

Dredged Up

Issue 33
Autumn 2023

Archaeology Finds Reporting Service Newsletter



Welcome to Issue 33 of ***Dredged Up***, the newsletter of the Marine Aggregate Industry Archaeological Protocol. Since the last newsletter in Spring 2023, **41 finds** have been reported in 32 reports.

Pages **2** and **3** take a different kind of a look at recent finds reported since the last newsletter – focussing on aircraft material from Area 340. A huge thank you to everyone who reported other types of material from other areas as well – all Wharf Reports will be available in the Annual Report later this year.

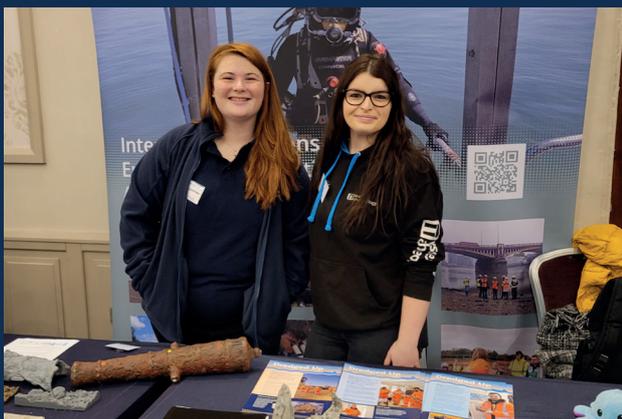
Page **4** highlights one of the most exciting finds reported to the protocol – “Cedric” the mammoth tooth! Page **5** goes on to take a deeper dive on mammoths and how their teeth are interesting and useful for archaeologists!

Some of this year’s Awareness Visits are celebrated on page **6** including to Cemex Dagenham, the new Brett wharf at Portsmouth and aboard *Britannia Beaver*!

A fun quiz covering some of the almost 2,500 finds reported to the Protocol is on page **7**!



Lowri with “Cedric” the mammoth tooth - see page 6 to learn more!



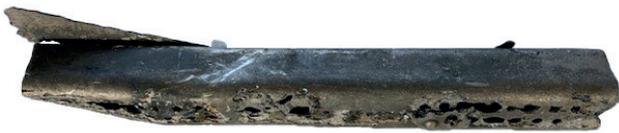
Goodbyes!

The implementation team have had to say goodbye to some members recently, on page **8** we say farewell to Lowri and Amy and see what their highlights of the Protocol are! And we welcome aboard new members Stephanie Morris and Adam Nightingale.

Finds Round Up - More aircraft material from Licence Area 340

One of the great things to come from the proactive reporting of finds by wharf and vessel staff is that we get to discover things not seen in previous surveys, investigations of the areas, or recorded in the Historic Environment Records. The spate of recent finds from Licence Area 340, located south east of the Isle of Wight, is one example where this has occurred.

The reporting of five finds from Brett and Britannia, including parts from an aircraft's engines, wings and fuselage, and a piece of aircrew-related life support equipment, join the growing assemblage of material from a heavy bomber from the Second World War. Previous discoveries in the Area include Brett_1019, thought to be from an American b-17 Flying Fortress and Brett_1032 which could be from a Dornier 217 (see the 2021-2022 Annual Report for more details, www.wessexarch.co.uk/sites/default/files/field_file/Protocol_annual_report_2021-2022.pdf).



Britannia_1072, an aircraft fragment discovered by Dean Jackson and Robert Lockley on board the *Britannia Beaver*.

Britannia_1072 (shown above) is an aircraft fragment that was discovered by Dean Jackson and Robert Lockley on board *Britannia Beaver* in a cargo chute on completion of the load. It is a truncated piece of aluminium box section with what appears to be the remains of a reinforcing plate section, and rows of torn out double rows of rivet holes. It is approximately 570 mm long, and the box section is 60 mm across, with curved edges and what appears to have been a square profile originally. One end appears to possibly be the original finished end of the box section, with the other showing evidence of being truncated.

