

# The Archaeologist

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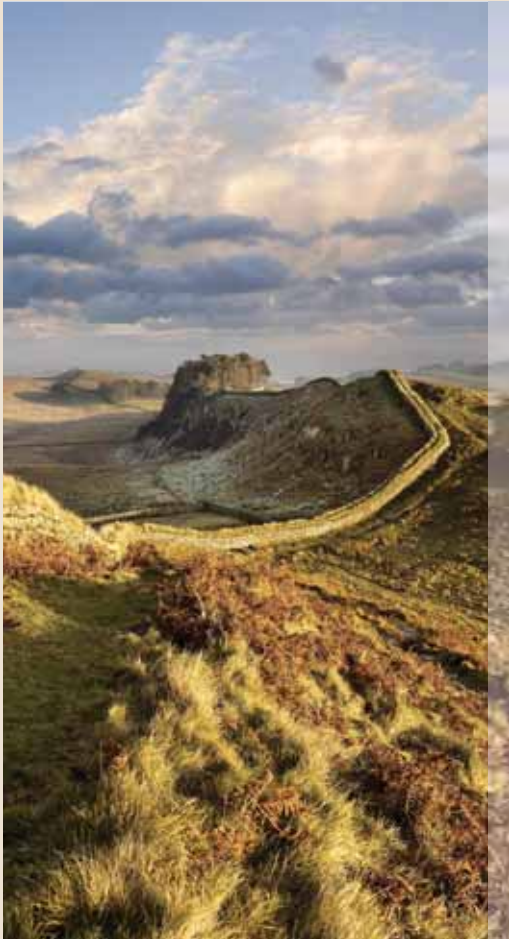
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Themes and deadlines

TA 109 **Osteology/Forensic Archaeology:** The HS2 excavations at St James' garden Euston has highlighted the opportunities and issues that working with human remains brings. What contribution have new developments in recording techniques, updated guidance, storage arrangements and ethical concerns made recently in archaeological practice? Deadline 1 December 2019

TA 110 **What is the legacy of an archaeological project and how do we go about creating the best resource we can from these?** Are there examples of using raw material from archaeological research or projects built on legacy data? How can we encourage others to use the knowledge we create? Are collections being used creatively and positively for public engagement? Deadline 1 April 2020

Contributions to *The Archaeologist* are encouraged. Please get in touch if you would like to discuss ideas for articles, opinion pieces or interviews.

We now invite submission of 100–150-word abstracts for articles on the theme of forthcoming issues. Abstracts must be accompanied by at least three hi-resolution images (at least 300dpi) in jpeg or tiff format, along with the appropriate photo captions and credits for each image listed within the text document. The editorial team will get in touch regarding selection and final submissions.

We request that all authors pay close attention to CifA house style guidance, which can be found on the website: [www.archaeologists.net/publications/notesforauthors](http://www.archaeologists.net/publications/notesforauthors)

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Cover photo: Volunteers surveying one of the wrecks in Sandwich Bay, and a drone flying over to take aerial shots. Credit: MSDS Marine



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## CLIMATE CHANGE AND THE HISTORIC ENVIRONMENT

Louise Barker, Royal Commission on the Ancient and Historical Monuments of Wales and Andrew Davidson MClfA (6607), Gwynedd Archaeological Trust

Our climate is changing. Nine of the ten warmest years in the UK have occurred since 2002; in Scotland the most recent decade (2008–2017) has been on average 4 per cent wetter than 1981–2010 and mean sea level around the UK has risen by about 16cm since the start of the 20th-century (<https://www.metoffice.gov.uk/research/collaboration/ukcp> headline findings). The recently published UK Climate Projections (UKCP2018) provide the most up-to-date assessment of how the climate of the UK may change during the 21st-century, with warmer mean temperatures; hotter, drier summers; warmer, wetter winters and more frequent extreme weather being the continuing general trends. The outcome of these trends is wide ranging – rising sea levels, the migration and proliferation of pests, diseases and invasive species, the drying out and desiccation of soils, wild fires, flooding and more frequent storms – and all present significant challenges and impacts to the historic environment.

It is essential, therefore, that we learn to adapt to climate change in ways that increase our knowledge of the historic environment and increase our capacity to deal with the changes. There are benefits to be gained from this process, but our success in achieving these will be dictated by our ability to identify new ways of working. For example,

cross-sectoral working is being encouraged by governments; community groups are being supported to identify, record and interpret eroding archaeology in coastal locations; and pro-active maintenance of historic structures is being advocated.

It is encouraging to see a growing community of researchers, academics, professionals and enthusiasts talking about the historic environment and climate change, both within the UK and across the globe, for example through the growing Climate Heritage Network (<http://climateheritage.org/>). The following series of articles provides examples of the increasing amount of work now taking place in the UK. We start with a joint article setting the scene at government level in Wales, Scotland and England where heritage and climate change are devolved responsibilities, though all, together with Northern Ireland, continue to work in close collaboration. We follow with a series of articles showcasing different case studies and projects all aimed at increasing our knowledge of the historic environment and our capacity and resilience to deal with the impact of climate change on it.

The theme for this edition of *The Archaeologist* came from a session at ClfA2019 in Leeds, ‘Adapting to climate change – how do we create a positive legacy?’ You can view the conference session videos on the ClfA website at [www.archaeologists.net/conference/2019](http://www.archaeologists.net/conference/2019)

Louise Barker, Royal Commission on the Ancient and Historical Monuments of Wales; Andrew Davidson MCI(A 6607), Gwynedd Archaeological Trust; Mairi Davies, Historic Environment Scotland; and Hannah Fluck ACI(A 4613), Historic England

# Climate change and the historic environment: a summary of national policies



Damage at Plas Cadnant historic gardens, Anglesey, following excessive rainfall in 2017. Credit: Gwynedd Archaeological Trust

Climate change and heritage are policy areas devolved to the Scottish and Welsh governments, meaning that each UK nation approaches both independently. While there may be some subtle differences, certain key points remain the same. Similarities stem from the UK Climate Change Act 2008, which set a target for the UK to reduce targeted greenhouse gas emissions to 80 per cent of the 1990 baseline by 2050. It also established the Committee on Climate Change (CCC), an independent statutory body whose purpose is to advise UK government on emissions targets, and which includes an Adaptation Sub-Committee. The Committee publishes the Climate Change Risk Assessment every five years – the next will be in 2022.<sup>1</sup> In addition, each of the constituent countries derives information from the UK Climate Projections produced by the Met Office. The most recent were produced in 2018 and are referred to as UKCP18.<sup>2</sup>

All four countries are concerned with mitigation – to reduce greenhouse gas emissions that cause anthropogenic climate change, and adaptation – adapting to the changing climate

Where they tend to differ is the approach to the inclusion of heritage in the national climate change policy, and in the way the historic environment sectors have engaged with the subject of climate change. However, the heritage agencies of the UK nations, along with other UK-based heritage organisations, come together through the UK Historic Environment (Climate Change) Adaptation Working Group to share research and ideas and forge collaboration.

## England

Because of the thematic structure of the CCC five-yearly reports, the historic environment is not explicitly identified but is embedded within chapters on 'People and the Built Environment', to which Historic England has contributed. In 2016 Historic England submitted a 'Climate Change Adaptation Report' to Defra as part of the second 'Adaptation reporting' cycle. This looked at what climate change might mean for the organisation, both operationally and in terms of impact upon the historic environment and identified actions to support our adaptation to a changing climate. Historic England will submit an updated report in 2021 and is working with

Excavations at the buried village of St Ishmael's, Carmarthenshire, exposed by coastal erosion. Credit: Dyfed Archaeological Trust



The Climate Vulnerability Index workshop in April brought international experts and the local community together at the Heart of Neolithic Orkney World Heritage site to pilot this methodology on a cultural heritage site for the first time. The results were presented at the 43rd WHS Committee in Baku, Azerbaijan in June (see article on p21 for more about this). Credit: Historic Environment Scotland

Defra on a template to help other heritage organisations undertake their own reporting. We would encourage any organisations interested to do so and would be happy to share our experiences.

One of Historic England's commitments was to start to understand and map climate-change-related hazards for the historic environment. The main risks relate to changes in precipitation (eg increased flooding, increased intensity of rainfall, drought, shrink swell, desiccation of deposits), increased temperature (eg wildfire, changes in growing season, pests and disease distribution) and rising sea levels. As part of this 'hazard mapping' we recognise that in some instances climate change will result in the loss or significant transformation of heritage assets and we have an AHRC-funded PhD student at the University of Exeter working with us to look at how different stakeholders and communities can be included in conversations about how we manage this. We are

also about to review our Heritage At Risk programme to ensure that it takes account of current and future risks to heritage.

Another commitment in the Climate Adaptation Report was to explore how the historic environment can help us adapt to climate change. We have commissioned projects looking at ways in which the historic environment is valued for its environmental services – including the sequestration of carbon in field boundaries, parks and gardens – and the role of heritage assets in reducing flood risk and supporting biodiversity.

Currently Historic England is working on an environment-focused edition of 'Heritage Counts', on behalf of the Historic Environment Forum, which will include a report on the embodied carbon in the historic environment and the carbon saving associated with reuse of existing buildings. Other ongoing work is exploring how understanding the historic environment might help inform flood management, in terms of landscape history and by putting into practice the building conservation research on flooding, eg recording the refurbishment of a traditionally constructed house in Appleby, Cumbria, using materials such as lime-based mortars, through our Heritage Action Zone partners.

Historic England also champions the role of our parks and gardens and green heritage spaces in helping with urban heat island effects and flood risk reduction, and is also exploring the impact of pests and diseases on these green heritage assets.

Throughout this work two themes persist – the importance of maintenance in the resilience of our heritage to climate change, and the risk of maladaptation – by adapting to one climate change concern (eg energy efficiency) inadvertently reducing the capacity of an asset to adapt to another (eg overheating).

## Scotland

In Scotland, we are marking the tenth anniversary of the Climate Change (Scotland) Act 2009, one of the most ambitious pieces of climate change legislation in the world. As a large non-departmental public body (NDPB), Historic Environment Scotland (HES) has a duty under the 2009 Act to contribute to, and provide leadership in, climate change mitigation and adaptation, and sustainability. With a Climate Emergency having been declared in May, legislation to alter the targets set ten years ago to achieve net zero carbon emissions by 2045 is now progressing through the Scottish Parliament.

Our vision is that the historic environment is cherished, understood, shared and enjoyed with pride, by everyone. Rising sea levels and dramatically changing weather patterns will impact many of our most valued historic places. Around a fifth of Scotland's homes were built before 1919, and whilst inherently resilient and energy efficient, they can be adapted to the changing climate and contribute to energy efficiency and emissions-reduction targets. The historic environment



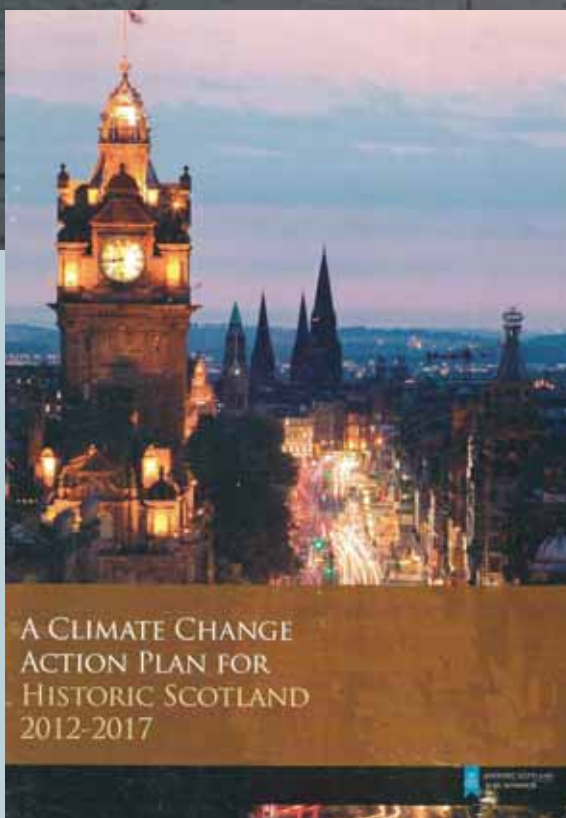
... the heritage agencies of the UK nations, along with other UK-based heritage organisations, come together through the UK Historic Environment (Climate Change) Adaptation Working Group to share research and ideas and forge collaboration.

Langstone, Langstone Harbour, Hampshire – preparation for a Spring tide. Credit: Hannah Fluck

sector is disparate, and its interface with the climate change agenda complex, for example through individual sub-sectors related to traditional buildings, archaeology, tourism, landscape, collections, materials and skills. In order to achieve our vision, we must ensure that the historic environment sector, including archaeology, plays its part in mitigating and adapting to climate change.

