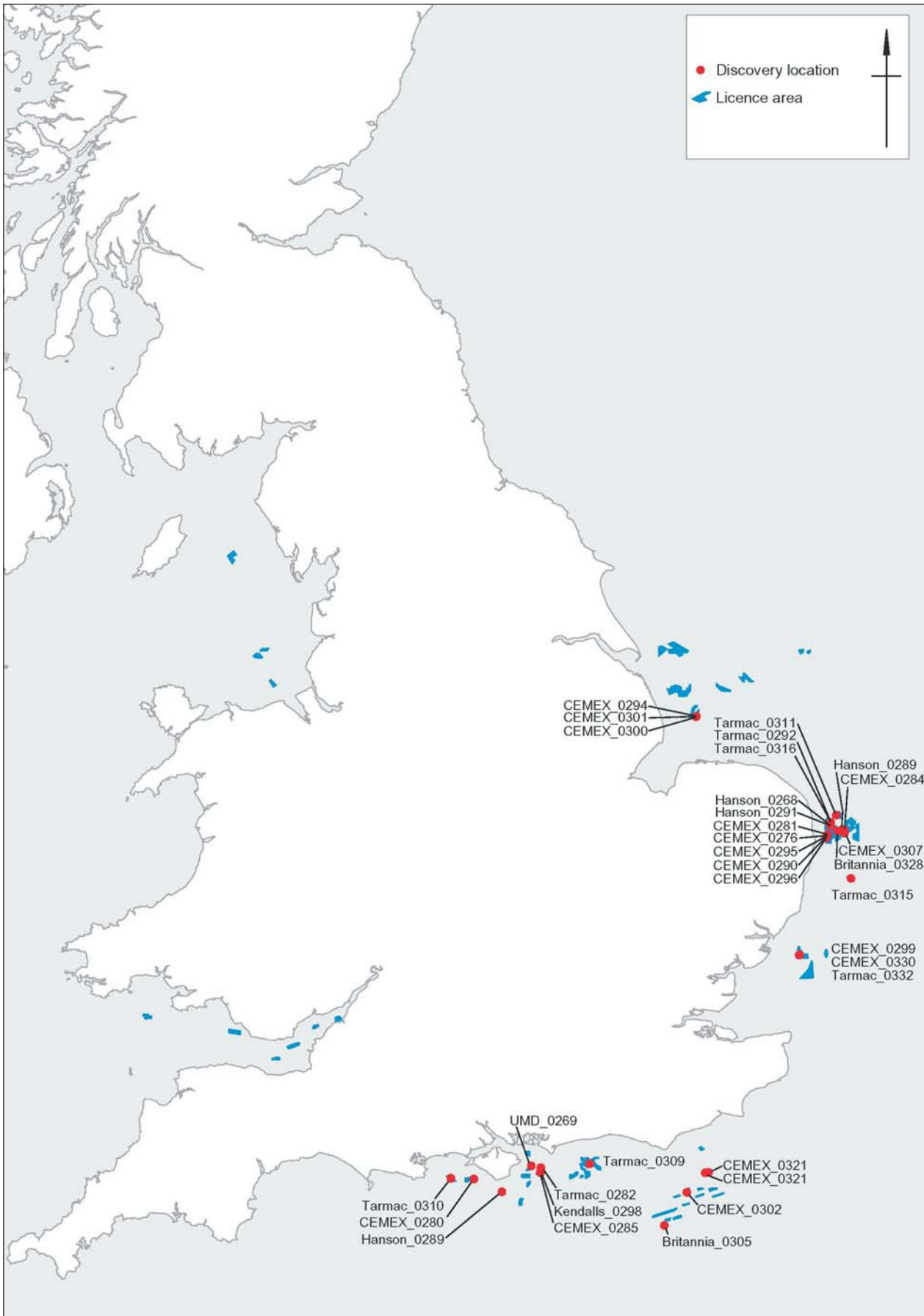
The 'Dredged Up' Newsletter informs wharf and vessel staff of the finds made and also gives staff an opportunity to see their own finds publicised. Since the 2008-2009 Protocol report two further issues have been published, the first in April 2010 and the second in September 2010.

The Newsletter is an excellent opportunity to recognise the work of BMAPA staff in ensuring the success of the protocol. For example, 'Dredged Up 6 announced the winners of the 2008 - 2009 Finds Awards, acknowledging

- Best Attitude by a Wharf
- Best Attitude by a Vessel
- Best Find

The enthusiastic response to 'Dredged Up' and the protocol report shows that this material is read and enjoyed, playing an important part in the operation of the protocol. It is also a useful way to inform industry staff of updates to the Protocol and Awareness Programme and about Protocol related projects. Winners of the awards for 2009-2010 will be announced in 'Dredged Up 8 in Spring 2010.

The Newsletter is proving to be a useful tool for publicising the Protocol and the importance of the finds reported through the Implementation Service outside of those involved directly with the Protocol. Copies are distributed by EH to a variety of other organisations, to individuals and to the general public.



Location of discoveries 2009 - 2010

Reports: Protocol

During the fifth year of operation Wessex Archaeology received 47 reports through the Implementation Service. These reports encompassed approximately 84 separate finds (see table below).

Further details of each discovery are included in the wharf reports appended to this report.

Reported	Report ID	Licence Area	Region	Wharf / Vessel	Description	No
21/10/09	Hanson_0268	240	East Coast	Arco Adur	Mammoth Tooth	1
21/10/09	UMD_0269	122/3	South Coast	Bedhampton Wharf	Cast Iron Retaining Strap	1
21/10/09	UMD_0270	122/3	South Coast	Burnley Wharf	Animal Bones	3
04/11/09	Hanson_0271	Unknown	Unknown	Antwerp Wharf	Fishing Weight	1
13/11/09	CEMEX_0276	319	East Coast	Northfleet	Tusk	1
07/12/09	CEMEX_0280	137	South Coast	Angerstein	Aircraft Piece	1
23/12/09	CEMEX_0281	319	East Coast	Angerstein	Deer Bone	1
04/01/10	Tarmac_0282	395/1	South Coast	Bedhampton Wharf	Flint	1
13/01/10	CEMEX_0284	360	East Coast	Angerstein	Bone - elephant atlas	1
15/01/10	CEMEX_0285	351	South Coast	BHA Dover	Red Ensign	1
21/01/10	Hanson_0289	Unknown	South Coast or East Coast	Arco Axe	"Lead weights, bullets and shot"	12
28/01/10	CEMEX_0290	251	East Coast	Angerstein	Aircraft Remains	4
05/02/10	Hanson_0291	240	East Coast	Arco Arun	Rigging Block	1
10/03/10	Tarmac_0292	254 and 127, 296, 430	East Coast	Ridham	Tableware	7
10/03/10	Tarmac_0293	254 and 127, 296, 430	East Coast	Ridham	Spoon	1
11/03/10	CEMEX_0294	107 (?)	Humber	Sand Fulmar	Wood	1
22/03/10	CEMEX_0295	319	East Coast	Sand Falcon	Wood - similar timber to 0294	1 or 2
22/03/10	CEMEX_0296	251	East Coast	Dover	Peat	1
06/04/10	Tarmac_0297	395/1	South Coast	Portslade	Handgun	1
20/04/10	Kendalls_0298	351	South Coast	Norstone	Sword Hilt	1
30/04/10	CEMEX_0299	447	Thames	Sand Fulmar	Animal Bone	1
30/04/10	CEMEX_0300	107	Humber	Sand Fulmar	Leather shoe sole	1
30/04/10	CEMEX_0301	107	Humber	Sand Fulmar	Pottery	2
05/05/10	CEMEX_0302	473 East	East English Channel	Sand Fulmar	Shark Tooth	1
19/05/10	Britannia_0303	351	South Coast	Brett Cliffe Aggregates	Aluminium pieces probably from a plane	3
19/05/10	Britannia_0304	351	South Coast	Brett Cliffe Aggregates	Spark Plug	1
14/06/10	Britannia_0305	461	East English Channel	Brett Cliffe Aggregates	Cannonball	1
14/06/10	Britannia_0306	461	East English Channel	Brett Cliffe Aggregates	Cannonball	1
01/07/10	CEMEX_0307	251	East Coast	Angerstein	Animal Bone	1
06/07/10	Tarmac_0309	124/1A	South Coast	Burnley Wharf	Animal vertebrae	1
06/07/10	Tarmac_0310	127 or 395	South Coast	Bedhampton Wharf	Spoon, Copper Plate, Copper Ring	3
06/07/10	Tarmac_0311	296	East Coast	Ridham	Metal Tube/Cap	1
09/07/10	Tarmac_0312	127	South Coast	Erith	Cannonball	1
09/07/10	Tarmac_0314	127	South Coast	Erith	Cannonball	1
09/07/10	Tarmac_0315	430	East Coast	Erith	Metal Pins	2
19/07/10	Tarmac_0316	254	East Coast	City of London	Anchor Fluke	1
28/07/10	Tarmac_0317	395/1	South Coast	City of Chichester	Stone fishing weight, irregular shaped stone/fossil	2
05/08/10	Tarmac_0319	127	South Coast	City of Westminster	gas burner, pottery, wood	4
05/08/10	Tarmac_0320	unknown	Unknown		ship's log	1
09/08/10	CEMEX_0321	123G	Owers	Sand Harrier	rib bone	1
16/08/10	Tarmac_0324	254	East Coast	City of Westminster	steel bracket	1
17/08/10	Tarmac_0325	447 or 296	Thames or East Coast	Erith	Cutlery x2, Metal Item, Stone	4
16/09/10	Tarmac_0326	395/1	South Coast	Bedhampton Wharf	Fork	1
16/09/10	Tarmac_0327	395/1	South Coast	Burnley Wharf	Nail	1
21/09/10	Britannia_0328	228	East Coast	Brett Cliffe Aggregates	Bone	1
29/09/10	Cemex_0330	447	Thames	Angerstein	Metal - rivetted	1
01/10/10	Tarmac_0332	447 or 296	Thames or East Coast	Erith	Mammoth Tooth, wood	2

Case Study 1: Silverware

In September 2009 Tarmac's Ridham wharf reported the discovery of a collection of silver tableware, and a month later an additional find of a spoon was added to the collection (Tarmac_0292 and 0293 - reported in 'Dredged Up 7'). The collection now consists of:

- Two goblets, one with a crest
- Three hallmarked spoons with crests
- Three candleholders
- A mystery scrap of metal possibly the base of a goblet or candlestick
- A bowl



This collection is historically interesting in that it is the first time we have been able to link an assemblage to an individual.

It is believed that the finds came from Licence Area 254 and as a result a Temporary Exclusion Zone was put in place covering the two areas that were dredged when the finds were made. This has since been revised into a smaller exclusion zone, centred on a known anomaly identified in geophysical surveys undertaken during earlier investigations of the Licence Area.

On receiving the collection for closer examination, WA's finds specialist Lorraine Mephram identified from the hallmark that these finds were assayed in 1781 in London. WA then sent images of the crest to the Royal College of Arms, which identified it as belonging to the Dalrymple family, the Earls of Stair. Putting this information together indicates that these were the Arms of John Dalrymple, 6th Earl of Stair (1749-1821).

John Dalrymple was well-travelled during his lifetime. He was a captain in the 87th Foot Regiment and served during the revolutionary war in America. On his return to Britain he was appointed as a diplomat to Poland then Prussia. In 1789 he succeeded his father as the 6th Earl of Stair and sat as a Scottish representative peer. He died at his home in London in 1821.



Although John Dalrymple was not lost at sea with his tableware, it could have been lost en route or return to Poland or Prussia during his work as a diplomat from 1782 to 1787, perhaps as part of a shipwreck carrying his belongings. It is also possible that this material formed part of a cargo on a vessel lost later, perhaps after being sold, but no records of this have come to light. The silverware showed fire damage on the candleholders, which could support the possibility of a shipwreck. Ships from both



the 18th and 19th century were often armed with gunpowder and fires on board wooden vessels would almost certainly cause this kind of damage. This, however, does not narrow down the date that the collection may have been lost.

The Dalrymple family does have an archive, which may shed further light on the movement of this material. In the absence of records to the contrary it is likely that the RoW will determine the Dalrymple family to be the legal owners of these artefacts, thus reuniting them after some considerable time.



It is important that all finds are reported through the Protocol as soon as possible. With discoveries such as this collection, it allows measures to be put into place to protect the archaeology that may still survive in the sea. There were delays in reporting the silverware that postponed these actions and this could have had a negative effect on the archaeology, result in positional uncertainties and a larger TEZ than might otherwise be the case. However it is important to note that this year there has been an overall improvement by all dredging companies in reporting finds as they occur. Regular reporting of finds can aid not only in creating exclusion zones but can also reduce their size, identifying more confidently the location of a shipwreck and protecting our heritage, while causing minimum obstruction for the industry.



Case Study 2: Finds Specialists

WA ensures the successfully running of the Protocol Implementation Service by calling upon experts to aid in the identification and care of the wide variety of artefacts dredged from the sea.

Identification of finds is vital in understanding their importance to the archaeological record and informs any actions required to protect our underwater heritage. The expert knowledge of the many people and organisations that contribute to the Protocol system is using BMAPA artefacts to build up a useful picture of the past in British coastal waters. We examine below some of the 2009-2010 reporting year's finds, through the people who study them.



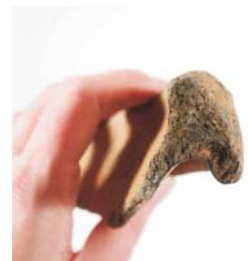
The ability to call immediately upon the experience of WA's Coastal & Marine department is a useful resource. Graham Scott, who joined WA in 2003, is currently WA's most experienced diving supervisor. He has been responsible for running numerous diving projects, most notably as diving supervisor on the Protection of Wrecks Act contract. Graham clarified that the discovery made by Tarmac staff onboard the City of London was part of an anchor, namely the fluke (Tarmac_0316). The anchor dates from the period between the Middle Ages and the 19th century. It was found in the same licence area as a collection of silverware (see Case Study 1), and together they may indicate the presence of an unknown wreck in these waters, or assist in the identification of a known wreck.

WA also has staff in-house who specialise in analysing the archaeological material produced as a result of our land excavations and diving work, for example examining soil samples for environmental evidence of the past, pottery, coins, animal bones and teeth etc.



A variety of BMAPA finds were identified by WA staff this year, including parts of an old oil lamp (Tarmac_0319), discovered at the Bedhampton wharf. Engraved on this lamp were the words 'The Waterbury Corp Brass Good'. The Waterbury Corporation was an American firm that produced goods for the Allies during World War II. Lorraine Mepham, WA's Senior Post Excavation Manager, examined this object. Lorraine has 25 years experience as a finds specialist for WA and currently oversees the work involved in studying artefacts from the Channel 4 TV 'Time Team' excavations.

Rachael Seager Smith, a Senior Finds Specialist at WA, recognised that a fragment of pottery, initially thought to be of no significant interest, was in fact part of a 2nd or 3rd century AD Roman mortaria (Cemex_0301). This type of vessel was used for grinding food, similar to a pestle and mortar. Rachael is an expert in a wide range of artefact materials and has enjoyed television and radio appearances included a feature on BBC2's 'Meet the Ancestors' and Radio 4's 'Unearthing Mysteries' series.