A small gas cylinder, **Britannia_1073** (shown below), was also discovered by Dean Jackson and Robert Lockley on board *Britannia Beaver* on top of the cargo whilst taking ullages. This find is the extant remains of a small, gas cylinder with valve



Britannia_1073, a small gas cylinder with valve and gauge, discovered by Dean Jackson and Robert Lockley on board *Britannia Beaver*. The letters [**HOICHEM..**] and [**AND**] are visible on the neck of the valve.

and gauge measuring approximately 340 mm long. The gauge is missing its glass and face, with the needle and mechanism visible. On the neck of the valve, partially covered by a concretion, are the letters [**HOICHEM..**] and [**AND**], the first being 'The Ohio Chem[ical] & MFG Co.' and the second word being 'Cleveland'. The gauge was made by the Clapp Instrument Company and showed psi (pressure) readings. This find was identified as a pilot's emergency oxygen cylinder of British origin by Steve Vizard of Airframe Assemblies. Further research by Alistair Byford-Bates of Wessex Archaeology suggests that it is an American H-1 emergency oxygen cylinder or 'bailout bottle'. This would be carried in a canvas bag that was strapped to the leg of the airman, to their parachute harness, or, in some cases, tucked in their boot tops. It would be charged to around 1,800 psi (124 bar) and give around ten minutes breathing time. A hose connector, or simple mouthpiece, in some cases made of wood, would have been attached to this to breathe through. These cylinders came into service for the United States Army Air Force (USAAF) around October 1941 and were obsolete four years later with their replacement by the Type H-2 model.

Dean Jackson and Robert Lockley discovered a B7 bomb shackle, **Britannia_1074** (seen on Page 3), on board *Britannia Beaver* lying on top of the cargo whilst taking ullages. The identification is based on the reference marks [TYPE-B-7] [100-1100] and [FRONT] pressed into the side plates. It still has some of the rivets holding the separate parts together, but references to original drawings/images show that it has lost a number of bolts/rivets, and possibly the springs from the internal mechanisms. It is approximately 400 mm long. B7 bomb shackles were mounted horizontally on the vertical beams in the bomb bays of B17s, B24s, and B25s. The shackle 'jaws' at each end locked around rings on the bomb and were 'tripped' electronically. The two 'levers' just visible in the centre of the image below were the locking latches. Each bomb was winched into position, with the two latches closing the jaws over the suspension lugs welded to the bomb casing. The arming wires were then connected from the aircraft's electrical circuit to the bomb fuse train, and the safety pins inserted to prevent the fuze impellers from turning and arming the bomb. Before the approach to the target, the pins were removed from each bomb, thus 'arming' them. When the bomb release was triggered, the servo on each shackle pushed against a detent which opened the jaws, releasing the bomb. As the bomb dropped clear, the wires to the fuze chains pulled out, which allowed the impellor to start spinning and arming the fuze.





Britannia_1074, a B7 bomb shackle, identified based on the reference marks [TYPE-B-7] [100-1100] and [FRONT].

Britannia_1076 (below) was discovered at Flathouse Quay, Portsmouth by Paul Stevens in a cargo dredged by *Britannia Beaver*. It is the remains of a lightweight metal, probably aluminium, bracket with a series of holes drilled in it. It has one surviving rivet still in place and is approximately 440 mm long and 100 mm wide showing signs of being truncated at both ends. It also has three holes suggestive of having plates or flanges bolted to them. There are no visible identification marks or stamps. The long edge on one side appears to have been originally formed to give additional longitudinal strength.

This aircraft fragment, **Brett_1080** (below), was discovered at Flat House Quay, Portsmouth by Nathan O'Sullivan in a cargo dredged by *Britannia Beaver*. It is the remains of a lightweight metal, probably aluminium, bracket and box section with a row of double rivets holding the remains of a bracket or plate in place on one side. It is approximately 370 mm long and 90 mm wide showing signs of being truncated at one end. The opposite end where the bracket is mounted appears to have two half sections cut out, possibly where it butted up against a tubular frame. A second set of double rivet holes is visible on the opposite side to the bracket, suggesting that two plates bracketed the tube that the box section butted against. There are no visible identification marks or stamps, but there is what appears to be black paint with a yellow primer visible on it. Recent unpublished research by Historic England with the Fleet Air Arm Museum has shown that aircraft paints can,

in some cases, be traced to specific aircraft companies and factories, even when they are the same basic colour. However, this would require further research, including creating a reference collection, as there are currently no central databases of these paints to cross reference to.