A working group has been established under Our Place in Time: the Historic Environment Strategy for Scotland, to enable the historic environment sector to coordinate action on climate change. The key deliverable for the Working Group is the 'Climate Change Impacts Guide for the Historic Environment'. This guide, to be published in the autumn, will provide an introduction to the direct physical impacts of climate change on various types of historic asset in Scotland. The guide aims to:

- raise awareness of the impacts of climate change on our historic environment
- improve the knowledge base of custodians/owners of historic assets
- form the foundations of a climate change risk assessment for specific assets
- prompt consideration of what possible climate change



adaptation solutions may be most appropriate for certain historic assets

- identify gaps in knowledge and point people in the direction of relevant resources and research

Also in the autumn, we'll be hosting the launch of the global Climate Heritage Network ([climateheritage.org](http://climateheritage.org)) in Edinburgh,

and launching our Climate Change and Environmental Action Plan (CCEAP) 2019 to 2024. The Plan will set out the approach we will take to address the challenges and opportunities presented by climate change to our organisation and to the wider historic environment. It will detail how we will continue to work towards making HES and the broader historic environment more resilient to, and prepared for, changes in our climate, alongside playing a leading role in supporting Scotland in meeting its ambitious carbon emission reduction targets. Our knowledge and experience will be used to engage with those throughout the wider historic environment, and to support the transformational change necessary if society is to adapt to and mitigate the causes of climate change.

## Wales

In 2010, following the UK Climate Change Act of 2008, the Welsh government published its 'Climate Change Strategy for Wales', accompanied by a series of Delivery Plans. A series of sector adaptation plans is currently on hold, although a new Draft Climate Change Adaptation Plan is being produced by Welsh government, which incorporates adaptation within the historic environment in several of its chapters. An initial draft went out to consultation in December 2018, and work is ongoing to produce a final version.<sup>3</sup> New emissions targets are now set under the Environment (Wales) Act 2016.<sup>4</sup>

A sub-group was set up under the Welsh Historic Environment Group (HEG) to produce a Climate Change

Sector Adaptation Plan for the Historic Environment. HEG was set up in 2004 to advise Welsh Ministers on strategic issues and priorities, and includes a wide range of cross-sector organisations with an interest in the historic environment. An initial report was commissioned that examined the 'Strategic approach for assessing and addressing the potential impact of climate change on the historic environment of Wales' (2012).<sup>5</sup> The sub-group has since produced an adaptation report for consultation, and work is proceeding to finalise this. It will consist of two parts: the first is a strategic policy and explanatory document, which includes a wide range of case studies and incorporates key mapping of areas and assets at risk; the second is a strategic action plan divided into three categories.

Improve understanding actions are designed to increase our knowledge and understanding of the impacts, risks, opportunities and threats from climate change on the historic environment. The second category, build adaptive capacity, includes actions to develop the tools and processes needed to manage the risks and implement adaptive change in the historic environment, and work with others to support and build capacity through communication, guidance and training. The third category, increase resilience, contains actions that lead to reducing vulnerability, increasing adaptive capacity, lessening threats and maximising opportunities.

Publication of the plan will take place during the second half of 2019 and will complement the Welsh government's Adaptation Plan.



... the coming twelve months will be increasingly important for climate change and heritage interests, and it is pleasing to see so many initiatives and projects taking place throughout the UK.

Collapse of medieval masonry from coastal erosion at Gogarth Grange, Great Orme, Llandudno. Credit: Gwynedd Archaeological Trust



Other initiatives taking place within Wales include:

- the five-year 'CHERISH' project, reported on page 12
- participation in the UK-wide 'Fit for the Future' network of organisations who work together to provide practical support, events and workshops
- Shifting Shores, a National Trust-led initiative in partnership with RTPI Cymru to explore the challenges of managing future sea level rise
- publication of 'Flooding and Historic Buildings in Wales';<sup>6</sup> a technical report that provides guidance on establishing flood risk and preparing for flooding by installing protection measures

## Conclusion

With the launch of the global Climate Heritage Network in Edinburgh this autumn, and the World Monuments Fund 'Sea Change' conference in Blackpool in September, the coming twelve months will be increasingly important for climate change and heritage interests, and it is pleasing to see so many initiatives and projects taking place throughout the UK. The key to success will lie partly in the ability of the constituent parts of the UK and relevant organisations to work together to increase resilience of the historic environment to climate change, and to protect and manage the resource in a sustainable manner.

<sup>1</sup> <https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/>

<sup>2</sup> <https://www.metoffice.gov.uk/research/collaboration/ukcp/about>

<sup>3</sup> <https://gov.wales/climate-change-adaptation-plan-for-wales>

<sup>4</sup> <https://gov.wales/sites/default/files/publications/2019-06/environment-wales-act-2016-climate-change.pdf>

<sup>5</sup> <http://eprints.glos.ac.uk/2723/>

<sup>6</sup> <https://cadw.gov.wales/advice-support/historic-assets/listed-buildings/technical-advice#section-flooding-and-historic-buildings-in-wales>



Hannah Fluck

Louise Barker



Mairi Davies. Credit: Historic Environment Scotland



Andrew Davidson

### Louise Barker

Louise is a senior archaeologist with the RCAHMW and has worked as an archaeologist since graduating from Newcastle University in 1996. Louise specialises in landscape survey and interpretation and has worked on a wide range of sites and landscapes spanning prehistory to the present day. She is also part of a small inter-agency team leading the development of the Wales's Historic Environment and Climate Change: Sector Adaptation Plan.

### Hannah Fluck

Hannah is Head of Environmental Strategy in Historic England's National Strategy team, where she oversees work on climate change and the historic environment and the relationship between the historic and natural environments. Hannah wrote Historic England's Climate Change Adaptation Report, is a contributing author for the UK Climate Change Risk Assessment, and was a UK nominated reviewer for the IPCC Climate Change and Land report. She is also chair of the UK Historic Environment Climate Change Adaptation working Group and on the steering committee for the Global Climate Heritage Network. An archaeologist with a PhD in Palaeolithic archaeology prior to joining Historic England in 2015, she has worked in commercial, research and local authority archaeology and heritage management.

### Mairi Davies

Mairi has an MA (Hons) in Archaeology from The University of Edinburgh and a PhD in Archaeology from Durham University, focusing on later prehistoric settlement and society in Eastern Scotland. Previously an Inspector of Ancient Monuments, Mairi now manages the Climate Change Team at HES, supporting the organisation in meeting its obligations under the Climate Change (Scotland) Act 2009, providing leadership and acting as an exemplar. Mairi is on the Steering Groups for Dynamic Coast: Scotland's National Coastal Change Assessment and Edinburgh Adapts, which has brought together multiple partners to develop a vision and action plan for an adapted capital city. She is one of the principal authors of a major report published last year on climate change risk assessment on the Historic Environment Scotland Estate.

### Andrew Davidson

Andrew has been the Chief Archaeologist at Gwynedd Archaeological Trust since 2011, and before that managed the fieldwork section of the Trust. He is a member of the Climate Change sub-group of the Welsh Historic Environment Group and has worked closely with the group on developing an Adaptation Plan for the historic environment.

# Climate change and coastal archaeology in Sandwich, Kent

Phoebe Ronn PCIfA (10648), MSDS Marine

Sandwich Bay, Kent, is the site of a possible ship graveyard; at low tide, a series of wooden shipwrecks of varying condition and completeness and a WWII B17 bomber are exposed on the beach (Evans and Davison 2019). This site, and others like it, are at risk from the effects of climate change.



Volunteers surveying one of the wrecks, and a drone flying over to take aerial shots.  
Credit: MSDS Marine

Sandwich Bay is a dynamic stretch of coastline. Coastal erosion and sediment accretion have changed the shape of the coast countless times through history. Prior to the 16th century, the flat stretches of beach at Sandwich Bay had not yet formed or were deeply submerged, Thanet was an island, and the town of Sandwich was a longstanding, lucrative port importing and exporting goods from all over the world. Sediment accretion over time silted up the natural harbour at Sandwich and created large swathes of intertidal beach, which rendered the port inaccessible to larger craft and therefore redundant.

The bay is now home to a number of unidentified wooden wrecks lying in the intertidal zone and nearshore area. These vessels range in size, though most are under 30m long, and are of varying type (Evans and Davison 2019). The wrecks are undated, but

because of the rate of coastal formation in the area, it is likely that they are post-medieval and later. For the most part, the wrecks appear to have been beached, with the bows pointing towards the shore. Historical sources from as early as 1417 indicate that it was fairly common for ships to be grounded on the flats at Sandwich Bay during storm events (The National Archives: SC 8/171/8529). A number of interesting features are visible at low tide – at least one wreck shows evidence of sacrificial planking, while a galley brick was recorded on a different wreck. Sandwich Bay offers a rich resource of wrecked vessels ripe for investigation.

Climate change is threatening coastal heritage all around the world. The East Kent coast suffers from high rates of coastal erosion and sediment displacement resulting in a constantly changing coastline, and climate change driven by human influence is

exacerbating these natural changes. Rising sea levels, more frequent high-intensity rainfall episodes, and an increase in the frequency and intensity of storm activity threaten the stability of the coastline at Sandwich Bay. These phenomena have the capacity to cause frequent flooding and increase rates of erosion, which could prove catastrophic for the wrecks at Sandwich Bay. Indeed, it was noted during a survey in 2018 that one of the wrecks may have deteriorated since a previous survey undertaken in 2011 (Wessex Archaeology 2012), and that another had become significantly more exposed as a result of shifting sand levels.

Climate change is also causing the northward migration of the blacktip shipworm *Lyrodus pedicellatus*. This species was first identified in southern Spain in the late 19th-century, but is typically found in warmer and tropical waters. This marine borer has the capacity to cause

immense damage to wooden structures in a very short amount of time. The average temperature of UK waters has consistently increased since 1970; 2006 was the warmest year in UK coastal waters since records began. It was around this time that the blacktip shipworm was first identified on the Sandwich coast in 2005, and again in 2006 and 2007. Research has indicated that the worm can multiply in temperatures as low as 12°C (Knight 2018); the average sea temperature around the UK is 8–10°C in winter, and 15–20°C in summer. Further increase in average sea temperatures would enable this aggressive and invasive species to thrive all year round, causing untold damage to wooden wrecks like those at Sandwich Bay. Several of the sites at Sandwich Bay already show signs of damage from piddocks, another aggressive marine borer.

Other invasive species such as the Pacific oyster have been recorded on the wreck sites themselves, indicating that these sites may provide suitable habitats for other non-native species (Evans and Davison 2019).

MSDS Marine, in partnership with Carcinus and the Nautical Archaeology Society, undertook several non-intrusive walkover surveys in Sandwich Bay in order to begin assessing the significance of these wrecks individually, and their value as a group. So far, the age, type, and identity of the vessels remains unknown. Further investigation of these wrecks is required, and soon. The UK has a long and vibrant history of wooden shipbuilding, and although remnants of this industry exist on many beaches around the country, few are appropriately studied, and all are now at risk from the effects of climate change.

### Acknowledgements

Thanks are due to Historic England for providing funding for the initial walkover surveys, to all the volunteers who helped to collect data for these wrecks, and also to project partners Carcinus and the Nautical Archaeology Society.



**Phoebe Ronn**

Phoebe is a Project Officer at MSDS Marine working in development control. She graduated from the University of York in July 2019 having completed a BSc in archaeology. She worked as a terrestrial archaeologist before and during her studies but has now focused on coastal and marine archaeology.

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A wreck during low tide.  
Credit: MSDS Marine



Volunteers recording a wreck. Credit: MSDS Marine



Frames sticking out of the water with treenails connecting them to the outer planking. Credit: MSDS Marine

# Cwm Ivy climate change and the historic landscape – loss, damage or opportunity?

Judith Doyle MCIfA (6639), Archaeological Planning Officer, Glamorgan Gwent Archaeological Trust Ltd

There have been many conferences, seminars, meetings, papers and articles about this subject, and rightly so. Cadw and Welsh government are in the midst of a programme of determining the potential long- and short-term effects. Here, in Wales, and particularly in Glamorgan Gwent Archaeological Trust's area, we have recently seen the impact on the historic environment of climate change mitigation work.