Outside WA, Andy Currant, Curator of Fossil Mammals at the Natural History Museum in London, is one of our regular contacts. Andy has nearly forty years of experience working with the museum's collection. His current studies include examining the nature of the fossil record, how things become preserved in the first place and the extent to which we can use them. Andy has examined several finds this year, including a mammoth tooth (Hanson_0268) found onboard the Arco Adur in the East Coast region. The tooth was correctly identified by vessel staff, however Andy helped to identify which species of mammoth it was from: a woolly mammoth, dating from 10,000 to 150,000 years ago. A discussion of the different types of mammoth species can be found in 'Dredged Up 6'. This find was made in Licence Area 240, where in a previous reporting year 75 flint tools were discovered. The East Coast in general produces a considerable amount of evidence that dates to the Palaeolithic, when this area was dry land with people living on it, rather than sea, as it is today.



Moving to more modern times, Andy Simpson, from the Royal Air Force Museum, provided information on many of this year's aircraft remains. The majority of aircraft remains are mangled scraps and whilst we can tell that they belong to an aircraft, it is often difficult to ascertain any further information. Andy is a qualified archaeologist and a Curator at the RAF Museum since 1989, becoming Curator of Aircraft in 1992. A key responsibility of his job is to research and update the detailed individual history of over 250 aircraft in the museum's collection as well as tasks such as providing advice on potential acquisitions and working on museum displays and public interpretation.

During the last year Andy has clarified that three pieces of aluminium found at Brett's Cliffe Wharf were from an aircraft, with one piece which bears marks and symbols, originating from its engine (Brett/Brittania_0303). Andy's colleagues and contacts have also provided input to the Protocol, including Brett Stole of the National Museum of the United States Air Force in Ohio who identified a scrap piece of aircraft (Cemex_0290), discovered by Angerstein wharf, as part of a McDonnell-Douglas F-4 Phantom. This is a mid-1960s plane and there are no records of a US aircraft crashing in this Licence Area, which makes it an interesting discovery. We now know that panels from these aircraft could come off in flight, as well as the fact that planes were sometimes recovered without recording the crash. Therefore there may not be an aircraft site to find!

A key organisation that contributes information to the Protocol is the Royal Armouries museums, which have identified finds such as iron shot (Hanson_0289) from an 18th century sea service pistol and a World War I handgun (Tarmac_0297). The Royal Armouries is home to the United Kingdom's national collection of arms and armour, including artillery, and there is within the organisation a wealth of knowledge and experts whom we have consulted including Jonathon Ferguson, Curator of Firearms, and Phil McGrath, Curator of Artillery. James Hester, Curatorial Assistant for Edged Weapons dated the lion-headed hilt of a bronze sword (Kendalls_0298), found by Kendall's Wharf staff, as being 19th century.



On the following page is a full list of all the specialists that have given input into the Protocol system this year. Further details of the assistance given by specialists in relation to specific finds are included in the wharf reports appended to this report.

Wessex Archaeology would like to thank all the specialists who have given their time to assist with the identification of finds over the past reporting year.

Specialists

The table below provides a list of all the specialists contacted during the 2009-2010 reporting year. Specialists that we have contacted in the past but not during the

past year are still included in WA's internal specialist lists, but have been omitted from the table below.

Expert	Specialism	Institution/Organisation
Mark Beattie-Edwards	Anchor fluke	Big Anchor Project
Oliver Crimmen	Fish tooth	Senior Fish Curator, Natural History Museum
Andy Currant	Ice age mammals	Collections Manager (Palaeontology), Natural History Museum
Phil Davidson	Geological sample	Geological Warden, Charmouth Heritage Coast Centre
Bob Davis	Archaeological artefacts	Project Officer, Wessex Archaeology
Jonathon Ferguson	Bullets	Curator of Firearms, Royal Armouries
Martin Garnett	Fuse cap	Imperial War Museum
Diana Gregg	History of Portsmouth	Search Room Supervisor, Portsmouth City Museum and Records office
Jessica Grimm	Animal bone	Animal Bone Specialist, Wessex Archaeology
James Hester	Sword hilt	Curatorial Assistant for Edged Weapons, Royal Armouries
Lorrain Higbee	Animal bone	Zoologist, Wessex Archaeology
Angela Keirsten	Ensign flag	Archaeological Conservator, English Heritage
Matt Leivers	Flint	Senior Finds Specialist, Wessex Archaeology
Phil Mcgrath	Artillery	Curator of Artillery, Royal Armouries
Lorraine Mephram	Finds specialist, ceramics	Senior Manager (Finds and Archives) Wessex Archaeology
Nigel Nayling	Maritime archaeology and dendrochronology	Department of Archaeology and Anthropology, University of Wales at Lampeter
Richard Noyce	Royal Naval artefacts	Curator of Artefacts, Royal Naval Museum
Peter O'Donoghue	Silverware	Bluemantle Pursuivant, College of Arms
John O'Neill	Aircraft remains	Aircraft Technician, RAF Museum
Andy Robinson	Fuse cap	Collections Officer, Imperial War Museum
Graham Scott	Maritime archaeology and underwater fieldwork	Senior Archaeologist (Coastal and Marine), Wessex Archaeology
Rachael Seager Smith	Archaeological finds	Senior Archaeologist (Finds), Wessex Archaeology
Michael Simms of Northern Ireland	Geological sample	Curator of Palaeontology, Geological Department, National Museum
Andy Simpson	Military aircraft	Curator, Aircraft and Exhibits Department, RAF Museum
Chris Stevens	Peat	Environmental Archaeologist, Wessex Archaeology
Brett Stole	Aircraft Wreckage	Manuscript Curator, National Museum of the U.S. Air Force
Steve Webster	Maritime archaeology and underwater fieldwork	Senior Project Manager (Coastal and Marine), Wessex Archaeology

Liaison and Accessibility

Details of each discovery have been sent to:

- Joanne Freeman, NMR and EH Maritime Team
- Serena Cant, NMR
- Mark Russell, BMAPA
- Mike Cowling, TCE
- Ian Selby, TCE

Details of discoveries regarded as wreck under the Merchant Shipping Act 1995 have been forwarded to the Receiver of Wreck. In the 2009-2010 the following reports were deemed to represent items of wreck:

- Cemex_0280
- Cemex_0285
- Hanson_0289
- Cemex_0290
- Hanson_0291
- Tarmac_0292
- Tarmac_0293
- Cemex_0294
- Cemex_0295
- Tarmac_0297
- Kendalls_0298
- Cemex_0300
- Cemex_0301
- Britannia_0303
- Britannia_0304
- Tarmac_0311
- Tarmac_0315
- Tarmac_0316
- Tarmac_0317
- Tarmac_0319
- Tarmac_0320
- Tarmac_0325
- Tarmac_0326
- Tarmac_0327

In the fifth year of the Protocol, several discoveries were made relating to military wrecks or aircraft. The following reports were therefore forwarded to the Ministry of Defence:

- Cemex_0280
- Cemex_0290
- Tarmac_0311

Although we have received a number of reports of artefacts relating to vessels, none of them relate conclusively to unknown and uncharted wreck sites. For example, it is possible that the silverware (Tarmac_0292 and Tarmac_0293; see Case Study 1) may relate to an anomaly identified through a geophysical survey but as yet there is no confirmation that this is in fact a shipwreck. As no discoveries were found that are positively related to uncharted wreck sites, there was no need to forward any reports to the United Kingdom Hydrographic Office (UKHO).

Finds information has been sent to the appropriate PAS Finds Liaison Officers (LGAO), to the Local Government Archaeology Officers and SMR/HER in the county which was most appropriate for the discovery. In the case of a discovery where the original location is known this will be that location's relevant PAS/LGAO/SMR/HER, while in the case of discoveries made at wharves, with no find location information, it is reported to the wharfs nearest PAS/LGAO/SMR/HER.

Further details of liaison and the return of data to interested parties are included in the wharf reports appended to this report.

Discussion

Importance

During the 2009-2010 Protocol reporting year a total of 47 reports were made through the Implementation Service. These 47 reports encompassed 84 separate artefacts.

In 2009 the total tonnage of material dredged remained stable, however the amount of construction aggregate dredged dropped by 25% (BMAPA official figures). This is due to market conditions. Whilst the BMAPA reporting year and the Protocol reporting year are not synchronised, the reduced amount of aggregate dredged may account for the small (<10%) drop in the actual number of finds discovered this year, compared to 2008-2009. It is important to note, however, that despite this the number of reports made increased slightly from last year.

The map opposite illustrates the distribution of the finds reported during this, the fifth year of the Implementation Service. Mapping the finds in this way allows archaeologists to identify patterns in the distribution of discoveries, and thus to highlight areas of archaeological sensitivity on the seabed. This will not only enhance our understanding of the marine historic environment but may also aid future licence assessments.

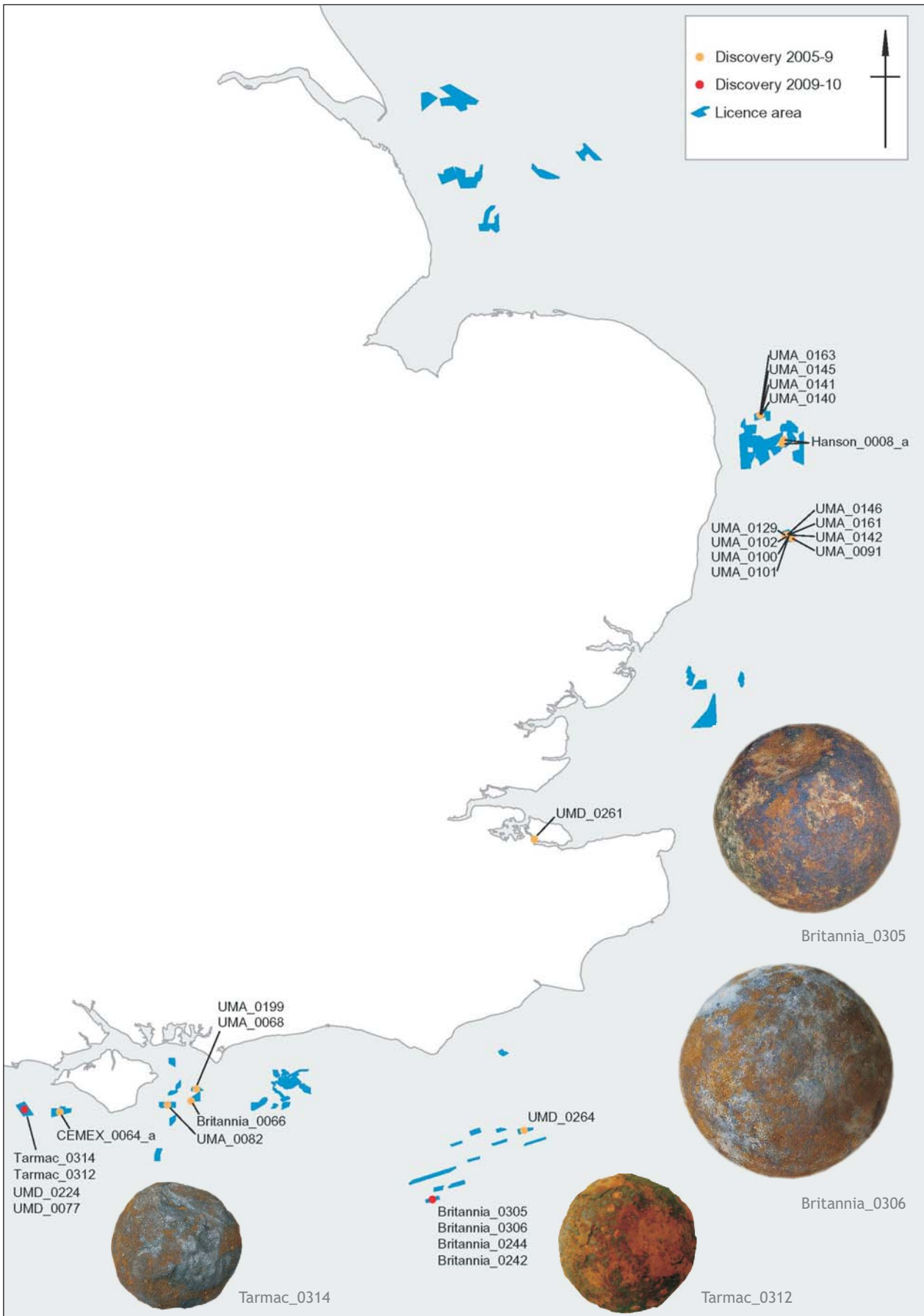
The value and importance of the Protocol is evident in the benefits it provides through public education, the protection of the marine historic environment and the enhancement of our archaeological understanding. For example, this year WA is running 'Explore the Seafloor' (<http://ets.wessexarch.co.uk/>), an education and dissemination programme for the Regional Environmental Characterisation surveys (RECs), commissioned by the Marine Environment Protection Fund (MEPF) via the Marine Aggregate Levy Sustainability Fund (MALSF). BMAPA artefacts have been used in displays and handling sessions for the public at high-profile Sea Life Centre roadshows.

This has proved to be an excellent method of communicating to the public about the maritime heritage that needs protecting, through the opportunity of handling real-life objects that have come from the seas.

Reporting finds under the Protocol negates the need for inefficient watching briefs on board vessels or at wharves and so contributes to discharging licence conditions. In addition the enthusiasm shown by industry staff in the protection and reporting of finds ensures that other legal obligations are met and demonstrates best practice. This example of good practice with regard to our heritage has been recognised not only by heritage professionals and those within BMAPA companies, but also by other marine industries. For example TCE is currently developing a Protocol to be used for offshore renewable energies as a mitigatory option and the BMAPA/EH/TCE Protocol is an excellent example of an effective protocol in action.

Key Issues

Over past reporting years there has been considerable work undertaken to ensure that the Protocol system works efficiently. An examination of previous annual protocol reports, available on WA's website, demonstrates how much the system has evolved. Many of the issues addressed previously still remain, although to a lesser extent, and improvements are an ongoing part of the Implementation Service. These are discussed further below.



Location of cannonballs discovered through the Protocol over the past five years

Initial Reports

Timely reporting improves the efficiency of the Protocol in being able to take action to conserve potential archaeology remaining on the seabed, in particular discoveries of previously unknown shipwrecks or aircraft.

There has been a small increase, from the 2008-2009 reporting year, in the number of reports coming through the Protocol, despite an actual decrease in discoveries of finds. This could suggest that reporting is becoming a more routine practice. An initial examination of the time-span between artefacts being found and initial reports being made revealed the following:

- Time-span between find dates and Site Champion notifying Nominated Contact: Out of the 28 reports that had a find date, 75% were handed to the Nominated Contact in under 3 weeks, with 25% happening within a week of the find. 19 reports did not provide find dates.
- Time-span between notifying Nominated Contact and Initial Report: Out of the 47 reports made 80% of initial reports were made within 3 weeks of the compiled information being handed to the Nominated Contact, with 50% happening within a week.

These conclusions demonstrate an overall efficiency in reporting, although it is important to remember that the Protocol specifies that each stage of the reporting process, including acknowledgement of the initial report by Implementation staff, should occur within two weeks. There is therefore still some room for improvement.

In addition the statistics show that whilst the majority of finds are reported within an acceptable timeframe, approximately 20-25% of finds at each stage are delayed; these delays range widely from one month to five months. In some cases delays occurred at both stages. An examination of initial report dates also shows that on occasions reports are stockpiled, and reported in batches. Whilst it is understandable that this occurs, as staff have busy work schedules, it is important that reports are forthcoming as soon as practicable, as any delay ultimately delays any necessary action required to

protect the archaeology on the seabed (see Case Study 1 as an example).

WA staff will continue to highlight the importance of reporting finds immediately through the Awareness programme and through published material to BMAPA contacts. This will include ensuring that key information, for example location and the date the material was dredged, is included in reports when possible. This is an issue that over the past two years WA staff have focused upon resolving and, in collaboration with industry staff, it has greatly improved. It is recognised that diligence is required, for example providing support to new Nominated Contacts, and it is an ongoing necessity to maintain and continue to improve the Protocol system.