The lack of identifying plates, stamps, or marks means that the type or origin of the aircraft cannot currently be confirmed from most of these recovered pieces. The corrosion and the very close variations in measurement between both metric and imperial measurements, i.e. millimetres (mm), standard wire gauge (swg) or thousands of an inch (thou), used by aircraft designers during this period, the spacing and diameter of rivets, bolt holes and other spacings, combined with any drilling or stamping errors, mean that these do not help in identifying the origin of the fragments either. The damage to them also means that the use of rivet pitch, which might identify the manufacturer, rather than the possible country of origin, would be open to a wide degree of error. The exceptions here are the oxygen cylinder, which was issued to American aircrews, and the B7 bomb shackle which is the design used in a number of American built aircraft used by both the American and other Allied forces during the Second World War.

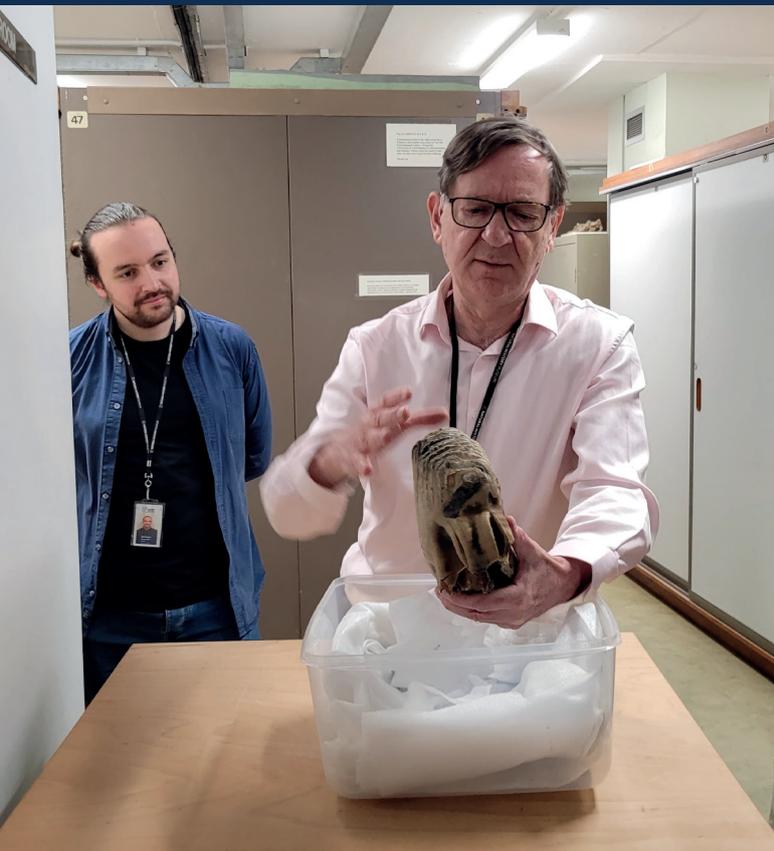
Vessel staff dredging in Area 340 and wharf staff receiving cargoes from the area should continue to keep a close eye out for further discoveries!



Britannia_1076, a find made of lightweight metal, possibly aluminium, discovered by Paul Stevens



Brett_1080, an aircraft fragment discovered by Nathan O'Sullivan



A Mammoth Find's New Home at the Natural History Museum

On 4 November 2019 an unusual discovery was made aboard the Hanson Dredger *Arco Avon* whilst dredging in the newly opened lane F10 in Licence Area 240. Crew member Darryl Mason had found a virtually complete mammoth tooth measuring a whopping 300 mm long by 160 mm wide and retaining visible roots. Noting its rareness, staff on board the vessel reported the find to the Protocol and were asked where the cargo with the tooth was being delivered to. Hanson's Dagenham Wharf was discovered to be the lucky recipient and was therefore contacted in advance to warn them that this cargo may contain finds of significant archaeological importance. Further reports of finds of several worked flint tools and animal bones came through from Dagenham Wharf. Thanks to the rapid reporting of finds by vessel and wharf staff, and early recognition of their probable importance, it was possible to plan an operational sampling visit for the following week to assess the remaining cargo. In the end, the cargo produced a total of 30 worked flint artefacts, including pristine handaxes and flakes, as well as 111 animal bones and teeth!