Cwm Ivy Marsh is a 39-hectare reclaimed marshland within the West Gower Registered Landscape of Outstanding Historic Interest, and the Gower Area of Outstanding Natural Beauty (AONB), on north Gower adjoining the Burry Estuary. Forming its own Landscape Character Area, HLCA005 Cwm Ivy Marsh is characterised as 'Enclosed reclaimed wetland landscape: relict agricultural and water management features.' The land immediately north, on slightly higher ground, holds much evidence of transient, seasonal and permanent occupation, with Mesolithic and Neolithic finds, shell middens, and local coastal place names with Scandinavian origins reflecting trading and settlement. Evidence of water and land management in Cwm Ivy appears with medieval and early post-medieval

activity, and the reclaimed marsh is enclosed by two linear defences, an inner and outer bank, marked as Llanmadoc Ditch and The Goose on historic mapping. This forms a rectangular piece of land enclosed by higher ground and facing the estuary to the north east. The 1843 tithe map and apportionment depicts these and field names between the banks are marked as New Marsh; those within the inner bank include Old Marsh and Rushy Marsh.

A breach occurred in late 2013 during a storm, adversely affecting the outer late medieval/early post-medieval bank at the point where the sluice drained water from the management system into the Burry Estuary. The resulting physical impact on the bank was not immediately addressed, as various options were considered for rebuilding, retaining the sluice, or expanding, consolidating and bridging the gap. Natural Resources Wales (NRW) and the landowner, the National Trust, had concerns regarding the long-term safety of the bank, and in relation to water movement.

Local community concerns were raised about loss of grazing, the impact on archaeological features and areas, and because the bank had formed part of a popular



Photograph showing the breach in the bank and where the phases of construction can be seen. Credit: Judith Doyle

circular walk. Formal local consultation came in 2015, local concerns raised previously with both the National Trust and NRW having gone unanswered. Between 2013 and 2015, tidal surges, especially at very high and very low tides, created more erosion of the sea bank and widened the breach. It was 2015 before the historic environment impact was formally considered, and a desk-based assessment was recommended to consider the impact on the physical remains, as well as the setting within the Registered Landscape, in relation to the options for repair. During a scoping visit for the consultation, the construction phases of the bank were visible in section in the breach. Three dumps of material formed the base, covered with at least four more phases of material, including a sloping stone toe towards the estuary, with the wall to the seaward side forming the most recent phase. Regular flooding with sea water has destroyed the vegetation, as in the photograph. Because of both tidal and financial situations, the current situation is static, and local concern continues.



Registered Landscape character area boundary. Ref AL100005976.

Credit: Glamorgan Gwent Archaeological Trust HER

According to their website, NRW's current position appears to be that they considered and had planned that the resulting re-flooding of the marsh be compensatory habitat for flood defences in the Carmarthen Bay area. The National Trust's position, also according to their website, is that the sea reclaimed the land. Photographs on the websites show that the breach is wide, and that Cwm Ivy is as the salt marsh outside the outer bank.



Judith Doyle

Based in Swansea, with more than 20 years' experience as an archaeological curator/advisor in archaeological planning, following 10 years' fieldwork experience. Acting Chair ClfA Cymru; ClfA Advisory Council member; ALGAO Cymru Executive Committee member; DAC archaeological advisor to Swansea and Brecon Diocese. Interested in the managing change aspects of advisory archaeological work.

For further information regarding the current situation see:

[http://www.ggat.org.uk/cadw/historic\\_landscape/gower/english/Gower\\_Main.htm](http://www.ggat.org.uk/cadw/historic_landscape/gower/english/Gower_Main.htm)

<https://www.nationaltrust.org.uk/whiteford-and-north-gower/features/cwm-ivy-where-the-sea-comes-in>

<https://naturalresources.wales/about-us/our-projects/flood-scheme-projects/cwm-ivy-marsh-habitat-creation-project/?lang=en>



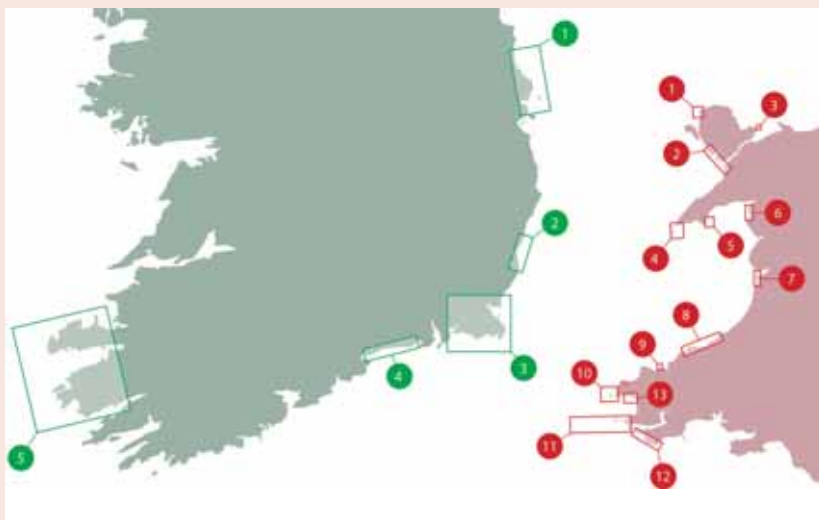
Photograph showing the effect of sea water on the vegetation of the character area. Credit: Judith Doyle

# LOSING THE EDGE GAINING GROUND

Louise Barker, CHERISH project, Royal Commission on the Ancient and Historical Monuments of Wales

Co-Authors: James Barry<sup>4</sup>, Anthony Corns<sup>3</sup>, Kieran Craven<sup>4</sup>, Sean Cullen<sup>4</sup>, Sarah Davies<sup>2</sup>, Toby Driver<sup>1</sup>, Geoff Duller<sup>2</sup>, Hywel Griffiths<sup>2</sup>, Sandra Henry<sup>3</sup>, Daniel Hunt<sup>1</sup>, Cerys Jones<sup>2</sup>, Henry Lamb<sup>2</sup>, Edward Pollard<sup>3</sup>, Helen Roberts<sup>2</sup>, Patrick Robson<sup>2</sup>, Rob Shaw<sup>3</sup>, Hollie Wynne<sup>2</sup>

**CHERISH (Climate, Heritage and Environments of Reefs, Islands and Headlands) is a five-year (2017–2021), €5.2 million EU project, funded through the Ireland Wales Co-operation Programme 2014–2020, bringing together a cross-disciplinary team from the Royal Commission on the Ancient and Historical Monuments of Wales; the Discovery Programme, Ireland; Aberystwyth University: Department of Geography and Earth Sciences; and Geological Survey Ireland. The team are undertaking investigations at several iconic coastal locations to raise awareness and understanding of the past, present and future impacts of climate change on the rich cultural heritage of the Irish and Welsh regional seas and coast.**

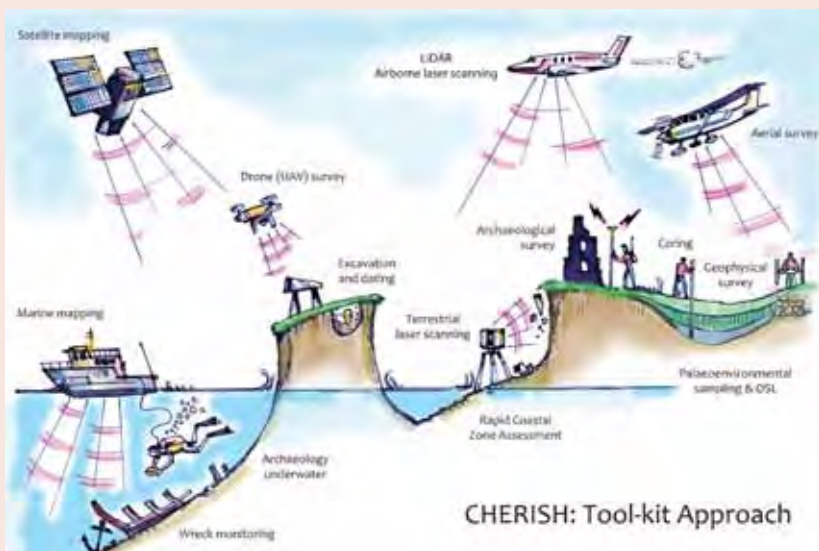


CHERISH study areas have been selected based on knowledge and data gaps (particularly islands and remote headlands) and priority 'at risk' areas. Crown Copyright: CHERISH Project

The overarching aims of CHERISH are to target data and knowledge gaps and raise awareness of threatened heritage in remote coastal locations. Through a range of techniques including terrestrial and aerial laser scanning, geophysical survey, seabed mapping, palaeoenvironmental sampling and excavation, we are establishing highly accurate baseline data and a transferrable 'tool-kit' and recording standard to assist future monitoring and understanding of climate change impacts on heritage sites. All data generated is open access, providing timely management information and scientific data to landowners, property managers, policy makers and coastal communities. In some cases, our work is pre-emptive preservation by record in the face of inevitable loss; other cross-disciplinary techniques such as palaeoenvironmental sequencing, luminescence dating and documentary research are being used to establish records of past environments, storminess and extreme weather events, providing a long-term context to current and near future risks and an insight into the nature of climate extremes faced by past communities.

**CASE STUDY:**  
**DINAS DINLLE COASTAL HILLFORT, GWYNEDD**

Dinas Dinlle coastal hillfort in Gwynedd, North Wales, occupies a prominent glacial hillock overlooking a beach and low-lying former wetlands and saltmarsh. The hillfort would conventionally date from the Late Bronze or Iron Age (c. 1200BC–AD 43) while Roman finds from erosion features on site, together with a prominence in early medieval Welsh literature and folklore, suggest a potentially longer history. In the early 20th-century the monument formed part of the Dinas Dinlle golf course, and a Second World War seagull trench built into the northern slopes of the fort formed part of the defence for nearby RAF Llandwrog, now Caernarfon Airport. Today Dinas Dinlle dominates a small coastal village with a seasonal holiday trade and is crossed by the Wales Coast Path.



An integrated approach to survey on land and under the sea. This graphic best describes the multidisciplinary approach to coastal and maritime recording that CHERISH employs in Wales and Ireland. Crown Copyright: CHERISH Project

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<sup>3</sup> Discovery Programme, Dublin, Ireland  
<sup>4</sup> Geological Survey of Ireland

Early maps and the curve of the defences suggest the fort was once entirely enclosed but today nearly all the western defences have been lost to the sea – the result of storms and intense rainfall that has led to the collapse of the cliff face. Map regression suggests 20–40 metres of the western side of the fort have been lost over the last 100 years and with climate change projections (UKCP18) for increased storminess, sea level rise, warmer, wetter winters and hotter, drier summers, this is set to increase.

Dinas Dinlle is a baseline monitoring site for the CHERISH project. Work has included gathering highly accurate (centimetre and sub-centimetre) 3D data to monitor the eroding cliff edge using techniques such as terrestrial laser scanning and UAV survey. This will provide an accurate baseline for future monitoring and, with analysis of historical documents such as aerial photographs and mapping, will enable us to reconstruct as accurately as possible erosion rates over the past 150 years. Repeat monitoring visits by CHERISH and a team of dedicated local residents also take place to see how seasonal and storm impacts are affecting the monument. Through this we were able to record a major cliff collapse affecting the southern defences of the monument in February 2019.

As well as monitoring Dinas Dinlle, CHERISH work is also about increasing our knowledge and understanding of it. In the area around the hillfort, sediment coring from the surrounding wetlands and luminescence dating of the sand spit at Morfa Dinlle will help reconstruct past environments and climate change using the physical, biological and chemical evidence trapped within layers of sediments. At the monument itself, new earthwork and geophysical surveys have greatly increased our understanding of the archaeological remains at the site, with numerous possible roundhouses and other anomalies identified inside the fort, several of which are situated very close to the eroding clifftop and which are now the focus for a community excavation in August 2019.

Under full supervision and following months of planning and training, the CHERISH team also went 'over the edge' in June 2019 to record and date features exposed in the eroding cliff-face, including the hillfort ditch exposed during the cliff collapse in February 2019. Initial results have been extremely interesting, bringing into question the way Dinas Dinlle was constructed. The southern ditch appears to have not been 'built' but instead utilised a pre-existing natural feature formed through complex hydrological processes during the end of the last glacial period around 12,000 years ago. We eagerly await the results of luminescence dating to shed more light on this.

Our work at Dinas Dinlle and our other study areas continues until the end of 2021. To find out more about the CHERISH project and for day-to-day news and features please visit our website ([www.cherishproject.eu](http://www.cherishproject.eu)), Facebook (Cherish Project) and Twitter pages (@CHERISHproj)



Dinas Dinlle is owned by the National Trust. It is protected as a Scheduled Monument whilst the cliff face itself is a Site of Special Scientific Interest, designated for the geological importance of exposed glacial sediments. Crown Copyright: RCAHMW AP\_2014\_0877



Fresh cliff collapse below the southern hillfort ditch, recorded on 14 Feb 2019, was exacerbated by intense rainfall funnelling water along the fort's ditch. Crown Copyright: CHERISH Project 2019



Don't look down! Battling with heights and ropes to investigate and record eroding features in the exposed cliff face of Dinas Dinlle. Crown Copyright: CHERISH Project 2019

# FROM PROBLEM TO OPPORTUNITY: responses to coastal erosion in Scotland

The coastal and intertidal zones are our most dynamic environments, vulnerable to unique climate change challenges. Coastal change and erosion are a result of natural processes and have always affected our shores, but they will be exacerbated by climate impacts. Higher waves and rising sea levels will accelerate the pace of change and increasingly threaten fragile landscapes.