Photography

Since the 2008-2009 reporting year, the new guidance on photography and the issue of photographic scales in the wharf packs has led to a better understanding of what is required by BMAPA staff when photographing artefacts to upload through the Protocol system.

An examination of the 2009-2010 photographs demonstrates that whilst staff may not always use the wharf pack scales, they will try to use a known object, for example a mobile phone, to provide some idea of the scale of the dredged artefact. This is a method often used by archaeologists when caught out without a scale. However, use of these scales does provide more professional and useful images for WA to pass on to experts and use to illustrate reports. In addition it is evident that some images are of poor quality; this is a problem when using digital cameras in dark warehouses or out in bright sunlight, which may cause glare. It is important to find the correct location to take images and check closely before submitting; often images on a small-screen digital camera look better than viewed at full size on a computer screen. Lastly, images should be uploaded as JPEGs if possible. In the next issue of 'Dredged Up' there will be an article, from WA's photographic expert Karen Nichols, to help BMAPA staff to take the best possible images for the Protocol.

Disposal and Curation of Finds

The situation for the disposal and curation of finds remains similar to the previous reporting year and WA continues to work with organisations and industry staff on a case by case basis. The success of the BMAPA Protocol has led to the accumulation of large numbers of finds, some of which need to be kept submerged, at wharves and in offices across the country.

The October 2010 seminar discussed this problem, in particular with regard to the initial recognition of the importance of a find when discovered and long term storage of these finds while waiting for a request for the object by museums or other institutions. The discussion suggested that more guidance is required, within the Protocol, on the post-excavation, conservation and curation of finds.

Whilst a long term solution is still under discussion, we are pleased to report that finds are slowly making their way to museums and educational collections across the country. WA holds a number of finds for teaching purposes. The RoW is working hard to place finds with museums and where no museum can be found for the item the RoW is endeavouring to inform the holding company of their options as soon as possible.

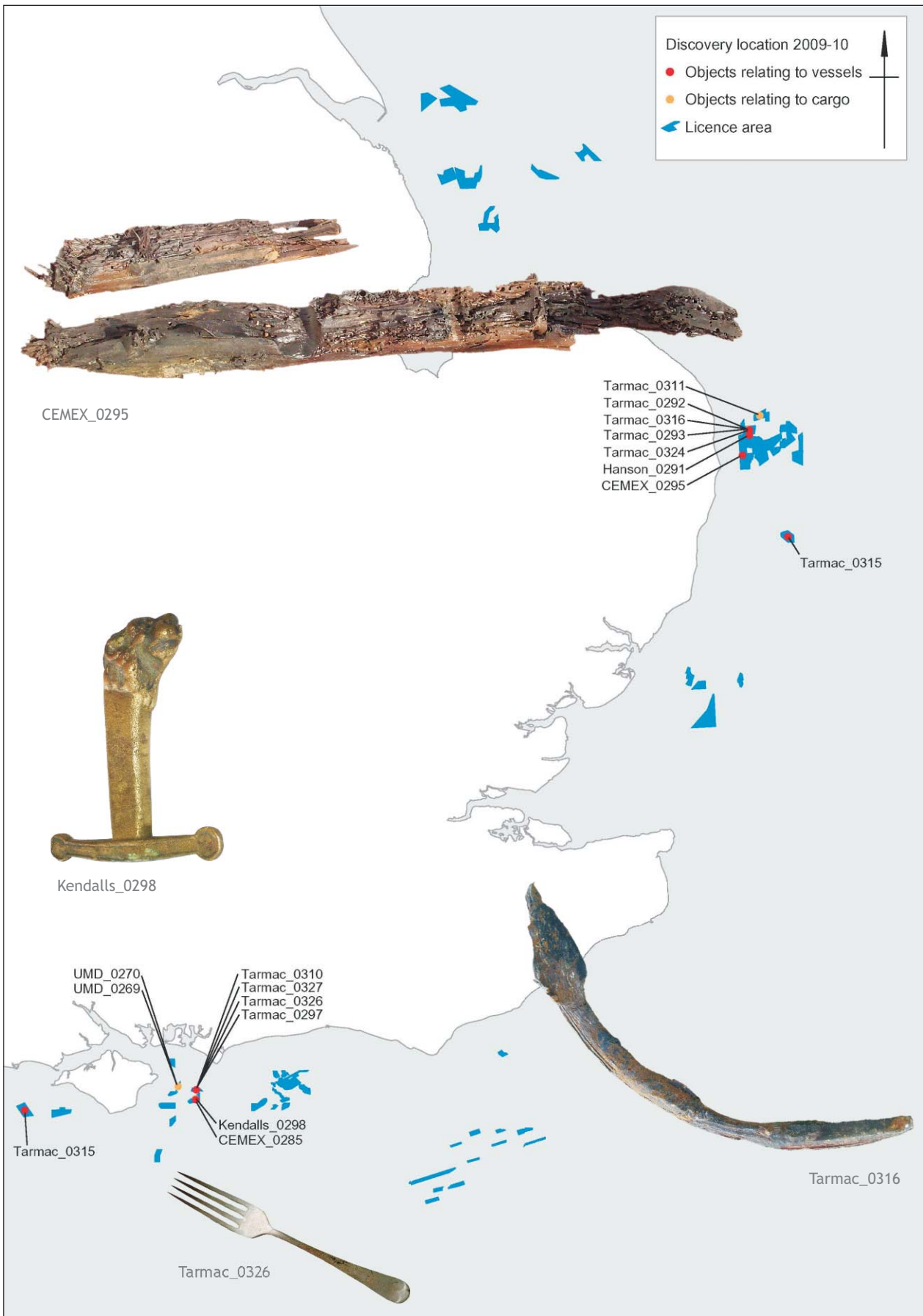
Palaeolithic material, such as mammoth bone, is not subject to reporting to the Receiver of Wreck, as it predates the use of vessels. This material may be requested by a museum, displayed at a wharf, given to teaching collections or donated to local schools.

Automated Systems

The Awareness programme's continental visits raised the issue of automated screening systems being used at wharves. This result is that industry staff do not have direct contact with the original aggregate and greatly reduces the chances of finding archaeology. In addition at many of the continental wharves the entire rejects pile is soon to be put automatically into a crusher. Whilst metal artefacts will still be removed by an electromagnet, it is often an examination of the rejects pile, primarily by industry staff in their break times, that leads to non-metal finds discoveries, for example mammoth bones.

This issue was discussed at the October 2010 seminar. It was firstly stated that whilst crushers are used on UK wharves only material sized 20-70mm goes through the crusher, whereas on the Continent larger material also goes through. Although this means that small finds are lost, these are often difficult to find within the material anyway. The remainder ends up on the rejects pile, which is not crushed in the UK. This still relies, as it always did, on industry staff volunteering their time to examine the pile for non-metal finds. Again this highlights the importance of the Awareness programme in encouraging and recognising this activity. As the current situation stands no further automation of the system in the UK is planned, although this may change in the future.

It is important that the Protocol adapts as methodologies alter and that we maximise discoveries at all stages.



Location of maritime associated finds discovered off the South and East coast in 2009-2010 reporting year

Artefact Patterns and Distributions

The quantity of finds reported through the Protocol over the past four years allows us to identify and consider patterns of artefact distribution. Not only does this add meaning to finds already dredged, it also helps us to understand the marine resource better during future licence applications.

Distribution of Artefacts by Dredging Region

There are eight dredging regions around the UK:

- The Humber;
- The East Coast;
- The Thames Estuary;
- The East English Channel;
- The South Coast;
- The Owers;
- The South West;
- The North West.

In past years evidence has shown that the majority of dredged finds have been retrieved from the South and East Coast regions. The least prolific regions in terms of finds reports are still the South-West and North-West regions. This is thought to be predominantly because these regions are targeted for sands. Screens are used to ensure that material greater than 4-10mm is returned to the seabed, making it unlikely that archaeological finds will be retrieved from these areas. It is noted that the only finds reported from these regions in the four years of the Protocol are those that have been found entangled in dredging apparatus, rather than on board or on land.

To quantify this statistically, of the 205 reports made in the past five years of the Protocol (for which the dredging region is known), the East and South Coast region reports account for approximately 80% of the total. One of the reasons for the enhanced number of finds from these regions is undoubtedly the volume of dredging that takes place here. In 2009 5,637,296 metric tonnes of aggregate were removed from the East Coast region, and 3,492,424 metric tonnes were removed from the South Coast region. This equates to just below 70% of the total aggregate removed from all eight regions during 2009, while in 2008 these two regions accounted for only 50% (source: BMAPA official figures).

The dramatic drop in finds dredged from the East Coast during the 2008-2009 reporting year has not been seen in 2009-2010, when the level has returned to that of previous reporting years, with 16 reports. There were 17 reports for South Coast but from far less material dredged, which means that the South Coast is the best producing dredging area.

The 2009-2010 reporting year saw a 50% drop in reports dredged from the East English Channel region since last reporting year, when there were 6 reports made. An explanation for this is that when a new area is opened for dredging the reports of finds will initially spike, as there will be more metal debris relating to more modern material, principally 19th and 20th century, but possibly earlier lying on or just under the surface. As dredging proceeds, the lower layers will produce mainly Palaeolithic material and therefore typically finds will be less prolific.

Distribution of Artefacts by Archaeological Typology

Aircraft

In the 2009-2010 protocol reporting year there have been three new reports of finds that can be confirmed as relating to aircraft remains (Britannia_0303, Cemex_0280 and Cemex_0290), whilst two further reports identified artefacts as possible aircraft remains (Britannia_0304 and Cemex_0330).

The majority of aircraft finds tend to be around the south and east coast of Britain where there were heavy losses during World War II. As a result the majority of BMAPA finds relating to aircraft tend to be in the South and East Coast dredging regions, with the majority found in the South, as was the case this year.

There was only one aircraft report made for the East Coast region. This consisted of four pieces of aircraft wreckage (Cemex_0290) identified as a United States Air Force McDonnell-Douglas F-4 Phantom, which dates from the mid-1960s. Whilst not an aircraft find as such, this region also provided a report that has an interesting connection to aircraft (Tarmac_0311). This was a piece of metal identified as part of a fuse cap specifically used for anti-aircraft gun ammunition during World War II.

Only one possibly aircraft find was reported outside the South and East Coast regions during this reporting year. This was an unusual scrap of metal (Cemex_0330), dredged from the Thames region. It is thought to be aluminium, making it likely that it came from an aircraft, but as yet this remains unconfirmed.

This is an excellent reminder however that whilst the majority of aircraft remains are discovered within the South and East Coast regions it is important that we remain vigilant in all dredging regions, as a plane crash is possible anywhere.

Palaeolithic Finds

There have been nine reports that are likely to date to the Palaeolithic and two derived finds for which dating is uncertain but which may relate to the Palaeolithic, reported during the 2009-2010 reporting year.

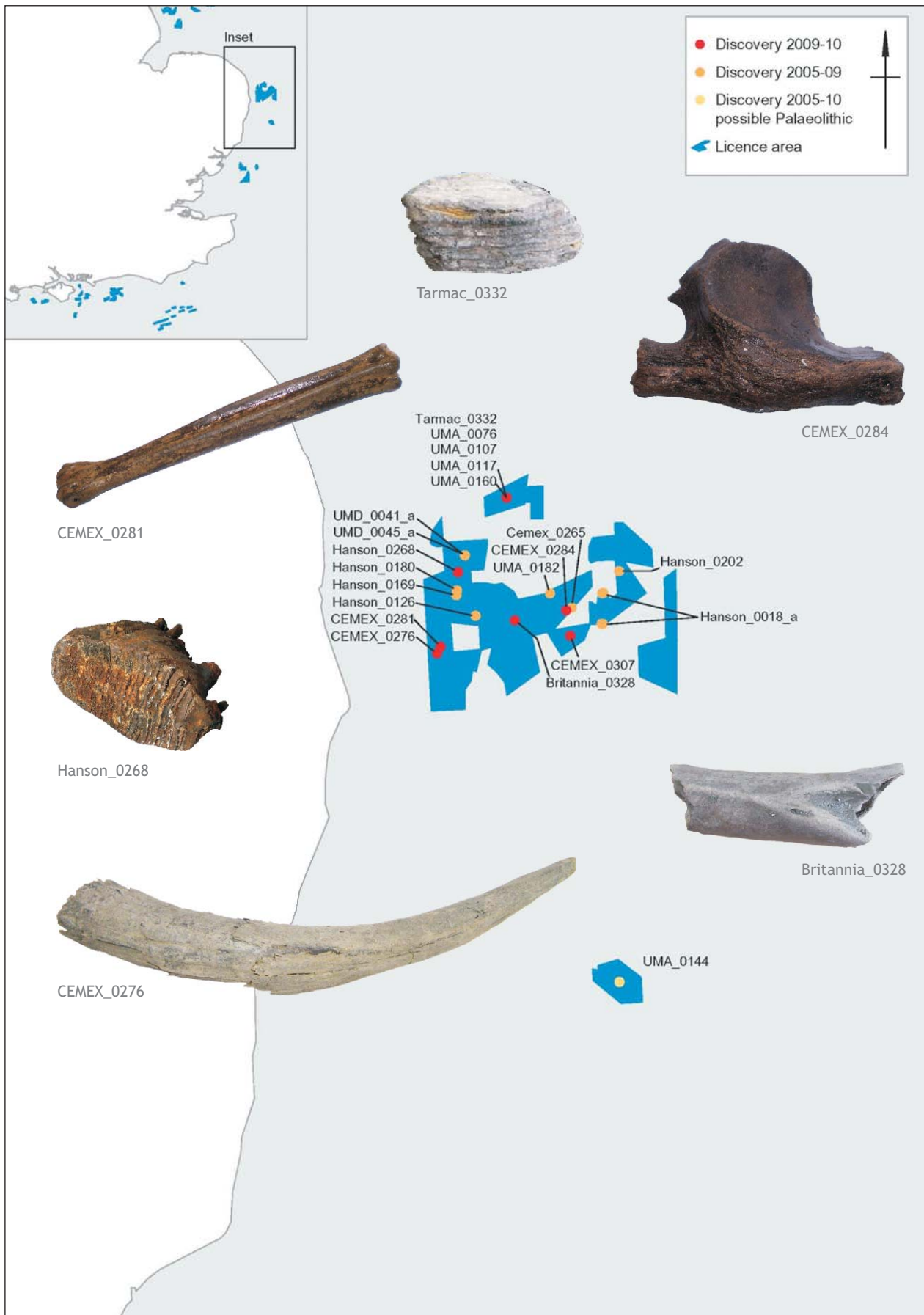
The majority of these finds come from the East Coast, which is similar to past reporting years. The finds include a possible mammoth's tusk (Cemex_0276), an auroch bone (Cemex_0307) and a mammoth tooth (Hanson_0268). A small number of similar finds were made in Humber, Thames and the South Coast.

It is especially difficult to ascertain how bones end up in the sea. If the bones are small, it is difficult to identify if they came from a prehistoric animal, which may have lived on the land prior to the postglacial rise of the sea. Others may come from sunken ships, as refuse from the meals of sailors. A femur bone from a bovid animal (Britannia_0328), found on the East Coast is an example of this. This may be Palaeolithic but there is no proof.

Cannonballs

During the 2008-2009 Protocol reporting year there were three cannonballs reported from the East English Channel region and another two from the South Coast dredging region; previously cannonball discoveries were limited to the East Coast. This reporting year was almost identical to last year, with two cannonballs (Britannia/Brett_0304 and 0305) discovered in the East English Channel and two (Tarmac_0312 and 0314) retrieved from the South Coast.