The tooth (that we nicknamed Cedric) was brought back to Wessex Archaeology's Salisbury office and placed in fresh water for several months to remove the salts embedded within it after spending so much time on the seabed – a process called desalination. Once desalinated, Cedric was weighed daily to ensure that he was drying at a steady rate and was even taken home by a member of the Protocol over Christmas to have his daily weigh. Images of Cedric were sent to Professor Adrian Lister at the Natural History Museum for further identification, who agreed that it is a nice specimen of a mammoth tooth. He said that it was the 3rd (last molar) of an animal about 35 years old that dates very probably to the Late Pleistocene woolly mammoth (*Mammuthus primigenius*), although he would have to take measurements to rule out the earlier (Middle Pleistocene) *Mammuthus trogontherii*. He said much of the cement has been eroded, presumably through its history at the bottom of the sea, but the roots are so complete that he wouldn't be surprised to find the skull, or parts of it, still on the seabed.

Once dry and stable, Hanson Aggregates Marine were contacted to ask whether they would be happy for this excellent specimen to be offered to the Natural History Museum which they agreed to. Professor Adrian Lister was delighted and arrangements were made with himself and Neil Adams, Curators of Fossil Mammals, to arrange for the tooth to be donated. On 24 April 2023, members of Hanson Aggregates Marine, including Darryl, the original finder of the tooth, and staff from Wessex Archaeology were invited to the Natural History Museum to deliver the tooth to its new home. The tooth has since been dated by the University of Oxford, and dates to about 35,700 years ago!

A huge thank you to those on-board *Arco Avon* for reporting the tooth that day and for taking and sending the excellent photographs. This led to the discovery of several other nationally significant Palaeolithic finds, a new exclusion zone in lane F10, a journal article on the discoveries and a find so important, that it has a new home at the Natural History Museum.

Above: Hanson Aggregates Marine staff at the Natural History Museum, where the mammoth tooth is now displayed.

Middle: Professor Adrian Lister and Neil Adams, Curators of Fossil Mammals at the Natural History Museum, with the tooth.

Below: the complete mammoth tooth, measuring 300 mm by 160 mm, which belonged to an animal about 35 years old and dates to about 35,700 years ago!



Mammoth Overview

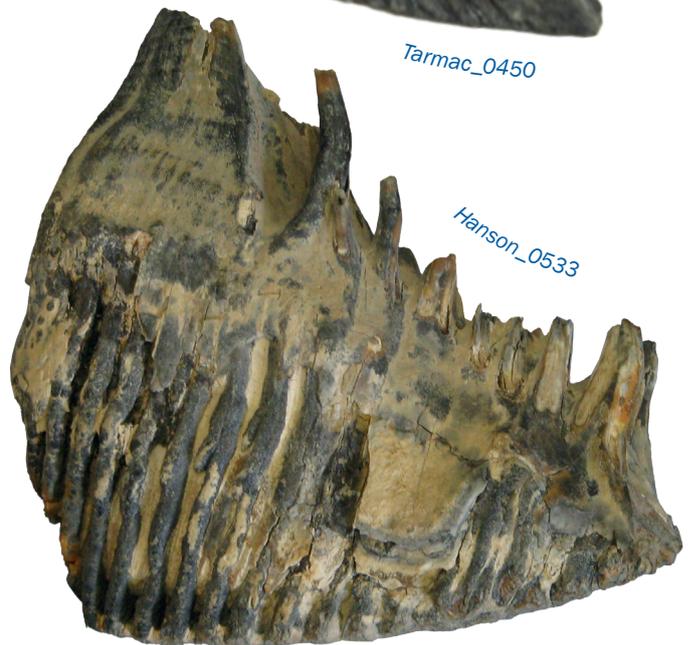
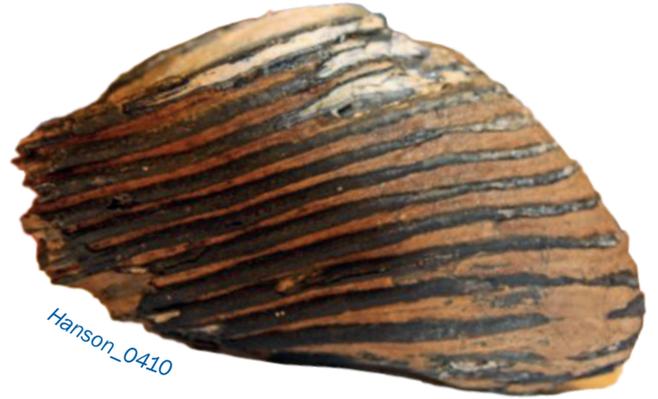
Although there are ten different species of mammoth, *Mammuthus primigenius* or woolly mammoth is probably the most well known and most common to find remains of. The woolly mammoth lived in steppe tundra habitat (also called mammoth steppe, an ecosystem made up of low shrubs, sedges, and grasses), which was widespread across Eurasia and North America during the Pleistocene. They existed in Europe during the Late Middle and Late Pleistocene, dating from 350,000 to 10,000 thousand years ago. They were largely extinct by about 10,000 years ago, due to the pressures of a warming climate (which reduced the habitat of these cold-adapted mammals) combined with being hunted by humans.