Our coastline has long been a locus of settlement and activity, taking advantage of access to marine resources, transport opportunities and fertile land, particularly in Scotland, with its mountainous interior. Thus, much of our archaeological heritage is concentrated along our shores and is therefore especially vulnerable to climate-driven loss. The situation is further complicated by sea level rise and despite a history of isostatic rebound in parts of the country, the most recent data shows that all of Scotland is now affected and that the rate is increasing. With rising seas, stretches of our coastline will fall within the reach of higher waves more frequently, causing severe erosion and endangering a significant and growing proportion of our archaeological heritage. Threatened sites encompass the breadth of human activities ranging from Scotland's first settlers to the 20th century.

Over the past 20 years, the SCAPE Trust, supported by Historic Environment Scotland, has worked to address this problem across Scotland. Through the Shorewatch project and more recently ShoreUPDATE (part of the Scotland's Coastal Heritage at Risk Project, SCHARP) SCAPE has trained volunteers to become citizen archaeologists, working with them to survey coastal sites and monitor change. However, observation alone does not save sites, and the threat demands a further response.

Ellie Graham ACIfA (6180), The SCAPE Trust

A handful of archaeological sites have been protected by the construction of stone walls, but such defences are expensive to build and maintain and often inappropriate for many places. Other solutions need to be found, and practical projects at eroding sites have turned the problem of erosion and the destruction of archaeological sites into an opportunity to learn from the process of loss, to engage with communities all around the coast and to gain benefit from the heritage before it vanishes.

Examples include the survey of a submerged forest on a beach at Lionacleit, Benbecula, in May 2018. This mapped the remains of trees within intertidal peats and identified a predominantly willow and birch woodland with some Scots pine, the remains of a once-widespread forest across what is now the Western Isles archipelago. Reflecting the long history of change here, the woodland declined from around 4500 to 4000 BC as sea levels rose, the climate became wetter



Two stone features near the high water mark on the beach are probably the remains of eroded structures. Credit: SCAPE



and windier, and human activity altered the landscape. First brought to SCAPE's attention by the local community, this beach also contained evidence of later prehistoric settlement. A sub-circular arrangement of boulders and curvilinear stone alignment may represent a house and enclosure, recently exposed by the loss of sand from the dune hinterland. Associated cultural deposits have been scoured out by the tide, leaving the heavier stones to settle as 'ghost' structures on the foreshore. The nearby peat shelf contained a cluster of bone from a small cow, bearing cut marks and closely associated with struck quartz flakes. Yielding radiocarbon dates of 1800–1600 BC, this probably represents an in-situ Early Bronze Age butchery site, a possibly unique snapshot of a moment in time, preserved in the peat but only rescued from imminent loss by the sharp eyes of a well-informed volunteer engaged with the local coastal heritage.

In Brora, East Sutherland, once known as the industrial capital of the Highlands, a stub of stone walling protruding from a dune intrigued the village community. This led to a full excavation, completed in 2010 by SCAPE and the Clyne Heritage Society. It revealed a 16th-century saltworks, shedding new light onto early modern salt production and the earliest industrial heritage in Brora. Although it collapsed in December 2011 when the sand dunes were dramatically eroded by a storm, this unique stone building had been fully recorded before its complete destruction.



Before, during and after: the saltworks at Brora, (left) first visible as a fragment of stone walling in the dune face; (top) community excavation in 2010; (right) destroyed by a winter storm in late 2011. Credit: SCAPE

Facing the urgent threat of loss where sites can't be saved, partnership working can rescue archaeological information, achieve preservation by record of the most vulnerable sites and develop a community of volunteers who are engaged and informed – not only about their heritage but also with the increasing challenges posed by climate change.



Fragments of bone and quartz flakes eroding from the intertidal peat preserve the story of a single event in the Early Bronze Age but were excavated just in time to rescue them from the sea. Credit: Simon Davies



## Ellie Graham

Ellie joined the SCAPE Trust in 2012 as part of the Scotland's Coastal Heritage at Risk Project ([www.scharp.co.uk](http://www.scharp.co.uk)), which works with volunteers around the country to record vulnerable coastal heritage (ShoreUPDATE) and investigate locally valued threatened sites (ShoreDIGs). As coastal archaeology encompasses all periods, she is interested in sites of all types as well as in developing strong collaborations to integrate community archaeology with research and heritage management.

# Searching Mersea:

## coastal archaeology, oral history and rising sea levels



Lawrence Northall, CITIZAN Community Archaeologist, Museum of London Archaeology

CITIZAN volunteers on the East Mersea mudflats. Photo: Museum of London Archaeology

The Coastal Intertidal Zone Archaeological Network (CITIZAN) is a community-based National Heritage Lottery Funded project, set up to record and monitor the fragile archaeological remains vulnerable to coastal erosion on England's foreshores. Several sites along the coast of Essex have seen considerable change since the team began monitoring surveys in 2015. This is particularly true of Mersea Island, where a new three-year Discovery Programme tackles the risks that a changing climate is bringing to its rich intertidal archaeological resource. The biggest challenge on Mersea is the speed at which fragile features exposed by the sea are destroyed, often disappearing altogether before they can be fully recorded. Huge mudflats are all that remain of entire landscapes, so large the team have had to target their resources to record as much at-risk archaeology as possible. With over 10km<sup>2</sup> to explore, new and unique approaches were required to ensure efficient surveys were conducted; Searching Mersea proved to be one such approach. At its heart an oral histories project, Searching Mersea has collated the knowledge, memories and stories of local people who have interacted with the foreshore throughout their lives. In doing so it has allowed the team to recreate the much-changed foreshore of Mersea across the last 50 years, identifying archaeological hotspots in the process.

Several important discoveries, including a Bronze Age trackway and Iron Age human remains, were discovered by local oystermen whose regular activity on the foreshore make finds commonplace. Oysterman Daniel 'Bubbe' French regularly witnesses the changing exposure of archaeological features, buried under silt after one tide and washed out altogether the next. This has resulted in CITIZAN's attention being drawn to many formerly unknown remains. Bubbe's understanding of the changeable nature of mud rills and detailed knowledge of the mudflats are necessary to re-locate such features, find new ones and to map areas of

interest for the team. It only takes one storm surge on Mersea for an entire site to wash away, leaving only the observations and memories of people like Bubbe to go on. Capturing and mapping these memories therefore became a priority for Searching Mersea.

On the northern shores where accretion is obscuring archaeological sites, traditional methods of observation and survey are largely ineffective. Aerial imagery of soft muds is hard to interpret and geophysical survey is impractical. A local former punt gunner recalled a night when a cobbled road



Bronze Age trackway found by oysterman Daniel French (Senior). Photo: Museum of London Archaeology

became exposed on the foreshore in an area now thick with silt. When compared with excavation reports from the early 20th century, the memories appeared to match a location at which a causeway was described on the foreshore, at the time suggested to be an earlier crossing of the Pyefleet channel but long since lost. While memories are malleable and yarns are hardly the fruit of science, they do provide more defined locations in which to conduct further survey when resources are limited.

In conducting recording sessions the team were drawn deeper into the heart of the

community by a network of word-of-mouth recommendation. The connective power of the project to link with the local community has proven considerable. Not only did the project give a voice to many non-archaeologists with strong importance attached to their sense of place and culture, but it also brought together a broad range of people through recording sessions and discussions about their shared history. Critically, it gave a platform for this to be communicated between generations. It was very touching to hear of how one primary school child who visited the Searching Mersea exhibition proudly insisted that all his friends put the headphones on and listen to his father recounting the day he found a Bronze Age trackway. Taken together, the memories and stories of over 15 residents have revealed the locations of sites previously unrecorded, which has helped to focus CITIZAN's efforts in battling the impacts of climate change on the fragile archaeological remains. This has been achieved by creating a memory-based GIS layer charting discoveries, lost landscapes and past coastlines that is being used to inform the next three years of the CITIZAN project on Mersea. Residents continue to contact the project to add their memories to this evolving database and it is planned to keep the project running and expand along the banks of the rivers Colne and Blackwater.

Searching Mersea has also shown the value of oral histories projects for community-led coastal archaeology projects through its unique form of engagement. Its methodology has facilitated a sense of community cohesion and culminated in an exhibition at the local museum. At a time when climate change is not only uprooting our foreshores but also giving rise to anxieties about place and identity through displacement and mass migration, oral history projects give us a positive way to preserve by record our vulnerable and disappearing archaeology. It is also a medium that promotes communication between different groups and facilitates an inclusive approach to local identity.



**Lawrence Northall**

Lawrence has a BA in Social Anthropology from Goldsmiths College, University of London. He is Community Archaeologist for the South East region, where he supports the discovery programmes for both Mersea Island and East Kent Coast.

Iron Age skull found by oysterman Daniel 'Bubbe' French. Photo: Museum of London Archaeology



Searching Mersea exhibition at Mersea Museum. Photo: Museum of London Archaeology

At a time when climate change is not only uprooting our foreshores but also giving rise to anxieties about place and identity through displacement and mass migration, oral history projects give us a positive way to preserve by record our vulnerable and disappearing archaeology.

# A DRY DEATH FOR WETLAND ARCHAEOLOGY IN SOMERSET?

Richard Brunning MClfA (1876), South West Heritage Trust

The Somerset Levels and moors are famous for wetland archaeological sites, from the Neolithic Sweet Track to the Iron Age Lake Villages of Glastonbury and Meare. What makes these sites so special is the remarkable preservation of organic materials for thousands of years – their survival is both rare and incredibly important for providing our most complete understanding of past material culture. Their preservation relies on the maintenance of waterlogged conditions, excluding oxygen and preventing decay. Such fragile sites have been at risk for decades across the UK from development and dewatering but now climate change is creating an even greater risk.



Excavation of a sequence of six collapsed palisades at the edge of Glastonbury Lake Village. Small-scale excavation has provided information on the condition of the monument and answered key research questions. Credit: South West Heritage Trust

Over the last two decades projects have been undertaken in Somerset examining the condition of specific wetland monuments and the wider wetland archaeological resource. These have identified a landscape-scale threat to the survival of the known, and yet to be discovered, waterlogged archaeological sites in the lowland Somerset peat moors. This threat comes from the gradual desiccation and wastage of peat where it exists close to the ground surface. Fortunately, there is as yet relatively little arable farming of the peat soils, which can lead to 1–2cm of peat loss over just one year. But even in areas of permanent pasture the peat loss is estimated to be between 4.4–7.9mm per year, due to the inability of the widely spaced rhynes (field ditches) to maintain a high summer infield water table. Over a century this will lead to the loss of 0.44–0.79m of peat.

The effect of this slow wastage has been seen on monuments such as the Neolithic Abbot's Way trackway and the Meare Lake Village, where the wooden remains have almost disappeared because of gradual desiccation, shrinkage and decay. Other prehistoric trackway sites, such as the Bell, Godwin's and Chilton tracks have proved unexpectedly resilient despite being near the ground surface, but the wooden remains are gradually degrading, with the consequent loss of archaeological information, such as the ability to identify the tree species or to accurately measure toolmarks.

Monitoring work at Glastonbury Lake Village is showing how this threat is being heightened by climate change. This wetland settlement had been the focus of detailed monitoring, which concluded that the site was relatively

safe from desiccation. However, the very dry summer of 2018 proved that this was not the case, as the infield water table dropped below the top of the in-situ organic remains for several months during the summer.

The UK climate predictions for the South West of England encompass a range of outcomes for the coming decades, reflecting the inherent complexity of the world's climate and



Godwin's Track, a middle Bronze Age brushwood trackway, typical of the many such structures which lie within 70cm of the ground surface in Somerset's peatlands. Credit: South West Heritage Trust



A roundwood stake from a roundhouse wall at Glastonbury Lake Village. Loss of water from the surrounding peat has caused severe shrinkage and cracking of the wood. Such damage could occur in just one period of severe drought. Credit: South West Heritage Trust



Excavation of part of the Sweet Track (built 3806 BC) in Shapwick Heath National Nature Reserve to assess its condition. Credit: South West Heritage Trust

the uncertainty of the human response to the crisis. All the scenarios agree on the basic trends, however, which are that there will be more extreme events, the winters will generally be wetter, and the summers will generally be both warmer and drier. The latter factor is probably the key one because it means that very dry summers like 2018 will become both more frequent and more extreme.