Cannonballs range from stone to metal and were used on a variety of ships, both military and merchant, from the 15th century until the 19th century. It is therefore difficult to ascertain why a cannonball may be discovered in a certain location. While it could relate to a battle, it may easily be a merchant ship fending off an attack. These wharf reports are not included in this report as WA is still undertaking investigations but will be available next year, or if anything significant does arise from the research, via the next 'Dredged Up' issue.



Location of Palaeolithic finds discovered off the east coast during the past five years

Maritime Artefacts

There are two ways to examine the maritime distribution of artefacts. Firstly through the artefacts that directly relate to ships, ranging from parts of the ships, for example ship timbers (e.g. Cemex_0294), to identifiable naval objects, such as a naval issue cutlery (Tarmac_0325). In addition there are many non-naval artefacts deposited in the sea through their transportation by ship, which can also indicate the possible location of shipwrecks. An excellent example is the collection of silverware discovered this reporting year (Tarmac_0292 and 0293).

A number of artefacts directly relating to ships were reported through the 2009-2010 Protocol, with the majority being in the South and East coast regions. In previous reporting years the majority percentage has been in the South Coast; this year there is an approximate 50:50 ratio between the two regions.

The South Coast region finds include a metal plate from a steamship (Tarmac_0310), part of an anchor (Tarmac_0316), a World War II lamp and a fragment of a ship's timber (Tarmac_0319). A current ensign flag from a British registered vessel (Cemex_0285) was also reported from this region. The East Coast finds include ship's timbers (Cemex_0295), and a rigging block (Hanson_310).

Few additional finds were reported from elsewhere. There was one find reported for the Humber region, a piece of ship's timber (Cemex_0294).

One of the most complete finds discovered this year was a Walker's Cherub II Ship Log, a mechanical log recorder dating to the early 20th century. Unfortunately the location of where this log was discovered is unknown; however it is most likely that a ship's log would be lost whilst over the side of the vessel rather than in a shipwreck. It is not impossible however that such finds can indicate a shipwreck and so it is important to provide location information when possible.

Lastly, a spoon (Tarmac_0325) was reported as being dredged from either the Thames or East Coast regions. It was engraved with the name of a late 19th century/early 20th century shipping company.

The other East Coast find reported this year was the silverware collection (Tarmac_0292 and 0293) featured as Case Study 1 above. The location of this find has been compared to geophysical surveys in this area, and an unidentified anomaly targeted as a possible shipwreck that they could have come from.

This last report also included a fork, which does not have the same obvious naval links but as mentioned above may be just as indicative of a shipwreck. This year the Protocol has seen numerous finds reported that could have been deposited in the sea as a result of a shipwreck.

The majority of these types of finds are from the South Coast and include a World War I handgun (Tarmac_0297), a sword hilt (Kendall_0298), a cast iron retaining strap (UMD_0269) and a collection of bones that show signs of butchering (UMD_0270).

The Humber region had two interesting reports; the leather sole from a mid 19th century shoe (Cemex_0300) and a fragment of Roman pottery (Cemex_0301). The Owers region provided one possible find, a rib bone (Hanson_0271).

Conclusion

Similarly to last year the 2009-2010 reporting year has been affected by the downturn in the economic climate which has had a negative impact on the construction industry as a whole. This has led to a decrease in the demand for aggregate which, coupled with changes in staff and wharf ownership, has led to a hiatus in the number of finds reported in some instances. The number of finds reported this year is still high, although a decrease is noted from last year. On the other hand the number of actual reports was slightly up.

The value of reported finds cannot be underestimated. By locating them spatially and understanding the distributions of finds we have gained a far greater understanding of our submerged heritage. Not only does this increase our knowledge of our past, but it also allows greater insight into specific aggregate areas. Understanding these spatial distributions, such as those shown on the distribution maps included in this report, allows us to advise more thoroughly on future licence applications and indeed on work ahead of other marine development.

In addition to these benefits, there is a large public benefit in reporting finds. BMAPA finds continue to be used for teaching purposes. The BMAPA discovery web pages continue to be some of the most popular on WA's website and the 'Dredged Up' Newsletter has proved to be a highly beneficial means of publicising finds. These have also been made available on WA's website as the hard copies of past issues have been fully distributed and have now been exhausted.

We would like to thank everyone who has reported finds and protected our heritage in the 2009 - 2010 reporting year, and throughout the last four years of Protocol reporting.

The Future

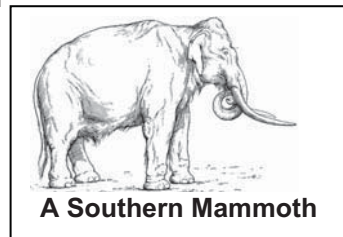
The Protocol Implementation Service continues to be run by WA and finds are reported regularly. If you have any questions about finds reporting and the Protocol, please contact WA via protocol@wessexarch.co.uk

CEMEX_0265: Antler Fragment and Mammoth Tooth



Dereck Brown found these artefacts on board the *Sand Falcon* on September 1, 2009. The *Falcon* had been working in Area 360 in the East Coast dredging region, 20km east of Lowestoft, Suffolk.

These finds were sent to Andy Currant who is the curator of mammal remains at the Natural History Museum in London. He identified the artefact seen in the pictures on the left above as a fragment of mammoth tooth, possibly a lower molar. The enamel is thick and the tooth is exceptionally low-crowned. Andy compared the CEMEX tooth to one in the Museum's collections and believes that the dredged find originates from *Mammuthus meridionalis*, the so-called "Southern Mammoth". The Southern Mammoth stood 4.5m tall making it one of the largest specimens to ever live. It resembled an Asian elephant, but with longer tusks, and is known to have inhabited Europe and central Asia from 2.5 million years ago to around 126,000 years ago. Although this tooth has suffered some damage, it does not appear to have been rolled by the sea. It is possible then that this tooth lay undisturbed for hundreds of thousands of years before its discovery on the *Falcon*.



The antler fragment likewise shows no signs of rolling and the breaks are very fresh, as though it has also been plucked from an *in situ* deposit. It is difficult to identify given the small size of the fragment but Andy felt that, given its thickness, it could come from *Megaloceros*, the giant deer. Andy described this find as the palmate part ('palmate' being used to describe anything that resembles the palm and fingers of an outstretched hand) of a partially flattened antler. It is very difficult to date this material but Andy states that it is reminiscent of examples from the early Middle Pleistocene and earlier deposits found on the East Anglian coast. The Pleistocene is the geological period before the current one, which is known as the Holocene, and the Pleistocene began approximately 2.5 million years ago.

These two finds represent some of the oldest to ever be reported through the Protocol and contribute to our continued understanding of the submerged heritage around our coasts. They are particularly significant as they appear to have lain undisturbed for many thousands of years. Whilst they do not currently warrant an exclusion zone, there are likely to be further finds of high archaeological significance in this area. CEMEX staff should continue to remain vigilant when working with material from licence Area 360 and others in the East Coast region. The staff of the *Falcon* are especially commended for recognising and retrieving these finds on board the vessel.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Suffolk
- The Local Government Archaeology Officer for Suffolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



Hanson_0266: Igneous Rock

This item was discovered by Malcolm O'Neill on board the *Arco Humber*. It was dredged from licence area 106C which is in the Humber region, 19km east of Mabelthorpe. It was found on top of the hopper of the vessel.

The discovery of this small find by staff on the *Humber* is incredible. Detecting and retrieving such a small find amongst the quantities of cargo that the vessel handles is not only astounding but also demonstrates the high level of commitment that staff aboard the *Humber* show to the finds reporting Protocol.

The find was sent to Michael Simms, a fossil expert at the National Museum of Northern Ireland. He took it to a meeting of the Belfast Geologists' Society where various experts were able to study it. Staff from the University College Dublin took a thin shaving of the rock in order to examine it under a microscope. This revealed crystals of plagioclase feldspar and weathered olivine.



Detail of Hanson_0266 as it would appear under a microscope

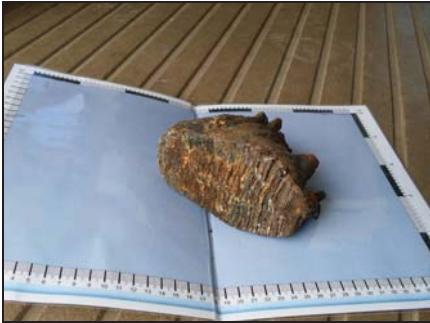
This rock is an igneous rock – probably basalt or dolerite. Igneous rock is one of the three main rock types (alongside sedimentary rock and metamorphic rock) and it forms when volcanic magma cools. This type of rock is not native to the Humber region - the nearest sources of this type of igneous material are Northumberland and Scandinavia.

The presence of this find in the Humber region is likely to be the result of glacial action during a past ice age. This stone may have been pushed here ahead of a glacier or may have been embedded in an iceberg until it was deposited in this region.

This is a very interesting find that has helped geologists to understand the movements of ice during past ice ages. Finding it amongst a dredged load cannot have been easy and it is incredibly impressive that it was retrieved and reported.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate



Hanson_0268: Mammoth Tooth

This artefact was discovered by Darryl Mason on board the *Arco Adur*. The *Adur* had been dredging material from Area 240, which lies 8 miles east of Great Yarmouth, when the item was discovered. Area 240 is known to contain significant Palaeolithic, or Old Stone Age, remains.

This artefact was correctly identified by vessel staff as being a mammoth tooth and it is one of the largest and best preserved mammoth teeth to ever be reported through the Protocol. It is highly significant as it was discovered amongst material from licence Area 240, which is currently the site of a major archaeological investigation. This investigation began after the discovery of 75 flint tools and Palaeolithic animal remains amongst material dredged from this licence in 2008. The finds from Area 240 were reported through the Protocol and have attracted the attention of the international media. Whilst the site of the 2008 discoveries is now protected by an exclusion zone, there is still great potential for significant remains to be found in the rest of the Area 240, and indeed the East Coast region itself, as demonstrated by this artefact.

Images of the tooth were sent to Andy Currant at the Natural History Museum. Whilst the photos are incredibly clear and show the tooth from several angles, it is very difficult to distinguish between species on the basis of photographic evidence alone. Andy felt though that this tooth was likely to have come from a woolly mammoth, *Mammuthus primigenius*, though he did note that a closer inspection of the item itself may indeed reveal that it was from a steppe mammoth, *Mammuthus trogontherri*. The woolly mammoth is the more recent of the two species and was a descendant of the steppe mammoth. Examples of woolly mammoth teeth range in date from 150,000 to 10,000 years in age, whilst steppe mammoth teeth range from 600,000 to around 370,000 years in age.

This significant find adds to our understanding of Area 240 and it is important that all further discoveries from this region are reported, as this find has been, through the Protocol. The crew of the *Adur* are commended for not only recognising and retrieving this artefact amongst a dredged load, but also for supplying accurate location information, which greatly enhances our understanding of this material and of the licence area.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Norfolk



UMD_0269: Cast Iron Retaining Strap

This item was discovered by S. Smith amongst cargo from Area 122/3, which lies approximately 8km south-east of Bembridge, Isle of Wight. It was discovered at UMD's Bedhampton Wharf.

Bob Davis, a senior heritage consultant at Wessex Archaeology, studied images of this find and identified that it was designed to have been driven into the ground, wood or concrete. As there is no concrete adhering to it, and as it is of fairly solid construction, he thinks that it is most likely that this item was driven into wood. The barbs visible along the point of the object would have helped to anchor it in place.

The artefact is broken revealing a relatively 'rough' break. This indicates that it is made of cast, rather than wrought, iron. Cast iron breaks when hit heavily which may explain the damage on this item. Bob also noted that the point at which the item is broken, the shoulder, is likely to be one of the weakest points on it, again explaining the damage.

The shape of the item indicates that it would originally have been symmetrical with an identical prong extending from the shoulder. It is a solidly constructed item and was likely to have been used in heavy industry. Bob in fact notes that the patterning on the flat side of the item may reveal semi-circular lettering, possibly a maker's mark. It is too badly degraded to confirm or disprove this though and the lettering, if present, is now illegible.

Bob believes that this item would have been used as a retaining strap and suggests, given the construction of the item, that it may have had a role to play in the construction of terrestrial railway lines. The possible presence of a mark on the inner face of the item can be seen to confirm this as heavy industries, such as railways, are likely to be those that would mark their components. The evidence, discussed above, that suggested that it was driven into a wooden item implies that it may have been used with wooden railway sleepers, though this cannot be confirmed on current evidence.

The shape and size of this retaining strap suggests a late 19th or early 20th century date for construction.

The area from where this was dredged is well known to contain a spread of post-WW2 domestic building rubble, well evidenced by UMD finds. It is likely that this item was deposited along with this spread.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



UMD_0270: Animal Bones

These bones were found by Merv Smith at UMD's Burnley Wharf, in Southampton. They were discovered amongst material dredged from licence area 122/3, which lies to the east of the Isle of Wight.

This report consists of three bones that, given their broken nature, are difficult to identify. Judging by the size, they are likely to have come from livestock such as a sheep or goat, rather than a larger farm animal. The bone at the top is a rib and the lower bone in the picture looks like part of a humerus or femur: the upper bones of the fore and hind limb respectively. The central bone is badly eroded but its flat nature may indicate that it has come from a pelvis or scapula. It is not possible to conclusively identify it from this image though.

Interestingly these examples appear to have been butchered. The left hand side of the rib in this picture and both ends of the limb bone are very clear and well defined. These are not natural features and they may have been caused by the butchery of the animal or animals for meat. This is likely to have happened, archaeologically speaking, comparatively recently, as were the bones of great age they would have begun to fossilise, as many examples reported through the Protocol have done. It would seem then that these bones relate to an animal that was either butchered on board a vessel for fresh meat during a voyage or butchered on land before the bones were discarded at sea.

These are not the first animal bones to be dredged by UMD from licence Area 122/3. It is thought that this area and those around it contain a spread of refuse material which was deposited after WW2 and which extends for several square kilometres. This has been reported by UMD, CEMEX and Hanson and is evidenced by the high quantity of diverse archaeological discoveries reported from the South Coast region. These finds are possibly part of this spread. Intriguingly Diana Gregg at Portsmouth City Museum and Records Office notes that there is no record of such a spread having been deposited and that the standard practice within post-war Portsmouth was to dump waste material inland or reuse it for various military projects. The presence of the rubble does not preclude the occurrence of wrecks in the area and so all further finds from this area should continue to be reported, as these finds have been.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



Hanson_0271: Perforated Stone Weight

This item was discovered by Malcolm O'Neill at Antwerp Wharf, in Belgium. It was discovered on a discharge pile at the wharf and so the date of dredging and the licence area are unknown.

This enigmatic item was found by Malcolm O'Neill on a reject pile at Antwerp Wharf. It is cone-shaped with smooth sides and is made of stone. A wide perforation can be seen clearly running all the way through the item, and a thinner perforation appears to cross this horizontally at the base of the item.

Images of this find were sent to Lorraine Mephram, one of Wessex Archaeology's finds specialists. She believed, from the pictures, that the larger hole had been deliberately made, as opposed to it being a natural feature. This implies that this item was made to be a weight. Given the marine context the most likely interpretation is that this find was designed as a fishing weight to help sink nets.



It is incredibly difficult to date stone finds and this item may range in date from the Palaeolithic, almost to the modern day. It is not the first stone weight to be reported through the Protocol.

What is especially impressive about this report is that the find was recognised. Identifying stone artefacts amongst dredged loads is understandably difficult and it shows tremendous good practice on behalf of the staff of Hanson Aggregates Marine Limited that they continue to find and report stone items.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The Flemish Heritage Institute



CEMEX_0276 : Tusk or Horn

This find was discovered by C. Woolcott at CEMEX's Northfleet Wharf. It was discovered amongst material dredged by the *Sand Fulmar* on the 31st October from Licence Area 319, in the East Coast Region.