The woolly mammoth's teeth were made up of alternating plates of enamel and a denture that often became worn down by constant back-to-front chewing motions. These plates of enamel are what give the teeth its recognisable shape.

Teeth are tools which allow food to be processed in the mouth. From the amount of wear and abrasion fossilised teeth can provide a wealth of information about the animal they came from, including their age, their shape, and diet. One of the finds reported to the Protocol, **UMA_0107** (see image below) is largely unworn and indicates that it might be a milk tooth of a younger specimen. Important changes can be seen in the teeth of the mammoths as each species have evolved; there is an increase in the number of enamel bands (plates) in the molars and thinning of the enamel. The dental changes resulted in increased resistance to abrasion, which is believed to indicate a shift from woodland browsing to grazing in open grassy habitats of the Pleistocene. This shows how these finds can tell us about the environment in the past!

Remains may end up in marine contexts having been washed from terrestrial deposits by rivers or eroded from cliffs or beaches. Alternatively, they may date to a time when the seabed was dry land. During the last 2.5 million years, there have been numerous cold periods, called 'glacials', where large ice sheets covered much of Britain and most of the North-west European Peninsula. During the height of the last ice age, known as the Devensian (c.18,000 years ago), it has been estimated that the sea level was approximately 120 m lower than it is today, exposing areas of the North Sea as dry land. This would have been prime land for our ancestors and the animals they hunted. The area from which Cedric was dredged became fully submerged around 10,000 years ago as the Ice Age ended and water was released from the ice caps. There is a chance of encountering ancient finds in a number of Licence Areas as a result of changing sea levels, so keep a look out! The East Coast region is a particular hotspot, and of the over 30 teeth we've had reported to the Protocol, the majority come from this area.

Right: a selection of mammoth teeth found through the Protocol.





Site Visits

This year the Protocol team have been delighted to receive so many requests for awareness training. Following on from the visits to Tarmac's Tilbury and Greenwich wharves highlighted in Issue 32 of *Dredged Up*, we have paid a visit to Cemex's Dagenham Wharf, Brett's new wharf at Portsmouth and aboard *Britannia Beaver*.

The team at Cemex Dagenham Wharf requested training despite having awareness training last year. This visit was requested so that their work experience student who was there for the half-term week could learn about the archaeological potential in the marine dredging industry!

Flathouse Quay is a new site for Brett in Portsmouth. Despite being a new addition, the Protocol team have been extremely impressed by the enthusiasm and number of finds reported by site champion Ben Johnson and the rest of the wharf team!

Lastly, the Protocol team were invited to complete training for the *Britannia Beaver* crew as they had a newly promoted Chief Officer, Sonia Mitchell, who is going to become the new Site Champion onboard. It was a great experience conducting training on a vessel!

The sessions are designed to be informal and involved an interactive presentation from the Protocol Implementation Team to explain the different ways archaeology can reach the seabed and what to do if it is found in the cargo during dredging or when landed at the wharf. The reporting process was discussed and an array of archaeological finds previously reported through the Protocol were passed around for staff to handle. Handouts, laminated scale sheets, photo scale cards and the last edition of *Dredged Up* were also passed around. The handouts are



Training with staff aboard the *Britannia Beaver*

designed to be left at the wharf or on board the vessel to enable Site Champions to induct future new employees and so that current employees can refresh their memories. All archaeological awareness materials can be accessed through the Protocol pages on Wessex Archaeology's website (www.wessexarch.co.uk/our-work/marine-aggregate-industry-protocol-reporting-finds-archaeological-interest) and are available in English, Dutch and French.

The Protocol Implementation Team firmly believe that these visits are key to the scheme's success as it promotes enthusiasm and resolves any issues that may arise. As well as delivering the training, the visits allow the team to maintain contact with wharves and vessels, keep the content fresh, boost interest in the Protocol and promote it to both new and existing staff.