What can the archaeological response be in the face of such a widespread threat? All the waterlogged sites designated as Scheduled Monuments in the Somerset peatlands exist, in part or completely, within 90cm of the ground surface. Although they have survived for thousands of years in remarkable states of preservation, it seems clear that most, if not all, will be destroyed by increasingly extreme occasional summer droughts over the next 20–100 years.

Two archaeological responses are possible. One is to undertake a series of carefully targeted excavations to obtain the maximum information from these ‘doomed’ sites to answer key research questions before they are lost forever. The other is to work with nature conservation organisations, the Environment Agency, the Internal Drainage Boards, the farming community and Defra to create a more resilient use of the floodplain, which protects both the wetland archaeological resource, the

nature conservation interest, the livelihoods of the landowners and the 3.33M metric tons of organic carbon in the top 1m of peat.

Monitoring of the Sweet Track has shown a glimmer of hope in this respect, as the water table in the part of the trackway under study did not fall significantly in the drought of 2018. This was probably because the local water table was more resilient due to its location at the edge of the Shapwick Heath Nature Reserve, which contains extensive reedbeds. West Sedgemoor, predominantly owned and managed by the RSPB, has also shown to have had virtually no peat wastage as it is managed with high water tables all year. These sites show a sustainable way forward, if economics will allow their application on a wider landscape scale. Here climate change will also play a key role because other predictions for greater and more extreme rainfall events in future winters may force us to treat the floodplain as a real wetland again.



**Richard Brunning**

Richard is a Senior Historic Environment Officer with the South West Heritage Trust. He is a specialist in wetland archaeology and archaeological wood and has been involved in the excavation, recording and monitoring of numerous wetland sites across the UK since 1989, especially in Somerset. The recent monitoring work on the Sweet Track and Glastonbury Lake Village has been carried out by the South West Heritage Trust with funding from Historic England, Somerset Internal Drainage Boards, the Heritage Lottery Fund (as part of the Avalon Marshes Landscape Partnership) and Somerset County Council.

#### Further reading

Brunning, R, 2012 Partial solutions to partially understood problems – the experience of in situ monitoring and preservation in Somerset’s peatlands. *Conservation and Management of Archaeological Sites*, 14(1–4), 397–405

Brunning, R, 2013 *Somerset’s Peatland Archaeology. Managing and investigating a fragile resource.* Oxbow Books

A simplified summary of climate change predictions can be found online at

<https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/ukcp/ukcp18-fact-sheet-derived-projections.pdf>

# CLIMATE VULNERABILITY AND THE HEART OF NEOLITHIC ORKNEY WORLD HERITAGE PROPERTY



Skara Brae. Credit: Historic Environment Scotland

Rebecca Jones MCI(A) (1122), Ewan Hyslop, Alice Lyall, Jon Day, Scott F Heron, Adam Markham, Jane Downes MCI(A) (573) and Julie Gibson ACI(A) (1375)

**The Heart of Neolithic Orkney (HONO) was inscribed as a World Heritage (WH) property by UNESCO in 1999. It comprises four sites (Skara Brae, the Ring of Brodgar, the Stones of Stenness and Maeshowe), which provide a unique testimony to ceremonial, funerary and domestic components of cultural traditions that flourished on Orkney between 3000 and 2000 BC. All four sites are Properties in Care of Scottish Ministers and managed by Historic Environment Scotland (HES).**

The two principle advisory bodies to UNESCO – the International Council on Monuments and Sites (ICOMOS) and the International Union for Conservation of Nature (IUCN) – have recognised climate change as the fastest growing threat to World Heritage. To address this issue, a Climate Vulnerability Index (CVI) has been developed to aid understanding of various climate drivers and assess the risks they pose to the value of World Heritage properties. The first application of the newly developed framework was at the natural World Heritage property of Shark Bay, Western Australia, in September 2018.

After this initial trial, ICOMOS' Climate Change and Heritage Working Group helped select a cultural WH property to test the CVI framework. HONO was selected on the grounds of

- recognition of the vulnerability of Orkney sites to climate change impacts
- leadership and innovation by HES in addressing the heritage impacts of climate change
- the active engagement of the Archaeology Institute of the University of the Highlands and Islands (UHI), along with the Orkney community and a wide array of local researchers
- availability of good local climate change scenarios and research

Skara Brae itself was discovered as the result of a severe storm in 1850, and its vulnerability has been recognised since the 1920s, when a sea wall was built to protect the site. Since then, the sea wall has been extended several times and the wall and immediate coastline on either side are now monitored through a programme of biennial laser scanning and annual photographic survey. The Ring of Brodgar has suffered from surface flooding and footfall erosion and is now subject to an active conservation management regime including engineered surfaces beneath modern turf layers, periodic closing of parts of the site to visitors, and increased staff presence to manage visitor movements at peak times. It is accessible 24 hours a day. Indeed, the impacts of increased

tourism have compounded the climate change impacts, with a high and growing number of tourists visiting every summer, and the sites' popularity with visitors from the cruise sector and 'day trippers' using the short sea crossings to Orkney.

Once HONO was confirmed for the second application of the CVI, the authors of this report formed a steering group, video conferencing regularly across three continents. The workshop took place over three days in April 2019 with 36 participants, over half drawn from the local community in Orkney. County archaeologists from the other Scottish island groups attended, and international participants came from Ireland, Norway, the US and Australia. It was a mix of archaeologists, climate scientists, site managers, park planners, academics and local tourism experts. Five UHI students were

active participants and also acted as scribes for the sessions, helped organise a public engagement evening, and aided with the workshop logistics.

Prior to the workshop, participants were encouraged to watch a webinar providing background information on climate impacts and Orkney and consider the most relevant climate drivers and significant local values for the property. During the workshop, participants visited three of the four sites that comprise HONO. The public open evening hosted by Orkney College (UHI) in Kirkwall was standing room only, attended by over 60 people.

Given the significance of the workshop, as the first trial of the CVI at a cultural WH property, there was considerable media interest and HONO was featured on local and

national radio in Scotland and Scottish TV news programmes on BBC and ITV. There were articles in several newspapers and online new reports, blogs, and a strong presence on social media.

The CVI has been developed to rapidly assess climate impacts, both on the Outstanding Universal Value of a WH property and as a result on its associated community (local, domestic and international). During the workshop, participants identified the three key climate drivers they considered most likely to impact the site by 2050: sea level change, precipitation change, and storm intensity and frequency. They also identified other drivers where increased understanding is required, including the impact of air temperature changes on the monuments and their setting. Impacts including growing tourism numbers,



We are delighted that work undertaken in Scotland is expected to have a significant positive impact for the management of natural and cultural heritage across the globe.

(above) Damage to the footpath at Ring of Brodgar resulting from higher visitor numbers and increased rainfall levels. Credit: Historic Environment Scotland



(right) Installation of engineered surfaces to improve footpath resilience at the Ring of Brodgar. Credit: Historic Environment Scotland





Alistair Rennie from Scottish Natural Heritage discusses coastal change with workshop participants at Skara Brae. Credit: Historic Environment Scotland

infrastructure development and changing agricultural practices were also identified and documented.

The CVI process identified that HONO was extremely vulnerable to the impacts of the three identified key climate drivers. There is the potential for major loss or substantial alteration of many of the values that comprise the Outstanding Universal Value of the property. The Community Vulnerability sessions explored the economic, social and cultural importance of HONO, and the resilience of the community to climate change risks. The high adaptive capacity of the community demonstrates the overall resilience of the locality to potential impacts of climate change.

After the workshop, the authors worked together to compile and publish a detailed report, available on the HES website,<sup>1</sup> which described HONO, its management planning and climate pressures, the workshop results and the next steps. The results will feed into

the current review of the HONO Management Plan, with the next five-year plan due to be launched in 2020. The other five WH properties in Scotland will seek to run similar workshops in the next few years, embedding the process into their management planning cycles.

The report was presented, together with a short video about the workshop and its results,<sup>2</sup> at an ICOMOS event at the World Heritage Committee meeting in July 2019 in Baku, Azerbaijan. The authors believe that the CVI could be adopted as a standard for assessing climate vulnerability in WH properties worldwide.

The HONO report recommended wider application of the CVI methodology, given its potential to enhance understanding of the climate change challenges at other heritage sites. We are delighted that work undertaken in Scotland is expected to have a significant positive impact for the management of natural and cultural heritage across the globe.

Photo of the authors at Skara Brae during the workshop in April 2019. Back row from left to right: Rebecca Jones, Ewan Hyslop, Scott Heron and Jon Day. Front row from left to right: Julie Gibson, Jane Downes and Adam Markham. Credit: Historic Environment Scotland

**Rebecca Jones** is Head of Archaeology and World Heritage at Historic Environment Scotland.

**Ewan Hyslop** is Head of Technical Research and Science at Historic Environment Scotland.

**Scott F Heron** is Senior Lecturer in Physics at James Cook University in Queensland, Australia and developed the CVI framework together with **Jon Day**, a former Director with the Great Barrier Reef Marine Park but now at the ARC Centre for Excellence in Coral Reef Studies at James Cook University.

**Julie Gibson** is County Archaeologist for Orkney Islands Council and Lecturer at the Archaeology Institute at the University of the Highlands and Islands.

**Jane Downes** is Professor of Archaeology and Director of the Archaeology Institute at the University of the Highlands and Islands and a member of the Climate and Heritage Working Group of the International Council on Monuments and Sites (ICOMOS).

**Adam Markham** is Deputy Director for Climate and Energy at the University of Concerned Scientists and a member of the Climate and Heritage Working Group of ICOMOS.

**Alice Lyall** is Deputy Head of World Heritage and HONO coordinator, Historic Environment Scotland.



<sup>1</sup> <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=c6f3e971-bd95-457c-a91d-aa77009aec69>

<sup>2</sup> <https://www.youtube.com/watch?v=s015OS0cMWc>

# VALUE, SUSTAINABILITY AND

**At the ClfA Conference in Leeds, Christopher Dore made the business case that to have a large heritage impact, organisations must be sustainable. And to be organisationally sustainable requires an ongoing increase in financial value.**

These linkages and prerequisites had little relevance a professional generation ago when archaeology was funded through public sources or wealthy patrons. But today archaeology has been privatised. Current estimates (Heritage Business International and Landward Research) are that commercial archaeology had a global value in 2018 of £1.5 billion pounds (US\$ 1.8bn). In private archaeology, growth in financial value is essential for sustainability and impact.

Current estimates are that commercial archaeology had a global value in 2018 of £1.5 billion pounds.

Dore's ClfA lecture presented the case for value growth and its importance, but didn't show how value is calculated and measured. Measuring value is the topic of this article. Financial value is defined as the intrinsic worth of a financial asset, for example a department, a project, a person, a business line, etc. Intrinsic worth is derived from the long-term cash-flow-generating ability of the asset. The ability of the asset to generate cash flow, over a period of time, is measured by the discounted free cash flow.

What is free cash flow and why is it discounted? Free cash flow is cash that is available to an organisation's financial stakeholders (eg creditors and shareholders) after accounting for all capital expenditures such as buildings or property, plant, and equipment. Free cash flow is used by heritage organisations to expand, develop new services, make acquisitions, pay dividends and reduce debt. Discounting is a way to account for the 'time value' of money. A pound today doesn't have the same value as a pound five years from now. The value today of a future amount of money (such as the payment made at the end of an archaeological project) is called the present value and is calculated as

$$\text{Present Value} = \frac{1}{(1 + r)^n}$$

where r is the discount rate and n is the number of periods (typically years). Thus, if someone gave you £150 five years from now, assuming an annual inflation rate of 3 per cent, the present value would be

$$£129.39 = \frac{£150}{(1 + .03)^5}$$

We can use this approach to look at the value growth (called real growth) versus the growth in today's pounds (nominal growth) for commercial archaeology in the UK.