This find was correctly identified by wharf staff as part of a tusk or horn. Images were sent to Wessex Archaeology's zooarchaeologist Jessica Grimm who confirmed that, based on the flaking seen on the back of the find, it was likely to be tusk. This view was also confirmed by Andy Currant at the Natural History Museum.

This example measures around 30cm long and appears to be the tip of a larger item. It is not possible to determine from this picture what species it belongs to, though it is likely that this find represents part of a mammoth tusk. Several tusks have been dredged from English waters over the four years that the Protocol has been in operation, with many significant Palaeolithic or Old Stone Age finds being dredged from the East Coast region.

At times during the last ice age, known as the Devensian glaciation, the areas of the south and east coasts that are dredged today were a dry tundra landscape with rivers flowing across them – these rivers are in fact responsible for depositing the gravels that are today targeted as aggregate. These regions, which are now underwater, were likely to have been home to people and animals seeking the shelter of topographically lower land for protection from the elements during the Devensian glaciation. This find could have been deposited during this time, or could have washed out of a terrestrial context later.

Palaeolithic finds from the East Coast region are incredibly important, especially after the discovery in 2008 of handaxes, flint tools and mammal remains amongst material from Area 240. This find adds to our understanding of our distant past and details will be sent to the Wessex Archaeology team working on the Area 240 project.

Information about this discovery has also been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Suffolk
- The Local Government Archaeology Officer for Suffolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent



CEMEX_0280: Aircraft Fragment

This item was discovered by Martin Keeble at CEMEX's Angerstein Wharf. It had been dredged by the *Sand Fulmar* from Area 137 which lies to the west of the Isle of Wight, in the South Coast region.

This discovery was correctly identified by wharf staff as being part of the airframe of an aircraft. The most likely origin of this type of material in English waters are planes lost during WW2 and these are especially common on the south and east coasts.

Wessex Archaeology sought the advice of Andy Simpson at the Royal Air Force Museum to help identify this piece. A colleague of his, John O'Neill, confirmed that it appeared to be a distorted panel or the cowling from an aircraft. He identified that the circular hole seen on the left in the image above was designed to hold a Dzus panel fastener. Dzus fasteners, named after creator William Dzus, are used to secure panels that must be removed regularly or quickly onto equipment. They were invented in the 1930's and are common on aircraft.



Identifying exactly what type of aircraft this find came from is difficult without further information. John studied aircraft in the museum's collection and noted that this piece is similar to those seen on Spitfires and Typhoons.

Records of losses of WW2 aircraft are surprisingly poorly kept. Where information about known losses exists it is often incomplete (some records read for example '3 miles south of...'). Wessex Archaeology conducted an in-depth study into Aircraft Crash Sites at Sea in 2008 and identified several that are known from various sources to be located to the south of the Isle of Wight. None of these known wrecks are in close proximity to the Area 137 find spot though. It is therefore possible that this is the first indication of a new site of archaeological interest in this area.

Finds such as this one which have been reported through the Protocol are incredibly important for furthering our understanding of WW2 plane losses. The discovery of this item in Area 137 is unlikely to be isolated and CEMEX staff should be vigilant for further material, including ordnance and human remains, relating to a possible crash site.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The Ministry of Defence
- The National Monuments Record
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent

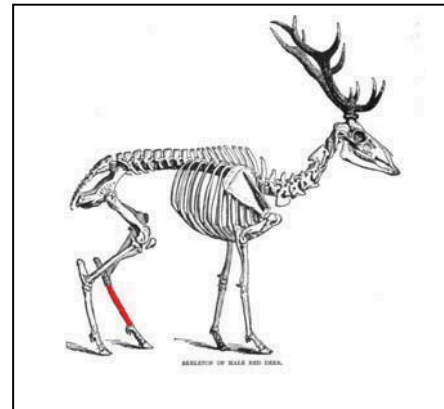


CEMEX_0281: Deer Metatarsus

This artefact was discovered by J Keeble at CEMEX's Angerstein Wharf. It was dredged from Area 319, in the East Coast region, by the *Sand Falcon*. Area 319 lies approximately 10km North East of Lowestoft, in Suffolk.

This large bone was discovered by Jamie Keeble amongst cargo at Angerstein wharf. It was shown to Wessex Archaeology's Zooarchaeologist, Jessica Grimm, who identified it as being a left metatarsus of a large deer, possibly a Red Deer.

In humans, the metatarsal bones are small bones which form part of the foot. Whilst deer metatarsus are also considered to be part of the foot, they are elongated, making them appear as if they are part of the leg. A left metatarsus is shown in red on the image on the right.



This find may have begun fossilisation as it is a rich dark brown colour, unlike an example dredged from the South Coast which was bleached white (reported in 2007-2008). Whilst it may have washed from a terrestrial context, it is likely that this example dates from a time when areas of the North Sea were dry. This last occurred during the Palaeolithic when, between approximately 70,000 and 12,000 years ago, Ice Age conditions locked water into ice sheets.

Several highly significant Palaeolithic or Old Stone Age finds have been dredged from the North Sea in recent times and every new find, such as this one, enhances our understanding of this enigmatic time period.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent
- The Wessex Archaeology team working on the Area 240 Seabed Prehistory Project



Tarmac_0282: Natural Flint

This item was found amongst material from licence area 395/1 in the South Coast region. It was discovered by staff at Bedhampton wharf.

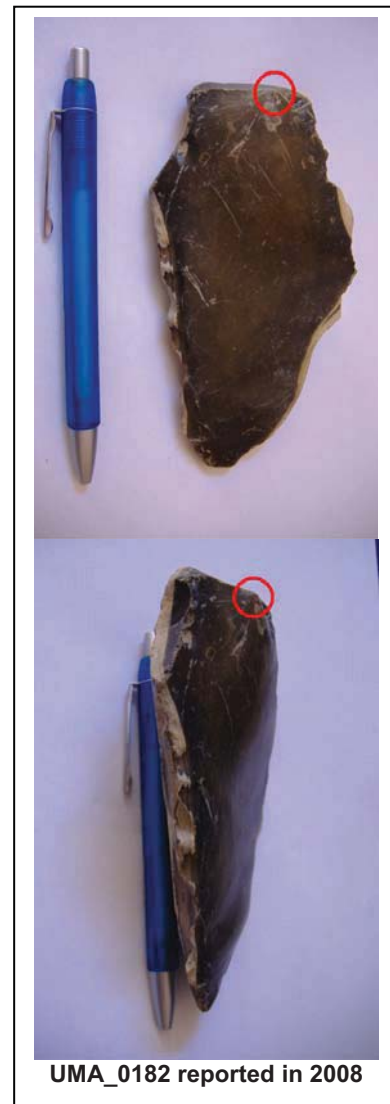
This find was thought to be a piece of worked flint, however, analysis undertaken by Matt Leivers, flint specialist at Wessex Archaeology, revealed it to be natural in origin.

Flint tools are the most enduring type of tool known to man and have been used for over 700,000 years in this country alone. They are notoriously difficult to recognise, especially amongst aggregate, and staff at Bedhampton's wharf are praised for picking this flint up for investigation, even though it was found not to have been worked.

The process used to make flint tools is called knapping. To knap a tool, the knapper chooses a large nodule of flint and tests its quality by tapping it. If it 'rings like a bell' it is good flint with no seams of impurity running through it. If it makes a dull 'thunk' noise it will be discarded as this is a sign that the flint is weak internally. The knapper then selects a hard rock, or a piece of antler, and proceeds to hit the nodule to remove flakes of flint. The aim is to remove all of the cortex – the rough outer coating of the flint – and to knap a shape appropriate to the intended purpose. To make a handaxe, the most common Palaeolithic or Old Stone Age tool, the knapper continues to remove flakes from the nodule, or core, until the central core forms the axe. To make a knife, blade or arrowhead however, the knapper discards the core and uses one of the flint flakes that have been removed. This may then be reduced in size, normally using antler, until it is the desired shape.

Recognising flint tools is easier than recognising the flint flakes that have been worked though both are equally important to our archaeological knowledge. The easiest way of recognising a flint flake is by identifying what is known as the 'bulb of percussion' which is the point at which that flake was struck when it was removed from the core. A bulb of percussion is shown on the flint on the left (discovered by UMA/Tarmac in 2008). Unfortunately, if a flint has been broken or made into a tool, this bulb may be absent. Struck flint is razor sharp, sometimes even after thousands of years, and is sterile when first struck.

Tarmac staff did exactly the right thing by reporting this find through the Protocol, even though it was found to be natural. All further finds that may represent worked flint or flint tools should be reported in the same way, or if staff are unsure as to whether a flint has been worked, please send images of it to Wessex Archaeology via protocol@wessexarch.co.uk. We are always happy to advise on each new find.





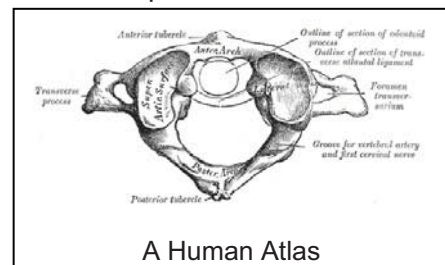
CEMEX_0284: Elephant Atlas

This artefact was discovered by Martin Keeble at CEMEX's Angerstein Wharf. It was found amongst material dredged by the *Sand Falcon* from Area 360 which is in the East Coast Region, lying approximately 20km north-east of Lowestoft.

This find was discovered amongst material dredged from Area 360, which lies in the East Coast region. Since the inception of the Protocol in 2005, the East Coast region has yielded a wealth of finds relating to the Palaeolithic, or Old Stone Age. These have ranged from fossilised or partially fossilised animal remains, to stone axes made before the seas rose to their current levels.

This find also dates from this period and is over 10,000 years old. Images of the find were sent to Andy Currant, Curator of Mammal Remains at the Natural History Museum who identified it as an elephant's atlas. The atlas is the vertebra that sits at the very top of the spine. It is a highly distinctive bone as (unlike other vertebrae which have a solid disc known as the vertebral body, a hole for the spinal cord and bony processes) the atlas appears as a ring or circle with no vertebral body. It sits on top of the axis, the vertebrae below it, and both are designed to allow a greater range of movement in the neck than other spinal bones can.

Currently it is not known what species of elephant yielded this atlas. Andy tells us that whilst all mammoths are elephants, not all elephants are mammoths. So it could have come from a mammoth such as the Woolly mammoth or the Steppe mammoth, both of which inhabited Britain at some point in the past, or it could have come from an elephant.



In between glacial ice ages the planet experiences a warm inter-glacial period like that we are in today. At times these have been very warm, meaning that Britain was tropical and could support elephants and hippos, the bones of either may be found amongst dredged loads.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for London



CEMEX_0285: Red Ensign

This Red Ensign was dredged from licence area 351 which lies to the east of the Isle of Wight. It was amongst cargo dredged by the *Britannia Beaver* which was delivered to Dover Wharf. The flag was discovered by CEMEX's Richard Cork and reported by Geoff Bucknell. This shows excellent co-operation by a joint venture with regards to finds reporting.

This flag was found amongst a cargo dredged by the *Britannia Beaver* and delivered to CEMEX's Dover wharf. When dredged it was unrecognisable but staff at the wharf carefully removed the dirt in order to identify the find.

This find is believed to be relatively modern. Ken Reginald, Fleet Marine Manager at CEMEX, identified that this is a current ensign from a British registered vessel and that the fixings on it are standard for flags of this type from modern vessels. Images of this find were sent to Richard Noyce at the Royal Naval Museum, who confirmed this view, and to Angela Karsten, marine conservator for English Heritage. Angela indicated that it was likely that this flag had become buried on the seabed sometime after it was lost. This would account for the dirt on it when found and for the relatively good level of preservation. As for how long it had been buried, it is not possible to determine at the moment. It was found to the east of the Isle of Wight which sees a lot of marine traffic. It is likely to have been lost by one of the many merchant vessels that use this popular sea route.



The Red Ensign was first introduced in the early 17th century when it consisted of a red flag with the cross of Saint George in the top left hand corner. The current flag didn't develop until 1801 when unification with Ireland, and earlier with Scotland and Wales, saw the creation of the Union Jack which was added to the first quarter of the Red Ensign. It became the official flag used for merchant vessels after an order-in-council in July 1864. The White Ensign denotes a naval vessel and the Blue Ensign indicates a ship commanded by an officer of the Royal Naval Reserve. As this find has originated from a vessel it will be reported to the Receiver of Wreck.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck

Hanson_0289: Five Lead Fishing Weights, Four Bullets and Three Iron Shot

These items were discovered on board the *Arco Axe* during a routine service. The *Axe* dredges material from both the East and South Coast regions – either or both of which could have yielded these finds.



These finds were discovered during a routine service of the *Arco Axe*. It is not known which licence or licences they may have come from or whether they were all dredged together. The *Axe* largely handles material from the South and East coast regions, with a greater quantity coming from the East Coast. Finds of this type could have come from either region.

The finds consist of five lead weights, four spent bullets and three small iron shot. Images of these finds were sent to relevant specialists for further identification.

The lead weights were identified by Wessex Archaeology staff as fishing weights and were likely to have been used to sink fishing lines. Similar weights were also used around the edges of nets but the conical nature of these suggests a role in line fishing. The weight shown in the top of the picture above is of a slightly different style to the other four but the perforation at the top of the find would still suggest that it served the function of a line sinker. Fishing weights of this shape and style have been used for many hundreds of years and similar shaped weights are still manufactured and used today. It is therefore not possible to assign a date to these examples. A similar example though exists in the collections of Southampton museum service, which is believed to date to the medieval period, over 500 years ago.



Images of the bullets were sent along with accurate dimensions to Jonathan Ferguson, Curator of Firearms at the Royal Armouries Museum in Leeds. He identified that the bullets on the left and third from left are .50 Browning Machinegun bullets of slightly different types. One of them may represent a tracer round but it is difficult to tell from the images. The bullet on the right in the image, the smaller bullet, is an early production of a Mark 7 .303 round from a rifle – possibly a Lee Enfield. The last bullet in the image above, that second from the left, was identified by Jonathan as a Boys anti-tank rifle round. The three bullets on the left are likely to date to the Second World War whilst the one on the right could date from WW2 but has been in use since before WW1. More ammunition was fired off at sea during WW2 than at any other time and finds like these will be common in material from the South and East coast regions.

Images of the iron shot were sent to Phil Magrath at the Royal Armouries Museum. He recognised the smaller shot, that on the right, as being of the standard bore for a sea service pistol. The larger two shots are of the correct calibre to have been used with a sea service musket. Both the sea service pistol and the sea service musket became popular in the late 18th century and they continued to dominate naval firearms well into the 19th century. The National Maritime Museum has many fine examples of both in their collections. As with the bullets, these are likely to be common finds in British waters given the large number of battles and naval skirmishes that have occurred around our coastlines. They are difficult to recognise amongst aggregate though given their small size and often corroded nature and the staff of the Axe are commended for recognising them for what they are.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Norfolk and Hampshire
- The Local Government Archaeology Officer for Norfolk and Hampshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



CEMEX_0290: Aircraft Wreckage

These pieces of aircraft were found at Angerstein Wharf by J. Keeble, after being dredged by the *Sand Fulmar*. They were found amongst material from licence area 251, which lies in the East Coast dredging region, east of Lowestoft.