If you would like to book a Protocol Awareness Visit or would like to receive more advice on finds and the reporting process, then please get in touch by emailing protocol@wessexarch.co.uk or calling **01722 326867**.



Visiting the *Britannia Beaver*



Images from Flathouse Quay, a new site in Portsmouth, where Amy Lammiman (Wessex Archaeology) conducted training for members of the Brett team.

The Marine Aggregate Industry Archaeological Protocol Quiz

This year is the 18th anniversary of the Protocol Implementation Service, and we are coming close to 2,500 finds! With this in mind we thought we'd give you a quiz about them!

1) How many cannonballs have been reported to the protocol?

- A) 0-99
- B) 100-199
- C) 200+

2) Which of the following types of find has been the largest find reported to the Protocol?

- A) An anchor
- B) A munition
- C) Wooden shipwreck material

3) As of this issue, which dredging region has produced the most finds?

- A) Thames Estuary
- B) East Coast
- C) South Coast

4) Which Time Team member came along to Hanson Dagenham Wharf to search for flints from Area 240?

- A) Tony Robinson
- B) Phil Harding
- C) John Gater

5) Which of these objects is the only one that is technically archaeological?

- A) Woolly mammoth tooth
- B) Ammonite fossil
- C) Palaeontological shark tooth

1) B, there have been over 120 cannonballs reported in 18 years making them one of the most common finds reported!
2) C, Cemex_1029 comprised parts of the hull of a wooden ship – the largest section measured over 6 m x 3 m!
3) B, The East Coast region has reported over 1,200 finds!
4) B, Phil Harding along with members of the Protocol team, Historic England and the wharf found 18 fragments of animal bone and 15 flint pieces including an unfinished handaxe.
5) A, Archaeology covers only the human past, and people have lived in Britain for only around 900,000 years. Fossilised ammonites and shark teeth are usually millions of years old so therefore wouldn't tell us about the human past. However, they are still interesting and we appreciate them being reported!

Answers:

Goodbyes!

This year we have said goodbye to a couple of members of the Protocol Implementation team. We wish them both the best of luck in their new ventures and return to university!



Lowri Roberts

Lowri was a long-standing member of the team having worked on the Protocol since 2017. A familiar face to many, she has been heavily involved with Awareness training visits and Operational Sampling. She also has written reports and is officially published with a review of Pleistocene landscapes and environments in the southern North Sea, in *Internet Archaeology* (intarch.ac.uk/journal/issue61/8/index.html).

“My favourite find of the Protocol was CEMEX_0908; a submarine pyrotechnic discovered in Licence Area 137. This flare was found associated with a canvas parachute that, despite a few holes, was complete with the remains of the string. It probably dates to the Second World War and is a great find!”

“My favourite moment was going to Hanson’s Dagenham Wharf to look through all the Area 240 cargo in November 2019 with Aaron Chidgey and the rest of the wharf team.”



Amy Lammiman

Amy is a University of Southampton student who has been completing a year long placement within the Coastal & Marine team at Wessex Archaeology. She has been involved in a number of aspects of the Protocol this year including writing wharf reports, the MAI Annual Report 2021-2022, *Dredged Up* issues 31-33 and conducting Operational Sampling and Awareness training.

“Some of my favourite moments of this year have been doing Awareness training visits. It was a treat to be asked to come on the *Britannia Beaver* as I’d never been on a dredger before! All the sessions were a laugh and great to teach wharf/vessel staff about archaeology. Overall, I’ve learnt so much this year and loved working on the Protocol!”

Above: Lowri at Brighton Wharf; **below:** Amy at CEMEX Dagenham

And we’d like to say a warm welcome to the newest members of the Protocol Implementation Team!



Left: Stephanie Morris, and **right:** Adam Nightingale, the newest members of the Protocol Implementation Team!

Stephanie Morris

Stephanie Morris is an Australian archaeologist who joins us from the Wessex Archaeology office in Edinburgh. She started with us in 2021, and has already been busy with intertidal walkover surveys, report writing, tendering and community outreach.

Adam Nightingale

Adam Nightingale has been with Wessex Archaeology since July 2022, and started as a fieldwork archaeologist, undertaking various types of fieldwork, including survey, excavation and recording. He has recently moved over to the Coastal & Marine team and is getting stuck in with Protocol work.