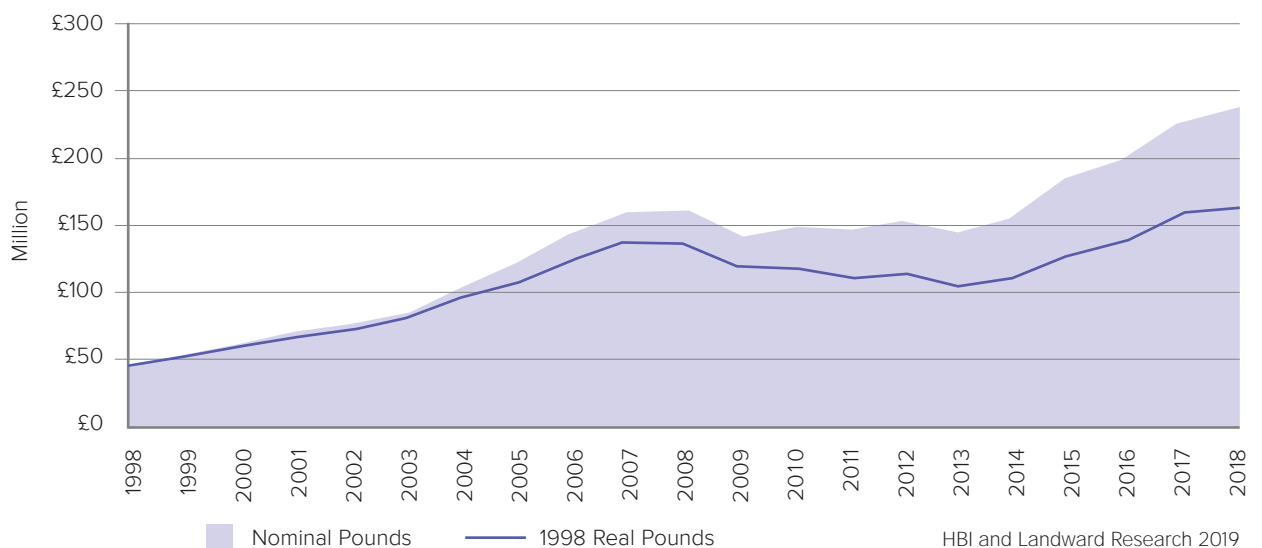


Figure 1: UK commercial archaeology in nominal and real pounds

In Figure 1, the blue line represents real growth (inflation accounted for). Everything above the blue line is simply inflation.

# HERITAGE IMPACT

Christopher D Dore, MClfA (8900), Heritage Business International and Kenneth Aitchison, MClfA (1398), Landward Research Ltd

Commercial archaeological organisations need capital to undertake projects. Typically, clients pay at the end of a project and, between the start of the project and getting paid, there are many business expenses, including the salaries of the archaeologists doing the work. Thus, capital must be obtained prior to starting the project. Most heritage companies will borrow this money (purchase debt), issue stock (sell an ownership stake in the firm), or use retained earnings, and there is a cost to using it. When all sources of capital are considered, their cost is called the Weighted Average Cost of Capital (WACC). For value purposes, the WACC is what is used for the discount rate in the present value (or net present value) calculation

$$WACC = \frac{E}{E + D} (Re) + \frac{D}{E + D} (Rd) (1 - T)$$

where Re = Cost of Equity (%), Rd = Cost of Debt (%), E = Market Value of Equity (£), D = Market Value of Debt (£), and T = Corporate (Corporation) Tax Rate (%) (the fact that some heritage organisations are constituted to not pay Corporation Tax is discussed below).

Let's start with debt, and in this case, it is long-term (more than a year) debt that is of interest.

Debt	Amount	Cost (Interest)	Cost (Pounds)	Weighted per cent
Bank loan 1	£21,734	6.50%	£1,413	
Bank loan 2	£7,569	5.50%	£416	
Car loan	£15,468	4.25%	£657	
Loan from director	£10,000	2.35%	£235	
<b>TOTAL</b>	<b>£54,771</b>		<b>£2,721</b>	<b>4.97%</b>

We now have two of the figures for the WACC equation: market value of debt (£54,771) and the cost of debt (4.97%).

The cost of equity is calculated using the Capital Asset Pricing Model (CAPM), which describes the relationship between systematic risk and return for assets. (Systematic risk is the risk inherent in the overall market system.) Three inputs are required: an estimate of the risk-free interest rate ( $R_f$ ), an estimate of the market risk premium ( $R_m$ ), and an estimate of beta ( $\beta$ ). Typically, the 30-year bond yield is used for the risk-free rate and the mean over the past 20 years is 3.7 per cent. The market risk premium is the expected return for the overall market and can be estimated by using the FTSE 100. The average annual return for the past 30 years is 5.56 per cent. Beta is a measure of the volatility in the value of an individual firm in comparison to the market. A 2018 beta for UK professional services firms is 1.19 (Duff & Phelps 2019).

$$\text{Cost of Equity} = R_f + \beta (R_m - R_f)$$

$$5.91 = 3.7 + 1.19 (5.56 - 3.7)$$

The two numbers still needed for the WACC are the Market Value of the Equity and the Corporate Tax Rate. For these, we will assume the corporate tax rate is 19.0 per cent and the market value of this example firm is £2,000,000. The formula may now be completed.

This means that the value break-even for this organisation is 4.75 per cent profit. If year-end profits for this firm are positive, but below 4.75, the firm is losing value. When firms lose financial value, they are not sustainable. When profits are above 4.75 per cent, the firm gains value.

$$4.75\% = \frac{£2,000,000}{£2,000,000 + £54,771} (5.91\%) + \frac{£54,771}{£2,000,000 + £54,771} (4.97\%) (1 - 0.19\%)$$

In private archaeology, growth in financial value is essential for sustainability and impact.

The WACC is powerful because it can be scaled and used to value any financial asset: a firm, a department, a project, a person. We advocate that firms substitute ‘value’ for ‘profit’ in day-to-day decision making. This requires, however, a significant change in the frame of reference for how we think about the business of commercial archaeology. For example, should a firm bid on a particular job? Use the WACC to discount the future free cash flows and calculate the net present value. If the net present value is greater than or equal to zero, then the project will return value to the organisation. The formula for net present value is simply the formula for present value calculated and summed on a year-by-year basis. In this example, the  $r$  would be the WACC of 4.75 per cent.  $C_t$  is the free cash flow;  $C_0$  is the total investment costs – for a job it would be the marketing, sales, and proposal costs.

$$\text{Net Present Value} = \sum_{t=1}^T \frac{C_t}{(1+r)^t} - C_0$$

If archaeological organisations are going to have a significant heritage impact, they must be sustainable and must return value.

Why are we advocating a reconsideration of value in commercial archaeology? Because the commercial archaeology industry in the UK does not appear to be financially sustainable. Landward Research (2019) reports that the mean profit for commercial archaeology organisations was 7.5 per cent in 2018. On the surface, that seems like a reasonable profit. However, Duff & Phelps (2019) reports that for UK professional service firms, which includes commercial archaeology, the WACC was 8.5 per cent in 2018. Thus, overall for 2018, the industry lost one per cent value and was therefore not sustainable.

Approximately 52 per cent of people working in commercial archaeology in the UK work for not-for-profit charities (calculated from Landward Research 2019). Charities don’t have equity or the associated cost. They are also generally exempt from corporation tax. Thus, technically, the WACC approach to valuation isn’t applicable. But it has merit. Charities also need to be profitable and return a certain level of value. One technique for substituting the cost of equity, discussed by Essaides (2016), is to use the required return on investment capital: ‘If a nonprofit board of directors has a mandate that an organization annually return \$1 million of its assets through scholarships or other various charitable avenues and its assets base (ie invested capital) is \$10 million, requiring a 10 percent annual return’. An internet search for WACC and non-profits will provide several resources for archaeological charities interested in adapting a financial value approach.

Archaeology as a discipline continues to evolve. The privatisation of our discipline now requires a different, and more sophisticated, method of evaluating financial value. If archaeological organisations are going to have a significant heritage impact, they must be sustainable and must return value. The WACC method provides a relatively easy, and scalable, solution to measure, monitor, and ensure business decisions are made in a way that returns value to the organisation.

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#### Dr Christopher Dore

Chris is a consultant with Heritage Business International, a social enterprise venture that works to help heritage organisations increase their value, sustainability, and impact in a global marketplace. He currently is the President of the Register of Professional Archaeologists and has served as the President of the American Cultural Resources Association and Treasurer of the Society for American Archaeology. He also serves as an Adjunct

Professor at the University of Arizona and Simon Fraser University, where he helps students expand their knowledge of heritage business, Maya archaeology, and geospatial technologies.

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#### Kenneth Aitchison

See member news page 32.

# Jobs in British Archaeology

Ben Lewis, Doug Rocks-Macqueen MCIfA (6540),  
and So Young Ann

## 2015–18

The Jobs in British Archaeology (JIBA) series returns to The Archaeologist for the first time since 2015. This series, running since 1993, collects data from job postings to examine salary and job trends in UK archaeology. This latest article covers the financial years 2015–2018, indicating how the approximately 6800 individuals currently employed in archaeology (Aitchison 2019) are being paid.

### How the numbers were obtained

Data was gathered from salaries posted in job advertisements from ClfA's Jobs Information Service and Training (JIST) and British Archaeological Jobs and Resources (BAJR) from 1 April 2015 to 31 March 2018. These adverts have been found to represent an accurate portrait of salaries in archaeology (Aitchison and Rocks-Macqueen 2013).

Further explanation of the methodology can be found in previous articles (see references). Important details for understanding the data presented are:

- part-time wages are calculated pro-rata to provide the equivalent salary
- overall averages are taken for each job category – where a salary range is given, an average is taken
- highs and lows (Figures 1 and 2 and Tables 3 and 4) are based on the highest and lowest reported salaries for each job category

### ClfA and BAJR minimums

BAJR and ClfA set required minimum recommended salaries. For ClfA, these are set at the Practitioner, Associate and Member levels of accreditation, and have been used for comparison in Figure 1. Since 2014, all ClfA members must 'endeavour to meet or exceed' these recommended salaries as per Code of Conduct Principle 5.5 (2014).

### Salaries: archaeologist 'hierarchy'

The JIBA series categorises field (and occasionally laboratory) positions into a 'hierarchy', running: Trainee – Technician – Supervisor – Officer – Project Manager (Rocks-Macqueen 2013).

From 2015 to 2018, average salaries grew steadily across all roles in the hierarchy (Figure 1) as did the number of roles advertised (Table 2). Since warranting their own category in the 2015 JIBA series (Rocks-Macqueen 2015), the number of advertised Trainee positions continues to rise – with a particularly large increase in 2017–18 (Table 2).

While the average Supervisor salary has increased steadily, the range of Technician salaries has increased significantly (Figure 1). This means that although a Supervisor within an individual company will earn more than a Technician, it is increasingly likely that the same Supervisor will be paid less than a Technician in another company or area of the UK. This could create issues in the profession as some archaeologists will earn less money for significantly more responsibility than their peers.

The Officer category continues to be affected by the proliferation of job titles identified in the 2013–4 JIBA series (Rocks-Macqueen 2014). Several roles carry the term 'officer'

Table 1: Average salaries for 2015–18

Year	Trainee	Technician	Supervisor	Officer	Project Manager
2015–16	£16,923	£18,512	£20,571	£24,439	£32,104
2016–17	£15,768	£19,010	£20,998	£25,010	£32,014
2017–18	£16,972	£19,714	£21,367	£25,603	£32,918

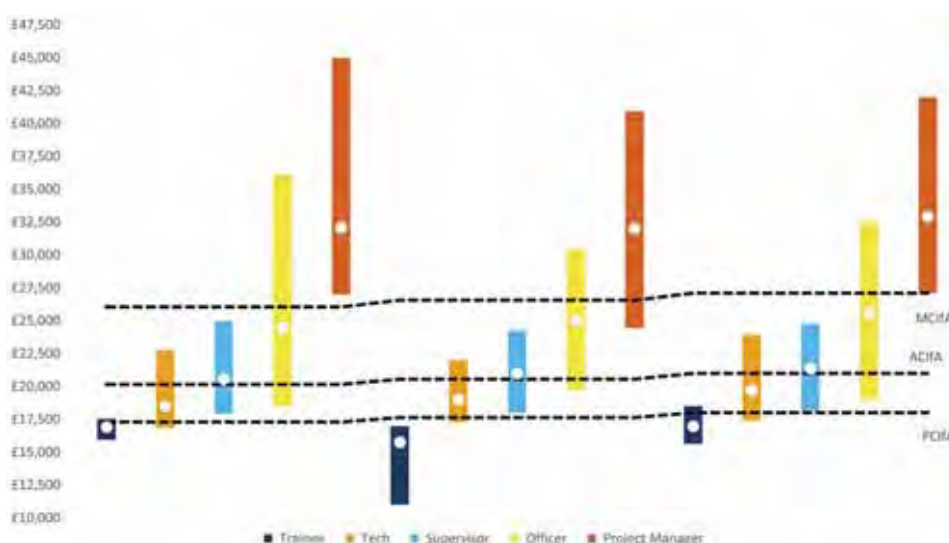


Figure 1: Highest, lowest and average salaries (white dot) per role for the 2015, 2016 and 2017 financial years, compared to ClfA minimum recommendations

and require experienced candidates, but pay what may be considered Technician or Supervisor levels.