These finds were dredged in January 2010 and discovered at Angerstein Wharf by J. Keeble. They were correctly identified by wharf staff as aircraft remains. Images of the finds were sent to Andy Simpson at the RAF museum who confirmed this identification but could not identify the parts or the aircraft they have come from. Images were then sent to the Imperial War Museum where Andy Robinson studied the colour of the paint and the shape of the items to reveal that they originate from United States Air Force – USAF.

Images of the finds were sent to Brett Stolle, an expert working at the United States Air Force Museum, who recognised them as having come from a McDonnell-Douglas F-4 Phantom. This type of aircraft was flown from the mid-1960's and they are still in use today around the world.

Many aircraft finds dredged from the sea originate from the Second World War given the huge number of wartime losses that occurred during this period. This is clearly not the case for CEMEX_0290. Wessex Archaeology staff checked records of aircraft losses obtained from the National Monuments Record and the UK Hydrographic Office and found no recorded loss sites for this type of plane in the region. The only plane recorded as having been lost in the vicinity of Area 251 is a WW2 Wellington which was flown by the RAF. It was initially thought that this find may be associated with the Wellington site but identification of the parts altered this view.

Despite the absence of a known crash site in this region, it is unlikely that these finds are isolated and it is highly probable that further evidence for this aircraft lies in licence area 251. Whilst relatively modern, material from this aircraft will be of interest to aviation historians and the remains are protected under the Protection of Military Remains Act. CEMEX staff should continue to be vigilant for further remains so that they can be protected and reported as these finds have been.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The Ministry of Defence
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Norfolk



Hanson_0291: Rigging Block

This find was discovered by M. Morely aboard the *Arco Arun*. It was amongst material dredged from licence area 240 which is located in the East Coast region and lies 8 miles east of Great Yarmouth.

This item was discovered amongst material dredged from licence area 240 which lies in the East Coast region. It is not the first rigging block to be recovered from this region and previous finds (shown right) were dredged from area 240 in 2009.

This block consists of a degraded wooden casing housing a metal sheave wheel. This would have held rope and was likely to have formed part of the rigging of a vessel. Photographs of this object were sent to Nigel Nayling, a timber specialist at the University of Wales Lampeter, who confirmed the identification of the object made on the vessel.

The pulley is likely to have come from a boat and may be part of a wreck, though may also have been discarded or lost over board. The presence of metal in the construction of the pulley block indicates that it is nineteenth century or younger in date as prior to this, blocks were made entirely of wood.

Wessex Archaeology will continue to investigate finds from this enigmatic region in case they are indicative of a wreck, however currently no special measures need to be put in place. It is important though that all further finds are reported, as this one has been.



Hanson_0256:
Reported by the
Arun in 2009

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Norfolk



Tarmac_0292 and 0293: Hallmarked Silver Tableware

In September 2009 Justin Apps, Richard Apps and Chris Fryer found a collection of tableware at Ridham wharf. The next month Justin also found a spoon bearing the same crest and hallmark as the earlier finds. These are believed to have come from licence Area 254 which lies in the East Coast region, east of Great Yarmouth.

This assemblage consists of fragments of two goblets, one of which bears a crest, three hallmarked spoons, two burnt candle holders and one candle holder displaying classical style faces. Also found were a twisted piece of metal that may represent the base of a goblet or candlestick, or may have been affixed to a wall or other item, and an enigmatic bowl-shaped item, similar to a candle snuffer, that is yet to be identified. Two of the candlesticks appear to have suffered heat damage and it is plausible that this occurred when the items became deposited in the sea. Ships from the period that these finds were made often ran armed with gunpowder and fires on board wooden vessels would almost certainly cause this kind of damage and explain how these items were deposited. However, this cannot be confirmed at the moment.

These finds are potentially highly significant. The nature of the items – all tableware, some bearing hallmarks, some bearing a crest or coat of arms – indicates that these are a unique assemblage. There are very few scenarios that would introduce an assemblage like this to the seabed and the most plausible, given the location of their discovery, is that they were lost with a ship. Given this significance, Tarmac introduced a Temporary Exclusion Zone covering the overlap of the areas dredged on the two days that these finds were retrieved. This has now been revised into a smaller exclusion zone based around a known anomaly identified during geophysical surveys undertaken during earlier investigations into this licence area in the north of the dredged area and Tarmac staff should remain vigilant for further evidence dredged from Area 254.



Wessex Archaeology's Finds Specialist Lorraine Mephram identified from the hallmark that the finds were assayed in 1781 in London.

Images of the crest were sent to the Royal College of Arms who identified it as belonging to the Dalrymple family, Earls of Stair.



The presence of the Viscount's coronet plus the hallmark indicates that these are the Arms of John Dalrymple, 6th Earl of Stair (1749-1821).

John Dalrymple was well travelled during his lifetime. He was a captain in the 87th foot regiment and served during revolutionary war in America present at successful attacks on New London and Fort Griswold in 1781. On his return to Britain he was appointed minister-plenipotentiary or diplomat to Poland then Prussia.

He succeeded his father as 6th Earl of Stair in 1789 and sat as a Scottish representative peer from 1790-1807 and from 1820 until his death. He died, unmarried, on 1 June 1821, at his house in London and was buried in the vault at Inch, Wigtownshire (1).

Although John Dalrymple was not lost at sea with his tableware it could have been lost en route or return to Poland or Prussia during his work as a diplomat 1782-87 perhaps as part of a shipwreck carrying his belongings.

The finds are currently with Wessex Archaeology but English Heritage and the Receiver of Wreck have been informed of their discovery. It is likely that, after Wessex Archaeology's initial reporting, English Heritage may want to conduct further research into these finds and Area 254, and the Receiver is likely to curate these important finds to a museum.

Wessex Archaeology will continue to report information about these finds to Tarmac as new information comes to light but it is clear at this stage that they are some of the most significant to ever be reported through the Protocol and Tarmac staff should be commended for the way they have reported and protected these finds.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck

Sources: (1) Abbott, DM. 2004-10 *Oxford Dictionary of National Biography*. Oxford University Press



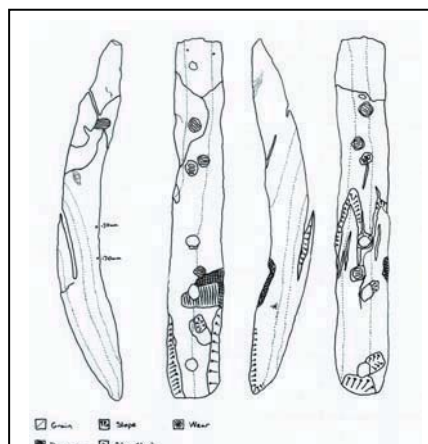
CEMEX_0294: Ship's Timber

This item was discovered in the drag head of the *Sand Fulmar* by N Coombs. It is thought to come from the Humber region – possibly from area 107 – though it is possible that it was in the draghead for several days before being retrieved.

Images of this find were sent to Nigel Nayling, a ship's timber specialist from the University of Wales, Lampeter, who confirmed that it is likely to have come from a small vessel. Though it is hard to tell what type of wood it is made of based on the images, he thinks that it is likely to be Oak – a common material used for the construction of wooden vessels in the past. This timber would have formed part of the ship's framing – the struts around which the vessel is built – and Nigel tells us that the ship would have been a carvel built vessel.

'Carvel built' describes a method of boat building where the timbers covering the hull do not overlap but instead butt against each other. The alternative method, where timbers overlap, is known as 'clinker built'. This timber was held in place with seven treenails – wooden dowels – still visible in the holes on CEMEX_0294. One in particular had a small wedge to strengthen the treenail fastening. This was often done to incorporate other structural elements through one treenail. Treenails have been used for hundreds, if not thousands of years and they expand when wet, securing the panels to the frame of the boat.

Assigning a date to this find is difficult. The earliest known carvel built vessels have been found in Egypt and date from around 3,000 years before present. This example is likely to be far younger than that – probably dating from the last 500 years. If further finds of this nature are discovered it may be possible to date those accurately using a technique called dendrochronology. This technique dates the wood based on the tree rings within it, which can often reveal the year a tree was felled and the country from which it originated. Whilst it may be possible to date this example with this method, it would only tell us how old this find is, and not the age of a potential site. If the location was more certain then dendrochronology would certainly be considered.



Wessex Archaeology staff studied the find and recorded it from all angles

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Lincolnshire
- The Local Government Archaeology Officer for Lincolnshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



CEMEX_0295: Maritime Timbers

These timbers were discovered by M. Bednarski on board the *Sand Falcon*. They were discovered in the draghead after dredging in area 319, which lies in the East Coast region east of Great Yarmouth.

These finds were discovered in the draghead of the *Sand Falcon* after dredging in the east coast region.

Images of these finds were sent to Nigel Nayling, a ship's timber specialist from the University of Wales, Lampeter, who confirmed that they are likely to have come from a vessel. These timbers would have formed part of the ship's framing – the struts around which the vessel is built – and Nigel tells us that the ship would probably have been a carvel built vessel.

'Carvel built' describes a method of boat building where the timbers covering the hull do not overlap but instead butt against each other. The alternative method, where timbers overlap, is known as 'clinker built'. The timbers were held in place with treenails (pronounced 'trunnels') – wooden dowels – still visible in the holes on CEMEX_0295. Treenails have been used for hundreds, if not thousands of years and they expand when wet, securing the panels to the frame of the boat.

Assigning a date to this find is difficult. The earliest known carvel built vessels have been found in Egypt and date from around 3,000 years before present. These examples are likely to be far younger than that – probably dating from the last 500 years. It is likely that these finds originate from a wooden shipwreck but we cannot investigate this further unless more evidence is retrieved from the area, telling us more about the age and extent of any possible wreck. All further finds from this area should be reported.

If further finds of this nature are discovered it may be possible to date those accurately using a technique called dendrochronology. This technique dates the wood based on the tree rings within it, which can often reveal the year a tree was felled and the country from which it originated. Whilst it may be possible to date this example with this method, it would only tell us how old this find is, and not the age of a potential site. If the location was more certain then dendrochronology would certainly be considered.

Information about this discovery has been forwarded to:

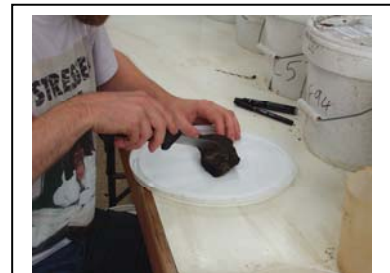
- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire

CEMEX_0296: Peat

This sample of peat was discovered at CEMEX and Britannia's joint venture wharf in Dover. It was found amongst a cargo of aggregate dredged from licence area 251 in the East Coast region by the *Sand Falcon*.

Peat is incredibly important to archaeologists. It forms when plants rot in anaerobic conditions – those where oxygen is absent. Due to the lack of oxygen, the plant remains cannot fully decompose and so peat often contains the recognisable remains of plants and seeds. This information can lead archaeologists to understand what the climate and conditions were like in a particular area at a particular time in the past.

This sample was studied by Wessex Archaeology's environmental archaeologist Chris Stevens. He identified the seeds of white water-lily, bogbean and sedge within the sample. He also identified fragments of wood, small flakes of charcoal and the remains of common reeds. All of this information points towards this area having been boggy ground next to a river or stream in the past.



An archaeologist studies a sample of peat

Archaeologists studying this area had already identified the likely presence of river channels, now filled in, dating to past ice ages in the East Coast dredging region. One was thought to lie to the west of area 251, close to where this deposit is thought to have been dredged. This discovery has given us a closer look at the evidence that lies below the waves.

Archaeologists are currently looking at the possibility of carbon-14 dating this sample, which may date to the Mesolithic period which ended over 6,000 years ago. Dating the sample will allow us to not only understand what the climate was like when this peat was deposited, but to understand this within the greater context of the history of the East Coast region.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk



TARMAC_0297: First World War Handgun

This item was found by Michael Pettitt amongst material dredged from area 395. Area 395 lies South of Portsmouth and to the east of the Isle of Wight. It was reported by Michael, and by Andy Roberts, of Portslade Wharf.

Images of this find were sent to Jonathan Ferguson of the Royal Armouries Museum in Leeds. He identified it is a First World War service revolver – a Webley Mark VI. Webley revolvers have been manufactured since the 1870's but the mark VI is arguably the most common Webley gun and was produced from 1915 for use during the First World War. It was universally popular – being issued to airmen, naval crews, tank crews, boarding crews and servicemen tasked with raiding enemy trenches. The Webley mark VI was not the official handgun of the Second World War, but as revolvers were sparse it continued to be issued to some personnel.

Tarmac_0297 consists of the frame of a mark VI revolver. It is an interesting find and wharf staff suggested donating it to their local museum. Before this was done though Wessex Archaeology staff contacted Sussex police to ensure that this would not lead to any complications! Sussex police were keen to establish the age of the weapon, how long it had been submerged and whether it was likely to have been used in a crime.

It is impossible to tell how long the find has been submerged. It may have been lost from or with a vessel, lost with an aircraft or it could have been discarded with a spread of post-WW2 rubble known to lie in the area to the east of the Isle of Wight. Given the condition of the gun, and the level of corrosion on it, it is likely to have been submerged for some time and is unlikely to assist in solving any recent crimes! Because of this Sussex Police were happy for it to be donated to a local museum.

Whilst this find is not currently thought to be contentious, it is possible that it has originated from an aircraft or a shipwreck site. A British aircraft is known to lie in the vicinity of Area 395, though it dates from WW2. It is important that all further finds from this area are reported as this find has been.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Hampshire
- The Local Government Archaeology Officer for Hampshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Sussex

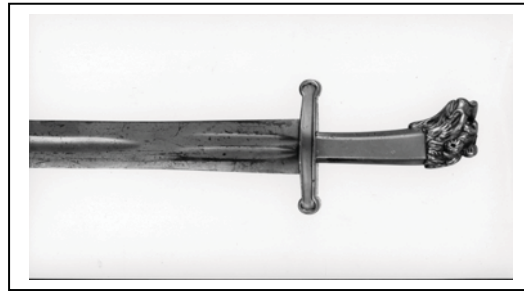
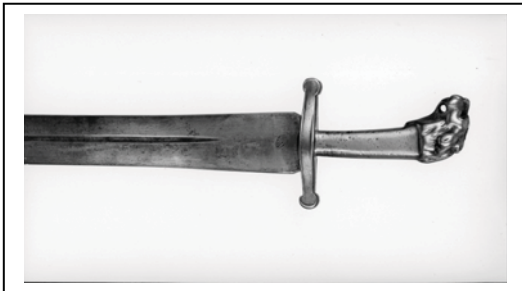


Kendalls_0298: Sword Hilt

This sword hilt was found by P. Stevens amongst material dredged from South Coast licence area 351. Area 351 is located approximately 20km east of Ventnor, on the Isle of Wight. The find was reported to Wessex Archaeology in April 2010.

This find was correctly identified by Kendalls' staff as being a sword hilt featuring a lion. Images of the hilt were sent to the Royal Armouries Museum who compared it to swords in their collections.

James Hester, Curatorial Assistant for Edged Weapons at the museum, found two possible parallels in the Museum's collections.



The image on the left above shows a British Bandsman's sword and the image on the right shows French Marine's short sword. The French example is the earlier one, dating from 1820, compared to the British sword which was made in 1854 (both images © Royal Armouries Museum).

It is not possible at this stage to determine which country produced the dredged example, though we may be able to determine this based on future finds that come from licence area 351. Whilst it is possible that this sword hilt, which is between 150 and 200 years old, was lost over the side of a vessel, it may also originate from a shipwreck. Given the age of the sword, any shipwreck associated with it would be historically significant. Kendalls' staff working with material from area 351 should be vigilant for future finds from this area which could tell us more about the sword and its origins.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Hampshire
- The Local Government Archaeology Officer for Hampshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



CEMEX_0299: Fossilised Animal Bone

This fossilised bone was found by N. Coombs on board the *Sand Fulmar*. It had been dredged from licence area 447 which lies in the Thames region, South of Felixstowe.