The Project Manager role most clearly differentiates itself from other roles in the hierarchy in terms of pay – for all three years the lowest paid Project Manager roles are above or equal to the average Officer role. The role, which saw a dramatic increase in average salary during the early 2000s, has somewhat plateaued since 2014 and continues to average around the £32k mark.

### Salaries: other roles

Since 2013, other roles have been categorised into: Community and Education; Conservation; Consultancy; CRM SMR; Curation and Collections; Geophysics; Surveying; and Illustration.

Only Conservation and Illustration roles have seen a gradual increase in average salary. Noticeably, the average salary for Geophysics has steadily declined over the three-year period. For the year 2017–18, 58 per cent of Geophysics roles were further described as at ‘Trainee’ or ‘Assistant/Technician’ level.

After peaking above £30,000 in 2015–16, the average Consultant salary has decreased over two consecutive years. This average should be taken with a pinch of salt as, unlike all other categories, most consultancy jobs do not divulge a salary (eg only 38 per cent of Consultant advertisements specified a salary in 2017–18).

The potential of dropping Illustrator as a category was floated in the last JIBA article (Rocks-Macqueen 2015) because only six jobs were advertised throughout that year. However, an average of eleven Illustrator roles were advertised per year 2015–2018, with job titles including ‘Graphics Officer’ possibly indicating a diversification of the skills required for the role. With this increased advertisement rate it has been decided to keep this as a separate category for now.

Table 2: Total job advertisements per role, 2015–18

Year	Trainee	Technician	Supervisor	Officer	Project Manager
2015–16	3	91	49	61	25
2016–17	7	110	42	56	50
2017–18	25	156	62	78	55

Table 3: Highest and lowest advertised salaries per role, 2015–2018

		Trainee	Technician	Supervisor	Officer	Project Manager
2015–2016	Low	£15,941	£16,837	£17,921	£18,500	£27,000
	High	£17,528	£22,750	£24,980	£36,131	£45,000
2016–2017	Low	£11,008	£17,280	£18,000	£19,750	£24,440
	High	£16,982	£22,000	£24,250	£30,434	£40,945
2017–2018	Low	£15,642	£17,431	£18,160	£19,000	£27,100
	High	£18,522	£23,896	£24,772	£32,500	£42,011

Community and Education roles saw a sharp decrease in average salary and salary range in 2017–18. Only roles within units or with direct reference to archaeology (i.e. ‘Community Archaeologist’) are counted in this category, so it is likely that many roles were counted within the general heritage category ‘CRM SMR’.

### Changes and limitations to JIBA

Limits to this analysis that have been raised in previous JIBA articles include the omission of freelance and self-employed archaeologists (2015), proliferation of titles, and negating the effect of regional variations such as London weightings (2014).

There has been a significant increase in the number of general heritage jobs advertised in BAJR and JIST, but especially JIST.

The categories ‘CRM (Cultural Resource Management) SMR (Sites and Monuments Record)’ and ‘Curation and Collection’ have become too general to draw reliable averages from. The CRM SMR category originally focused on local authority jobs but over the last decade has become a catch-all for the increasingly diverse range of jobs advertised in our data sources. For example, the 1,174 CRM SMR roles for 2017–18 range from interns and trainees to heads of large institutions (one offering a salary of £100,000, which was removed for distorting Table 3). The pre-2012 method of separating CRM SMR into ‘Junior’ and ‘Senior’ categories is unworkable with the current volume of jobs. Future JIBAs are likely to drop the analysis of such jobs as it takes up a significant number of work hours and has moved away from the goal of these reports – jobs in archaeology.

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Table 4. Lowest, highest and average salaries for other roles, 2015–2018

		Comm and Edu	Conservator	Consultant	CRM SMR	Curation and Collections	Geophysics	Illustrator	Surveyor
2015–2016	Low	£18,047	£14,722	£19,000	£13,442	£17,386	£17,788	£17,000	£17,600
	Average	£24,023	£26,141	£31,217	£28,365	£25,600	£22,160	£21,359	£25,991
	High	£31,489	£35,000	£47,500	£65,000	£38,064	£32,500	£26,343	£43,000
2016–2017	Low	£15,500	£18,000	£19,126	£13,852	£15,950	£17,600	£18,367	£17,600
	Average	£25,486	£26,696	£28,540	£27,754	£25,174	£21,667	£22,918	£27,373
	High	£37,348	£38,000	£50,852	£55,000	£40,000	£32,188	£33,844	£53,000
2017–2018	Low	£18,000	£17,277	£19,650	£14,500	£17,426	£16,500	£18,000	£18,000
	Average	£21,846	£26,844	£28,448	£27,477	£26,472	£20,800	£23,748	£24,999
	High	£24,231	£50,000	£42,011	£100,000	£47,000	£25,000	£27,250	£40,000

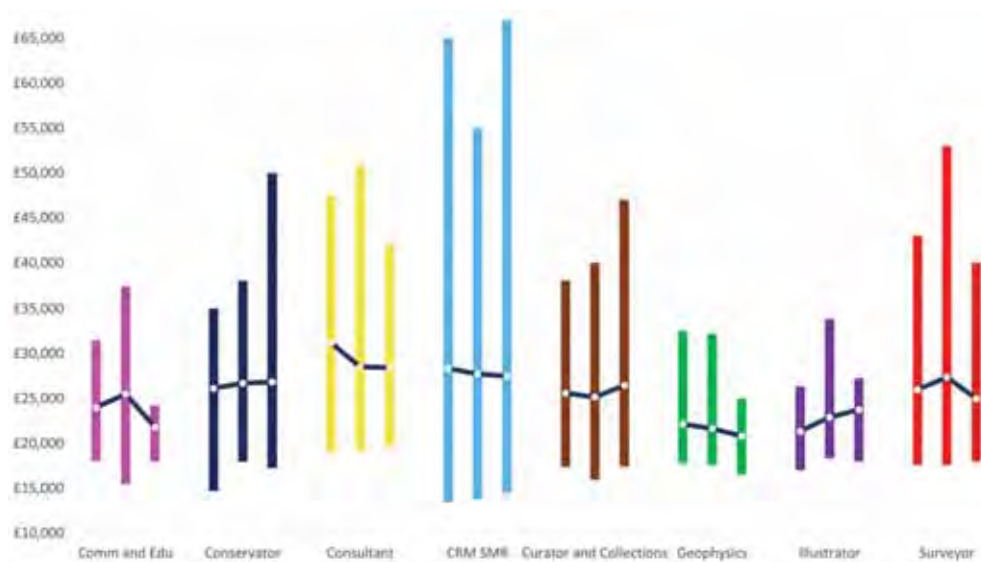


Figure 2: Highest, lowest and average salaries (white dot) for other archaeological roles for the 2015, 2016 and 2017 financial years

Table 5. Total job advertisements per role, 2015–18

	Comm and Edu	Conservator	Consultant	CRM SMR	Curation and Collections	Geophysics	Illustrator	Surveyor
2015–2016	12	13	25	130	13	17	8	19
2016–2017	24	10	33	159	23	24	14	6
2017–2018	8	66	33	1174	144	24	11	23

**Doug Rocks-Macqueen** is Director of Analysis, Research and Technology at Landward Research, the deputy CEO of FAME, the Wikimedian in Residence at the Society of Antiquaries of Scotland and Public Archaeologist at Archaeology Scotland. Doug oversaw this project and helped create the final version of this article.

**Ben Lewis** was a Cultural Heritage Projects Researcher at Landward Research during the researching and writing of this paper. He currently works for Historic England. Ben conducted data gathering and wrote the majority of this article.

**So Young Ann** holds a BSc in statistics from University College London. She has a strong background in mathematics and a keen interest in data analysis. Through a series of internships at different companies during her training, she has gained experience in data analysis and visualisation.

# THE LOSS OF INNOCENCE 2.0

## a 'new New Archaeology' of public value

Brendon Wilkins MCIfA (4494), DigVentures

Archaeology is said to add value to development, creating a deeper sense of place, community identity and improving health and wellbeing. Accentuating these wider social values has been welcomed by a profession keen to broaden its public relevance and legitimacy (and protect its seat at the table in modern cultural life) but how much, if at all, do the public actually benefit from archaeology?



Hannah and Ayan join a DigVentures DigCamp with their parents at Sudeley Castle in Gloucestershire. Credit: DigVentures

Concealed behind the acceptance that good practice is synonymous with public benefit lies the complex reality of a discipline where impacts are often abstract, intangible and difficult to attribute. These complexities are often glossed over by what Dr Peter Gould, my colleague at DigVentures, calls 'smiley-faced evaluations': simple top-line stats of open-day visitors, Facebook impressions and publication outputs that stand for evidence of impact.

This lack of sophistication in expressing and quantifying impact reduces our capacity to make substantive claims regarding efficacy, and fails to capture whether an archaeological project had any negative effects, or what public benefit would have happened anyway in the absence of the initiative. If the technical excavation process of a contemporary dig site was approached with similar indifference, it is doubtful that the site director would long remain a member of ClfA.



The DigVentures evaluative framework. Credit: DigVentures

We've reached this Rubicon before. In the 1960s a theoretical movement dissatisfied with the 'un-disciplined empirical discipline' of traditional culture-historical archaeology formulated a new agenda designed to guarantee the security of knowledge claims about the past. David Clarke framed this 'New Archaeology' as the 'loss of disciplinary innocence': a departure from traditional practice which favoured empiricism over interpretive inquiry. The parallels with our current predicament are undeniable; so, might we now be on the cusp of formulating a new New Archaeology, underpinned by an evaluative framework designed to ensure that claims made regarding the present-day social impact of public participation in archaeology are as substantively evidenced as the conclusions we draw through our practice about the past itself?

DigVentures has addressed this challenge by drawing on the language of social impact investing. Exactly how a specific set of activities result in the achievement of desired goals is pictured as a theory of change, detailing outputs, outcomes and impacts. This is tacked to a standards of evidence framework designed to articulate and highlight the causal links between activity and change.

In this framework, social impact can be conceived as the difference that activities make to people's lives over and above what would have happened in the absence of that initiative. Outputs are a measurable unit of product or service, such as a community excavation; outcomes are an observable change for individuals or communities, such as acquiring skills or knowledge. Impact is therefore the



effect of outcomes attributable to the output, measured against two metrics: scale, or breadth of people reached; and depth, or the importance of this impact on their lives.

The credibility of a theory of change rests on the level of certainty that organisational activities are the cause of this change. For this certainty to be achieved, the correct data must be collected to isolate the impact to the intervention, and attention to detail paid to this process on an even par with excavation. This is where archaeology has much work to do to support our claims about impact – but, as a sector, we should view this challenge with total confidence. These frameworks are a golden opportunity to evidence what we all know to be true about our work.

DigVentures was founded with a robust evaluation framework designed into our work as an essential step to scaling a model that now accounts for over 1000 dig participants a year. Increased evaluation requirements have recently been called out as just another form of audit trail for funders or PR gloss for partners, but we see it as an opportunity for an organisation to learn, adapt, and

### Brendon Wilkins

Brendon is co-founder of DigVentures, a collaborative archaeology platform specialising in crowdfunding, crowdsourcing and digital methods to increase public participation in archaeological research. Since 2012, DV has raised over £1m in matched grants and crowdfunding for 37 projects across the UK and beyond, bringing innovation to the archaeological process from tech to public engagement. He is currently finalising a PhD at the University of Leicester, entitled: 'Digging the Crowd: the future of archaeology in the digital and collaborative economies'.



improve their contribution to public benefit: a real-time process of equal importance to financial reporting for the health of an organisation.

Just as a hole in the books would be dealt with as a matter of fiduciary responsibility, a similar rupture between the delivery of public benefit and the realities of archaeological working practice should require swift and decisive action.



(above) Investigating five ancient landmarks in the magnificent grounds of Soulton Hall in Shropshire. Credit: DigVentures

(left) Community participants excavate a recently discovered Bronze Age ring cairn on the North West coast. Credit: DigVentures

### Further Reading

Gould, P, 2016 On the Case: Method in Public and Community Archaeology. *Public Archaeology*, 15, 1–18

Wilkins, B, 2019 A theory of change and evaluative framework for measuring the social impact of public participation in archaeology. *European Journal of Postclassical Archaeologies*, 9, 77–100

# Member news

## Jacqui Matthews ACIfA (10470)

I started at Cambridge Archaeological Trust (CAT) in 2000 as a Post Excavation Finds Officer to supervise processing of artefacts and to identify, record and manage bulk finds solely for the Whitefriars excavation, 'The Big Dig'. This became one of the largest urban excavations ever undertaken in the UK, employing over 200 professional archaeologists over four years. For the duration, our unit was in mobile portacabins, and within six years, the team moved within Canterbury five times, along with the ever-increasing number of bulk finds being managed and processed. It was here that I found I possess the skill of rapid improvisation and 'thinking on my feet' to ensure our adapted finds system remained effective and efficient. Working on such a high-profile, challenging project combined with intense media interest was a very steep learning curve.