Images of this find were sent to Andy Currant, Curator of Mammals at the Natural History Museum, and he confirmed that it is an animal bone. Judging which species it originates from is very hard from photographs alone but given the extent of fossilisation on the bone (which can be seen by its dark colour) and its size, it is possible that it originates from a mammoth.

The bone is a humerus, or upper limb bone, which would have extended from the shoulder to the knee joint. This is a relatively small example and if it is mammoth then it may be from a relatively young one.

This is not the first mammoth find to be dredged from this region. The tusk, shown right, was found on board the Sand Falcon in 2009.



These finds were deposited in this area during the last ice age, when the area being dredged today was dry land. During this time much of the planet's water was held in ice sheets and it was released when the Earth warmed around 10,000 years ago.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Essex
- The Local Government Archaeology Officer for Essex
- The Finds Liaison Officer (Portable Antiquities Scheme) for Essex



CEMEX_0300: Leather Sole

This find was discovered on board the *Sand Fulmar* by N. Coombs. It was dredged from licence Area 107 which lies in the Humber dredging region.

This find was correctly identified by staff on the Fulmar as being the leather sole of a shoe. The shape of the item, as well as the regular stitching around the edges confirms this and this find represents the central part of the shoe.

Wessex Archaeology staff studied the find but have not been able to assign a date to it. The earliest shoes ever found date from around 5,000 years ago. At this time, and for thousands of years afterwards, the sole was manufactured as part of the body of the shoe, not a separate piece of material as they are today. Soles began being manufactured separately, as this one has been, and sewn on from around the 17th century and today the soles of many shoes are glued on rather than sewn.

The regular stitching on this item suggests that it has been manufactured using a machine. Machines capable of stitching the soles to the uppers of shoes were first invented in the mid-1850's but it was a long time before they were used universally. Another clue as to the age of the item lies in its material – which appears to be leather. Leather survives relatively well underwater but only in the right conditions. Many leather items would rot away within a relatively short period of time even when submerged. Leather used to be a common material for soles but is now largely used only for dress shoes.

Based on the evidence above, find CEMEX_0300 is currently thought to have been manufactured at some point within the last 50 years. However, this is speculative and further finds from area 107 may help to identify not only the age of this find, but also how it came to be submerged. It is possible that this is a chance find, lost or discarded over the side of a vessel possibly with the rest of the shoe attached. However it may have come from a more coherent site of archaeological interest such as a ship or aircraft wreck. CEMEX staff should continue to be vigilant, as they have been, as further finds from Area 107 might shed more light on this discovery.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Lincolnshire
- The Local Government Archaeology Officer for Lincolnshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Lincolnshire

CEMEX_0301: Roman Pottery

This find was discovered on board *Sand Fulmar* by N Coombs. It was dredged from licence area 107, which lies approximately 14 miles east of Chapel St Leonards, Lincolnshire.



This find was shown to Wessex Archaeology's pottery specialist, Rachael Seager Smith who identified it as part of a Roman bowl dated to 2nd-3rd century AD.

This sherd belongs to a type of pottery vessel known as a *mortarium* – a large bowl with a rim adapted for gripping and often provided with a spout (see image to right: Roman Mortarium dated later 1st or early 2nd century AD from St Albans). Grit embedded in the inner surface of these vessels suggests that they were used for the mixing, grinding and pulverisation of food – rather like a pestle and mortar or an ancient version of the electric food processor!



© Wessex Archaeology

This pottery vessel is made from a coarse, gritty sandy fabric. Its surfaces are much worn and almost all traces of the internal grits have been lost but the overhanging rim (shown right) still provides a very good grip for the fingers. It is probable that its surfaces were originally much more orange in colour, and may even have been coated in a thin white slip. It was around 28cms in diameter and would probably have been between 10-15cms high.



The style of this bowl suggests that it was made and used during the 2nd to 3rd centuries AD (roughly AD 150 – 250). Mortaria were never common in East Anglia and no pottery vessels exactly comparable to this one have been found on land, but it is likely that it was made somewhere in the region, perhaps in Norfolk, where small numbers of locally-made, greyish mortaria have been found on sites such as Caistor-on-Sea, Brampton, Brundall, Wighton and Hindringham, for example. Given the considerable trade along the east coast to the northern frontier, it is possible that this vessel was lost overboard by local East Anglian traders, although it could even mark the position of a Roman wreck.

Other recent Roman Pottery finds include two sherds of Samian Ware discovered in 2008 at Kwinte Bank, Belgium; these two pieces had identical stamps suggesting they were from the same cargo and could indicate the presence of a shipwreck. Few finds of sea going Roman ships are known in northern Europe, so reporting finds such as these could lead to an important discovery.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Lincolnshire
- The Local Government Archaeology Officer for Lincolnshire



CEMEX_0302: Shark Tooth

This fossilised tooth was found on board the *Sand Fulmar* by N. Coombs. It was amongst material dredged from licence area 473 East which lies in the East English Channel region, south of Eastbourne, Sussex.

Images of this find were sent to the Natural History Museum where they were shown to the Senior Fish Curator. Initially it was thought to be the tooth of a Monkfish but identification was not certain as, despite the photographs being very clear, identifying finds from pictures can be incredibly difficult. CEMEX sent the tooth to Wessex Archaeology who forwarded it to the Museum for an 'in-hand' examination.

Oliver Crimmen, Senior Fish Curator, identified it as a shark's tooth. 'As soon as I saw the specimen,' Oliver says, 'its flattened aspect told me it couldn't be Monkfish, but some sort of shark's tooth.' The most likely species for the origin of this find is an ancient species of *Carcharias taurus*, or sand tiger shark.

Despite their fearsome appearance, these sharks are unlikely to attack unless provoked and are very common in marine aquariums in England and the rest of the world. They are not found in British waters today but can be found in coastal water around Australia, the Mediterranean, Africa, Asia and the east coasts of North and South America.



Carcharias taurus – Sand Tiger Shark

CEMEX_0302 is a fossilised example so it is likely to have come from a shark that lived millions of years ago. Similar teeth have been discovered in Kent and are believed to date to the Eocene epoch – some 50 million years ago.

Finds like this one, whilst very interesting, are not technically archaeological as archaeology covers only the human past and people have lived in Britain on and off for only 700,000 years. This find is palaeontological in origin – the same as other fossils reported through the Protocol. It will be returned to CEMEX for display or donation to a local school or museum.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate



Brett_0303: Aircraft Remains

These finds were discovered at Brett's Cliffe Wharf by Ashley Wilkinson. They were dredged from licence area 351 in April 2010. Area 351 is located in the South coast region, east of the Isle of Wight.

Brett staff discovered three pieces of aluminium believed to have come from an aircraft. Two of them appear to be plating from the superstructure of a plane. Images of all three pieces were shown to Andy Simpson, Curator of Aircraft and the Royal Air Force Museum. He identified that the piece shown above, which bears marks and numbers, originates from an aircraft engine and possibly came from the main engine or cylinder block. However, he was unable to identify which type of plane this find originated from.

Since the Protocol was implemented in 2006, only one other piece of aircraft material has been dredged from licence area 351. This was found by Brett staff at Cliffe shortly after Brett_0303 and reported as Brett_0304.

Wessex Archaeology checked records for aircraft losses in the vicinity of Area 351 and there are no recorded losses in this area. This however is not surprising. Records of where aircraft have been lost are poorly kept. Many were lost in conflict during the Second World War, especially in the South Coast region which is on the main route from the continent to Britain, and at this time records were difficult to maintain. Losses were either not recorded or where they were recorded, were only located in vague terms as aircrew were unable to give specific locations. In some areas loss records are based on accounts from air sea rescue who may have only recorded where crews were picked up, not where their plane sank.

Aircraft finds reported through the Protocol are all potentially significant as they have the potential to highlight crash sites that have not previously been recorded. The discovery of four pieces of aircraft wreckage from within Area 351 point to the presence of an aircraft crash site in the general area. Military aircraft are automatically protected under the protection of military remains Act. However, at this stage it is not deemed necessary to implement an exclusion zone as no concentration of debris has been determined and these finds may have washed in from outside of the area or may have migrated from an existing exclusion zone. All further finds should be reported, as these have been, as they may change our interpretation of the submerged history of Area 351.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Hampshire
- The Local Government Archaeology Officer for Hampshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent

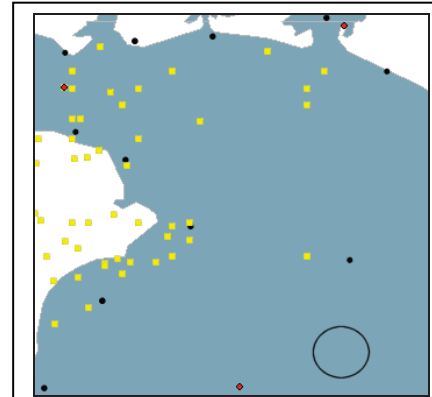


Brett_0304: Spark Plug

This item was discovered by Dean Noon at Brett's Cliffe Wharf. It had been dredged from licence area 351, which lies in the South Coast region, by the DEME Charlemagne.

Brett_0304 has been identified by Andy Simpson, curator of aircraft at the RAF Museum, as a spark plug. It is not known whether it has come from an aircraft but, given the location of its discovery and the fact that most boat and ship engines run on diesel, this would seem plausible.

Area 351 is situated in the South Coast region which is known to contain a high concentration of downed aircraft as it lies directly between the continent and the UK. Second World War planes coming from the continent would have flown over this area where they may have sustained damage and been downed from British aircraft or guns. Similarly RAF planes will have been downed in the Channel during combat.



Area 351 (shown by the black circle) in relation to known aircraft crash sites

Despite WW2 being a relatively recent event, records of aircraft losses from this period were poorly kept. This is partly due to the pressures of war, partly due to the destruction of records in the intervening time (either by accident or, particularly in the case of German records, by design) and partly due to the fact that the location of many lost planes were only recorded in vague terms. The approximate location of Area 351 is shown by the black circle on the map above and the known aircraft crash sites in the immediate area are shown by the coloured dots. No aircraft are recorded as having crashed within 351 but that does not mean that one is not present. This spark plug could be an early indication of the presence of an aircraft – possibly dating to the Second World War though not necessarily – and further cargoes from this area should be carefully screened for further remains. All further finds from this area should be reported, as where a location can be determined for a possible crash site, it should be protected on the seabed as Protected Military Remains.

Information about this discovery has been forwarded to:

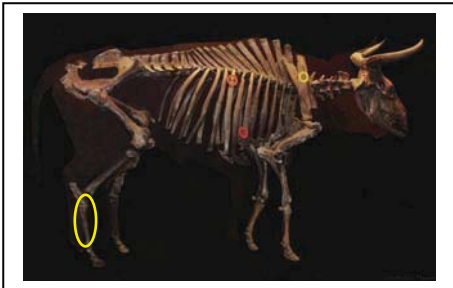
- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Hampshire
- The Local Government Archaeology Officer for Hampshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent

CEMEX_0307: Animal Bone



This animal bone was discovered at Angerstein wharf by L. Medhurst. It was dredged by *Sand Falcon* from licence area 251, which lies east of Lowestoft.

This animal bone is approximately 30cm long. Photographs of this find were shown to Wessex Archaeology's Zooarchaeologist, Lorrain Higbee, who thinks it is likely to be an ungulate metatarsal or foot bone from an Aurochs, the ancestor of modern cattle.



In humans, the metatarsal bones are small bones which form part of the foot. Whilst the aurochs metatarsal is also considered to be part of the foot, they are elongated to appear as part of the leg. A metatarsal is circled in yellow in the image to the left.

Aurochs is an extinct ancestor of domestic cattle. Aurochs were much larger than domestic cattle with a shoulder height of around 2 metres.

Aurochs originated in India, migrating west to Europe around 250,000 years ago. This species is now extinct and the last recorded aurochs died in Poland in 1627.

Several highly significant Palaeolithic or Old Stone Age finds have been dredged from the North Sea in recent times and every new find, such as this one, enhances our understanding of this period.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Suffolk
- The Local Government Archaeology Officer for Suffolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Greater London

TARMAC_0309: Animal Vertebra

This animal bone was discovered at Burnley Wharf by NC Sait. It was dredged by *Arco Dee* from licence area 124/1A, which lies approximately 11 miles SSW of Worthing.



This animal bone is approximately 115mm long. Photographs of this find were shown to Wessex Archaeology's Zooarchaeologist, Lorrain Higbee, who thinks it is likely to be a cattle cervical vertebra, or neck bone. It is possible that it is from an Aurochs, the ancestor of modern cattle.



The aurochs is an extinct ancestor of domestic cattle although they were much larger with a shoulder height of around 2 metres.

Aurochs originated in India, migrating west to Europe around 250,000 years ago. This species is now extinct and the last recorded aurochs died in Poland in 1627.

Several highly significant Palaeolithic or Old Stone Age finds have been dredged from the North Sea in recent times and flint artefacts and faunal remains have been found off the South Coast. So every new find, such as this one, enhances our understanding of this period, and the environment that existed, its wildlife and its potential for supporting our ancestors.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for West Sussex
- The Local Government Archaeology Officer for West Sussex
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire



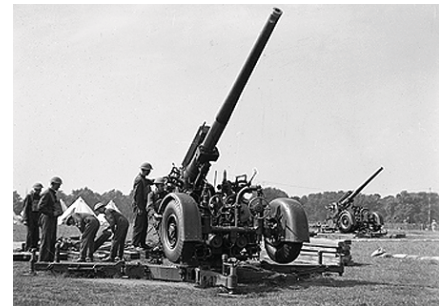
Tarmac_0311: Fuse Cap

This find was discovered by Justin Apps at Ridham wharf. It was dredged by *City of London* in licence area 296, which is located approximately 6 miles east of Caister-on-Sea, Norfolk.

Photographs of this find were sent to Andy Robinson, Collections Officer, at the Imperial War Museum for identification. His colleague, Martin Garnett, identified this piece of metal as part of a British Fuse Time No.207 MkVIII N.

This fuse was manufactured in 1944 possibly by Ferranti Ltd, a major UK electrical engineering firm. During World War 2 Ferranti was a major supplier of electronics, fuses and valves as well as being heavily involved in the early development of radar in the UK.

The No 207 Fuse was introduced into service in 1939 specifically for use with the 3.7in AA Gun (pictured right showing 3.7 inch anti-aircraft guns in Hyde Park, London in 1939). These guns developed in response to the newer aircraft development and were used to protect Britain. They had a maximum horizontal range of 18,800m (just under 12 miles) and a maximum slant range of 12,000m (just over 7 miles). It is possible that this shell was fired towards enemy aircraft over the sea, although whether it successfully hit its target is unknown.



Reporting military finds can aid our understanding of this period by highlighting where enemy aircraft were attacking and help confirm historical records of where AA batteries may have been positioned and potentially indicating the areas with increased potential for aircraft wreckage.

Always follow Company guidelines on the safe treatment of munitions when they are discovered and for more information read page 5 of the BMAPA handout or see BMAPA's Guidance Note Dealing with Munitions in Marine Aggregates June 2006

(http://www.thecrownestate.co.uk/1402_latest_munitions_guidance_note.pdf)

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- Ministry of Defence
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Kent



Tarmac_0315: Metal Pins

These finds were discovered by Barry Gould at Erith Wharf. The material came from the *City of London* and was either dredged from licence area 127 or area 430. Area 127 is located approximately 12 miles southeast of Bournemouth, Dorset, while Area 430 is located approximately 13 miles east of Southwold, Suffolk.

The two finds pictured above are iron fastenings. They both look to be nails, though it is possible that the larger of the two is a spike. There are some difficulties in correctly identifying fastening types as terms used can vary between countries and industries. The general convention for shipbuilding is that those with a square section are labelled 'spikes' while the more rounded are 'nails', different versions of these types are then based on the shape of the head. The term 'spike' can also be applied to large nails. Both nails and spikes are pointed pieces of metal driven into timber and used to fasten one piece to another.

It is also a possibility that these finds are not from shipbuilding at all but rather are fasteners used in other industries such as construction on land. The artefacts may have been part of a ships cargo or drifted out to sea embedded in timber.

While they are difficult to identify without context it is always important to report when fasteners are found. A large number of fasteners found in one area could indicate a shipwreck site.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Suffolk
- The Local Government Archaeology Officer for Suffolk
- The Finds Liaison Officer (Portable Antiquities Scheme) for Suffolk



TARMAC_0316: Anchor Fluke

This artefact was discovered on board the *City of London* on July 9, 2010. It was found in material dredged from licence area 254, approximately 12km east of Great Yarmouth, Norfolk.

This artefact was found by Tarmac staff onboard the *City of London* while working off Great Yarmouth. Images were sent to Wessex Archaeology's maritime archaeologist, Graham Scott, who determined that it was part of a wrought iron anchor with one fluke and no shank. This view was also confirmed by Mark Beattie-Edwards of the Big Anchor Project.

This example measures around 100cm long, with a fluke that is 24cm long. In the image it looks to be a single thin arm, however it is in fact the full length of both arms to the bills. The shank seems to have broken off at the crown and one of the arms has lost its fluke. Because of the degraded nature of the object it is not possible to determine exactly what type of anchor it is or its age. However, with the information available, it is most likely to be a small stocked anchor dating anywhere from the Middle Ages to the 19th century, possibly originating from a small fishing vessel.

Anchors are important symbols of the maritime world and are common artefacts found on the seafloor. There are a number of reasons why an anchor may end up on the seabed such as being lost during a storm, being fouled, as part of a shipwreck event or lost due to broken chains or ropes. Whatever the reason they came to be there anchors are important to record and can tell us a great deal about the history of an area, where an anchorage was located, areas of danger to ships and the location of shipwrecks.

At present, this anchor appears to be an isolated find and does not necessarily indicate a wreck site on the seabed. However, as other finds have been discovered in this licence area that are indicative of a shipwreck (Tarmac_0292 & 0293), and as there is a Temporary Exclusion Zone in place, staff should remain vigilant when working with material from licence area 254.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk

TARMAC_0317: Fishing weight and fossil

These stone items were discovered by at Bedhampton Wharf by G. Cooper. They were dredged by the *City of Winchester* from licence area 395/1, which lies off the east coast of the Isle of Wight.



Photographs of the two finds were shown to Wessex Archaeology's finds specialist, Lorraine Mephram, who identified the first (photographed above left) as a stone fishing weight, and the other as a natural fossil.

Finding a fishing weight is interesting from an archaeological point of view because the location of such a find can tell us where people were fishing and information about their diet. Fishing is known to have occurred around Britain since early prehistoric times. Some of the earliest discoveries of artefacts relating to fish traps have been made by English Heritage on the Isle of Wight coast. Fishing weights may have been used in an inshore environment or have been used further out at sea on fishing gear deployed from vessels.

Although the weight has been worked by human agency there is no way of gauging its age, as such items were used from the prehistoric to the post-medieval periods.

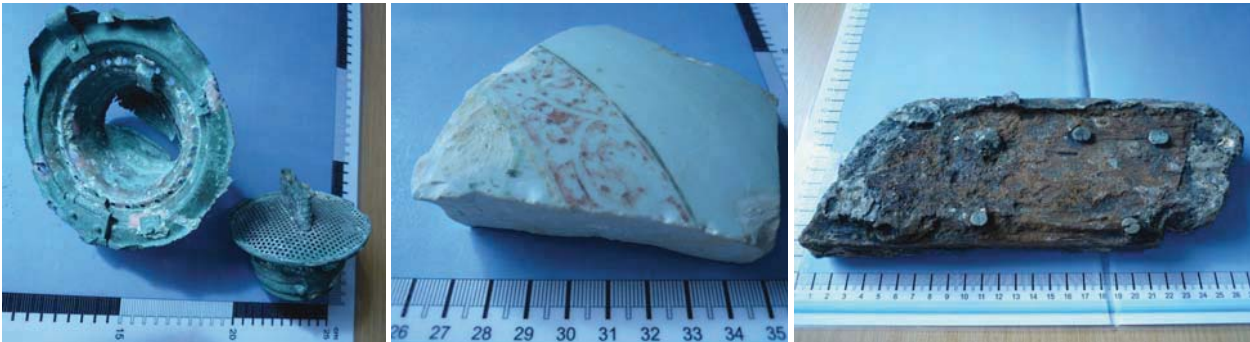
The stone fossil had interesting striations, resembling rope marks, which required expert clarification that it was in fact a natural object and had not been used by people in some manner. It is thought that it is fossilised sea coral or possibly a distorted ammonite. While this is not an archaeological find, it is important that any discoveries of unusual shape or fabric continue to be reported through the Protocol, as they may prove to be a significant archaeological discovery.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Hampshire

Tarmac_0319: Brass Lamp, Pottery fragment and wood

This find was discovered by G Cooper at Bedhampton Wharf. They were dredged by *City of Chichester* in licence area 127, which is located approximately 12 miles southeast of Bournemouth, Dorset.



Photographs of these finds were shown to Wessex Archaeology's finds specialist, Lorraine Mepham.

The first item was identified as parts of an oil lamp. The badge is engraved with *The Waterbury Corp: Brass Good*. This is likely to refer to The Waterbury Button Company, an American company founded in 1812, which mainly produces stamped metal buttons for, among other things, film costumes including *Gone with the Wind* and *Titanic*. During World War 2 they made a range of goods for the Allied forces from buttons to bomb fuses, including oil lamps, and changed their name to *Waterbury Companies Inc.* to reflect the diversification of their product range. This lamp may have been used on board a vessel and either lost overboard by accident or lost due to the ship wrecking.



The pottery is either bone china, or more likely, porcelain, with either a hand painted or transfer-printed decoration. Porcelain can be tricky to date but this is likely to be 19th or 20th century.

The piece of wood is worked and at some point probably had a piece of metal attached by the flathead screws still in place. Although fragments of wood like this are difficult to identify it is still important to report them as they could, particularly in conjunction with the other material reported here, indicate the presence of a shipwreck in the area.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Dorset
- The Local Government Archaeology Officer for Dorset

Tarmac_0320: Walker's Cherub II Ship Log

This was discovered at Greenwich Wharf by Mark Hillier and Donald Pinnock. Unfortunately the licence area is unknown; however it is likely to have been dredged by the *City of Westminster*.



This find was identified as the recorder of Walker's Cherub II Ship-Log, a mechanical log recorder and dates to the early 20th century.

This brass instrument was used to measure the distance travelled from which the vessel's speed could be calculated. The dial shows a scale of 0 to 100 miles, with an inset dial with a scale 0-1 mile.



The ship-log would have had a fixing plate and would've been mounted to a suitable part of the vessel, usually the taffrail, rail at the stern of the ship. The recorder was connected to a rotor that was towed behind the ship and the revolutions of the rotor were registered by the ship-log dial to measure the distance travelled (see image to left).

The Cherub log was first patented by Thomas Ferdinand Walker (1837-1921) in 1878. The later very successful Cherub Mark III series included a third dial with scale 0-1000 miles and was produced in great numbers between 1930 and 1994.

This was likely to have been lost over the side of a vessel perhaps during stormy weather or if the rotor snagged on something pulled the recorder over the side; however it could also indicate the site of a shipwreck.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The Finds Liaison Officer (Portable Antiquities Scheme) for Greater London



CEMEX_0321: Rib Bone

This find was discovered onboard *Sand Harrier* by W. Krasouski (Bosun). It was dredged from licence area 123G (Owers) approximately 14 miles SSE of Bognor Regis.



This bone was shown to Wessex Archaeology's Zooarchaeologist, Lorrain Higbee, who believes it is likely to be a cattle rib bone.

Rib bones are notoriously difficult to identify. This bone has damage at both ends making identification even harder, however judging by the size and weight of the bone it is most likely to be a cattle bone. The damage may have occurred whilst the bone was under the water or perhaps during the dredging process.

The reason the bone ended up in the water is unknown and there are no obvious butchery marks. There are several possible ways it could have entered the water including as refuse from a ship, as domestic waste from shore or a carcass washed out to sea.

Finds like these are important to report as they can provide information about the distribution of animals, the use of animals or the diet of sailors in the past.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record for West Sussex
- The Historic Environment Record for West Sussex
- The Local Government Archaeology Officer for West Sussex

Tarmac_0325: Cutlery, Stone and Metal Item



These artefacts were discovered at Erith Wharf in August by M. Kirby & R. Lawrence. The objects were found in aggregate from the *City of London*. It is not known whether the material came from licence area 447, located offshore of Caister, or area 296, which is off the coast of Clacton-on-sea.

Images of these artefacts were forwarded to Wessex Archaeology's Post-Excavation specialist, Lorraine Mepham. Lorraine confirmed the BMAPA team's initial analysis.

The fork and spoon, shown above, are both made of silver and have engravings on their handles. The spoon is engraved with 'ARGO-ADLER BREMEN 2'. The staff at Erith wharf undertook some excellent preliminary research and discovered that 'ARGO-ADLER' is a shipping company. The company was originally based in Bremen, Germany and registered under the name Dampfschiffahrtsgesellschaft Argo AG in 1896. By 1936, after a number of ownership changes, the company had become Argo Reederei Richard Adler & Co. At the beginning of WWII the company consisted of forty-four ships, however this number was decimated during the war with around eighteen ships lost and over twenty allocated to the allied forces post war. The spoon can therefore be dated as post 1936 and was likely lost overboard or went down with a ship during WWII.

The fork has 'BAADH & WINTHER, KOBENHAVEN' engraved on it. Kobenhaven is Danish for Copenhagen and the fork obviously originated there. Little could be found regarding Baadh & Winther but they are probably a Danish manufacturing company. Cutlery with similar engravings was found online and is described as belonging to the 'Danish Civil Defence', however as the online cutlery has more markings on it than the one discovered at Erith, it is difficult to say for sure whether the Erith fork also has this connection, and may simply have been supplied by the same manufacturer.

The oval iron artefact discovered is a cobbler's last. Cobbler's lasts are foot shaped objects used by shoemakers for the construction and repair of shoes. Judging by the size of the artefact, it would have been used for children's shoes. The last was most likely lost overboard or went down with a ship.

The stone in the far left of the image does not have any cultural markings and is therefore not considered to be an archaeological artefact.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Finds Liaison Officer (Portable Antiquities Scheme) London

Tarmac_0326: Fork



This find was discovered by G. Cooper at Bedhampton Wharf. The material was dredged on the 28th of August, 2010, by the *City of Chichester*. The dredging took place in licence area 395, which lies off the east coast of the Isle of Wight.

The fork discovered at Bedhampton Wharf has 'SSP&CCo' engraved on the back. The mark 'SSP&CCo' comes from the Sheffield Nickel & Silver Plating Company. The company was active at Globe Works, Green Lane, Sheffield from 1877 to 1898.

The fork would have been created using Sheffield plating. Sheffield plating is the process by which silver is layered over copper to make items which still look like silver but are significantly cheaper to manufacture. This process was discovered in Sheffield in 1743 by Thomas Boulsover. It was further refined in the 1800s when it was discovered that nickel also worked as a base, however the nickel/silver plating was only used for items that did not require sharpening such as trays and bowls. The process underwent further change after 1840 when manufacturers started using electrical current to create a thinner plate of pure silver which was hard wearing and produced a 'hard' colour.

From this information we can assume that the fork was created between 1877 and 1898 and is made from copper with silver plating. It is unclear from the images whether the fork was created using old silver plating techniques or electroplating. There are many ways in which the fork could have come to be on the seafloor as it could have easily fallen off a ship, been thrown away, or gone down with a ship.

At present, this fork appears to be an isolated find, however this year we have had a number of finds in this licence area (Tarmac_0327), which date to the same period. It is possible that these finds are related and indicate a shipwreck, therefore staff should remain vigilant when working with material from licence area 395.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Hampshire
- The Local Government Archaeology Officer for Hampshire
- The Finds Liaison Officer (Portable Antiquities Scheme) for Sussex

Tarmac_0327: Metal Pin



This find was recovered by N.C. Sait at Burnley Wharf on the 24th of August, 2010. It was discovered amongst material dredged by the *City of Chichester* in licence area 395, which lies off the east coast of the Isle of Wight.

The artefact above looks to be made of iron and would be classified as a bolt. As there seems to be an extra attachment at the head of the artefact it is most likely a clinch bolt. Clinching is where the end of a bolt or nail is fastened by hammering it onto a round washer. The washer can also be described as a ring, rove or plate.

Fastenings are everywhere in shipbuilding and determining the types and names of them can be very difficult. Little work has been done in the study of fastenings and variation between countries and techniques adds to the confusion. However, in general 'bolts' are circular or square pins of metal, generally made of iron or copper. Through bolts extend beyond the material they were intended to fasten, while short bolts do not.

As with most fastenings that are single finds there are many ways they may have come to be on the seafloor. The find may have fallen off a ship, gone down with a shipwreck or drifted out to sea as part of a ship or wooden construction.

While they are difficult to identify without context it is always important to report when fasteners are found. A large number of fasteners found in one area could indicate a shipwreck site and there is considerable potential in the study of fastenings for the future. Hopefully future studies will make it possible to ascertain the age and country of origin of a particular unidentified wreck from the types of fasteners used.

At present, this bolt appears to be an isolated find, however this year we have had a number of finds in this licence area (Tarmac_0326), which date to the same period. It is possible that these finds are related and indicate a shipwreck, therefore staff should remain vigilant when working with material from licence area 395.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The Receiver of Wreck
- The National Monuments Record
- The Historic Environment Record for Isle of Wight
- The Local Government Archaeology Officer for Isle of Wight
- The Finds Liaison Officer (Portable Antiquities Scheme) for Isle of Wight



Britannia_0328: Femur bone

This bone was found by Dean Noon at Brett Aggregates Cliffe Wharf on the 21st of August 2010. The material was dredged from area 228 which is 6 miles off the coast of Great Yarmouth.

Images of this find, above, were shown to Wessex Archaeology's Zooarchaeologist, Lorrain Higbee, and the Natural History Museum's Andy Carrant; both these experts agree that the bone is bovid. A bovid is a cloven-hoofed mammal and includes species such as bison, buffalo, goat, sheep and cattle.

Judging by the size and weight of the object it is most likely to be a cattle bone, probably the femur. The bone is missing both ends and is therefore only a small section of the femur shaft. The damage that can be seen on the ends may have occurred whilst the bone was under the water or perhaps during the dredging process.

There are no obvious butchery marks making it difficult to determine how the bone ended up on the seabed. Possible ways it could have entered the water include: as refuse from a ship, as domestic waste from shore, as a carcass washed out to sea, or as remains of ancient cattle from a time when this area of sea was dry land.

Finds like these are important to report as they can provide information about the distribution of animals in ancient landscapes, the use of animals or the diet of sailors in the past.

Information about this discovery has been forwarded to:

- English Heritage
- BMAPA
- The Crown Estate
- The National Monuments Record
- The Historic Environment Record for Norfolk
- The Local Government Archaeology Officer for Norfolk



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