I'm now based at the main office for CAT and with the experience gained working on the Whitefriars project, almost nothing in my daily work environment at this busy professional unit leaves me daunted or fazed!

Gaining accreditation with ClfA has been satisfying and rewarding, and to be included with other highly esteemed members and colleagues has given me a sense of validation.



Jacqui Matthews © Jacqui Matthews

## Tom Hodgson ACIfA (10413)

Since 2016 I've been working for Headland Archaeology as Survey Coordinator/ Supervisor on the A14 Huntingdon to Cambridge Reroute and Improvement Scheme; a major project undertaken by MOLA Headland Infrastructure (MHI) on behalf of Highways England.

Trial trenching started in August 2016 and area excavations the following October, resulting in the archaeological investigation of 350ha and the excavation of over 41,500 features.

Apart from an occasional site supervision or watching brief interlude, my main role involves survey training and technical support for over 100 archaeologists across 35 targeted excavations, the tracking and management of all associated Total Stations and DGPSs, CAD work, survey audits and earthwork surveys.

I introduced archaeological survey to around 80 volunteers on MHI/A14's Community Dig and found my first hand axe on a watching

brief of a Palaeolithic site with MHI's Consultant Specialist Bill Boismier, as we recorded ancient sediments and retrieved woolly mammoth and rhino bones.

Gaining Associate accreditation with ClfA has been a very positive experience; a great opportunity to reflect on all the interesting experiences I've had, as well as providing independent recognition of the skills and knowledge I've acquired.



Tom Hodgson © Tom Hodgson

## Kenneth Aitchison MCIfA (1398)

The Federation of Archaeological Managers and Employers is pleased to announce the appointment of its new CEO, Dr Kenneth Aitchison, from the beginning of May 2019. Kenneth is a founder and director of Landward Research Ltd and has been actively involved in high level engagement with UK and European governmental, political and national agencies, representing the archaeological profession and commercial archaeological practice. Over his 30-year career Kenneth has been a field archaeologist, a project manager, Head of Projects and Professional Development for the IfA (Institute for Archaeologists), Skills Strategy Manager for Icon (Institute of Conservation), and was awarded a doctorate for ground-breaking research into the structure and composition of the archaeological profession in the UK. At Landward he has specialised in labour market

research, identifying sectoral skills needs and capacity-building requirements.

He takes over from Nick Shepherd, who has led FAME successfully over the past four years, developing its influence and profile as the voice of commercial archaeology, and extending its membership into the Republic of Ireland as well as the UK.



Kenneth Aitchison © Kenneth Aitchison

**Paul Murtagh MCIfA (5994)**

After several unfulfilled New Year's resolutions, I finally managed to complete and submit my application to upgrade to MCIfA, which I achieved at the beginning of 2019. I was spurred on this year for various reasons, the main one being the threat and indeed the reality of redundancy. For the last four years I had worked for Northlight Heritage, part of the York Archaeological Trust, based in Glasgow. Unfortunately, at the beginning of 2019 Northlight Heritage closed with the loss of 14 jobs.

This closure left me and my colleagues in difficult situations; I was job hunting in a competitive market and I felt it was necessary that my experience was recognised by the sector. I believed that professional accreditation would give me the best shot at securing a job that I wanted as well as marking the next stage in my career.



Paul Murtagh © Paul Murtagh



Martin Locock © Martin Locock

**Martin Locock MCIfA (477)**

I have been working at the University of Wales Trinity Saint David (UWTSD) since 2011. In 2018 UWTSD created an Apprenticeship Unit to assist faculties in developing programmes for the new Higher, Degree and Master's Apprenticeships being funded through the Apprenticeship Levy in England and by the Welsh government in Wales. My role in the Unit is to manage the compliance of the programmes with the data standards and eligibility requirements, and liaise with employers and apprentices.

I have also represented UWTSD at the Archaeology Trailblazer Group of employers and training providers developing the Institute for Apprenticeships' new Archaeological Specialist standard (ST0769), aimed at new or existing finds and environmental staff and experienced field officers.

# New members

Member (MCIfA)	Practitioner (PCIfA)	Affiliate	Student
7150 Amir Bassir	9496 Ashleigh Airey	10605 Henry Bowman	10709 Alexander Beecroft
10661 Oliver Boles	10624 Harry Allen	10707 Cathleen Burton	10603 David Berthel
10538 Simona Denis	10227 Sorren Alsford	10673 Graham Chaters	10691 Thomas Brooke
4711 Sally Dicks	10617 Antony Angove	10595 Jennifer Crangle	10640 Michael Cooling
10473 Robert Evans	9671 John Appleby	10694 Selina Dean	10652 Charlie Crawford
5969 Lynn Fraser	9321 Florencia Cabral	10635 Clara Drummer	10702 Lorna Critchlow
10532 Stephen Litherland	10559 Christopher Clark	10591 Tom Elliot	10678 Leah Eccleston
10664 Ruben Lopez Catalan	10527 Jonathan Cousins	10706 Thomas Gara	10639 Jamie Fish
10558 Louise Martin	8993 Orla Craig	10621 Ruth Garratt	10594 Davina Foucar
5034 Peter Schofield	8044 Thomas Davis	10602 Doris Gutmiedl-Schuemann	10620 Katie Fox
	10607 Sarah Ebbage	8504 Matthew Guy	10658 Kristina Frandson
	9258 Marta Estanga Lopez de Murillas	7478 Rhiannon Harte-Chance	10704 Katrina Gilmour
	8964 Jade Franklin	10705 David Havard	9540 Murray Grant
	10609 Christopher Fyles	8564 Rachael Hills	10697 Joyce Heberden
	10419 Sandra Gallego	10730 Andrew Hodgett	10653 Julia Heil
	10654 David Haynes	10708 Rosie Hoggard	10728 William Hewitt
	9842 Peter Haynes	10681 Julian Melbourne	10651 Tamara Hoffmann
	7751 Fuller Hughes	10623 Thomas Morgan	10634 Natalie Holt
	10608 Michela Monteverde	10729 Charles Morse	10699 Katherine Ann Innocent
	6394 David Moon	10592 Louise Nurser	10677 Pippa Ketley
	10625 Amy Moralee	10610 Samuel Oxley	10641 Mark Lees
	10690 Connor Motley	10695 Richard Paxford	10700 Samantha Lynch
	9252 Ramon Navas Losada	10619 Emily Rhodes	10668 Adam Mackelden
	10627 Rachel Nicholson	10636 Diane Scherzler	10638 Stephanie Matthews
	8244 Becky Nutbourne	10647 Helen Spencer	10642 Ross Maund
	9735 Asta Pavilionyte	10618 Holly Stuteley	10684 Katharine Grace McEwen
	10616 Roberto Prieto-Labrador	10597 Louise Tizzard	10685 Steven McNaughton
	10564 Gregor Robertson Morris	6313 Simon Tootell	10692 Beverley Minter
	10525 Ana Rodrigues	10596 Ashley Tuck	10672 Joseph Molton
	10648 Phoebe Ronn	10599 Patricia Voke	10644 Camilla Moore
	10626 Dervla Rooney	10637 John Walford	10611 Owen Morgan
	10663 Dale Rouse	8957 David Wallace	10711 Blair Nolan
	10646 Iulia Rusu	10650 Nigel Wallace-Iles	10686 Ruth O'Donoghue
	10523 Gareth Shane	10598 Hans Whitefield	10612 Joseph O'Grady
	10493 Henry Smith	10604 Sarah Wolff	10679 Michael Palmer
	10645 Leonie Teufel		10590 Duncan Platais
	7621 Joseph Tong		10589 Alexa Robinson
	10492 Phoebe Utting		10683 Kimberley Robinson
			10655 Timothy Sainsbury
			10659 Alexander Smith
			10698 Joel Smith
			10606 Georgina Tayler
			10693 Rae Thomas
			10726 Helen Thompson
			10615 Jennifer Valentine
			10682 Joseph Pieter van Miert
			10671 Laura Vetterlein
			10649 Joanna Walker
			10593 Kelly Wetherick
<b>Associate (ACIfA)</b>			
5045 Steven Black			
10557 Lucy Brown			
10524 Marino Cardelli			
8166 Jude Children			
10718 Rachel Clare			
9765 Bethany Hardcastle			
10554 Ana Ilie			
7701 Marcin Koziminski			
10470 Jacqui Matthews			
10565 Christopher Nelson			
10669 Richard Newman			
10715 Joss Piper-Jarrett			
10475 Zoe Richardson			
10662 Philip Roberts			
10666 Yvonne Robertson			

## Upgraded members

### Member (MCIfA)

8065 Coralie Acheson  
 6249 Emma Jeffery  
 2198 Ash Lenton  
 2011 Tracy Michaels  
 7628 Jennifer Oliver  
 4674 Naomi Payne  
 2478 Jennifer Richards  
 6297 Claire Williamson

### Associate (ACIfA)

9096 Lisa Bird  
 7509 Sarah Hannon-Bland  
 9190 Michail-Athanasios Kaikas  
 6170 Ginette Murray  
 8928 Jacob Scott

### Practitioner (PCIfA)

9828 Karen Austin  
 9917 Matthew Bamborough  
 10087 Trevor Jose  
 10117 Peri Kelsey  
 9972 Lauren Whiteford

## Obituary

### In memoriam

**Frances Williams MA MCIfA (186)**, who passed away on 12 June 2019 as a result of cancer.

Frances was one of the founding members of IfA. After graduating from Birmingham University in 1973 in Archaeology and Ancient History she undertook an MA in Archaeological Publication with Philip Rahtz, resulting in her *Excavations at Pleshey Castle* (BAR 42: 1977). At the same time she was a member of the archaeological team of Northampton Development Corporation, combining the supervision of excavations with finds administration. With the arrival of a son and a daughter she turned her attention to adult education, working in turn for the Universities of Leicester, Liverpool and Kent as well as the WEA (Adult Learning Within Reach), her main focus now being Egyptology. She also undertook some undergraduate teaching. In recent years, with increasing fees severely reducing

University Adult Education provision, Frances chose to provide courses in Egyptology privately, and developed a dedicated following in Kent. For some 20 years she also led study trips to Egypt. Her kindness and dedication to her students will be greatly missed.



Frances Williams.  
 Photo © J Williams

# NOTICEBOARD

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## Dates for your diary

### Cifa Annual General Meeting

Our next AGM will be held on the morning of Tuesday 15 October 2019 at City Chambers, High Street, Edinburgh. The AGM notice and other documentation is on our AGM website page [www.archaeologists.net/cifa/agm](http://www.archaeologists.net/cifa/agm)

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### What's going wrong with desk-based assessments?

Following the AGM we will be holding a CPD seminar.

The desk-based assessment (DBA) is a much-maligned beast. Despite being enshrined in planning guidance, there still seems to be confusion as to what one is and its purpose. Recent discussions with ALGAO highlighted several problems, including submission of DBAs when they are not required and the frequent appearance of documents that do little more than reiterate information already available in the HER, with no meaningful assessment of significance, potential or impact. This led to the organisation of a workshop on DBAs at the Cifa AGM in October 2018. It was decided to repeat this workshop across the UK to ensure a wide range of feedback, especially from those operating under different planning policies.

Cifa is currently undertaking a thorough review of its Standards and guidance, which includes consideration of where and why things might be going wrong. This suite of DBA workshops, aimed at anyone who commissions, writes, approves or uses DBAs, will take an in-depth view of what the Standard requires and why. It will also provide the opportunity for some collaborative working as Cifa seeks to improve the guidance to help members achieve a better-quality product. The course is not designed to teach delegates with little or no previous experience how to write a DBA. Full details of the seminar, speakers and information about how to book a place are on the Cifa website at [www.archaeologists.net/events](http://www.archaeologists.net/events).

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### Cifa conference 2020

Sponsored by Towergate Insurance

Cifa2020 will be held from 22 to 24 April 2020 at the Apex City of Bath Hotel, Bath.

At Cifa2020 we will be looking to the future and asking what more we can do to promote the profession and our professionalism. Over the last decade we have defined new entry routes into archaeology and set out the career structures and competence requirements for professional archaeologists, but how can we maximise these to attract new and diverse talent and promote the value and quality of the work we do? Where can we further develop and reinforce the standards and good practice championed by the Institute to ensure we consistently understand and meet our professional obligation to deliver public benefit? And how, as a profession, can we better equip ourselves with the ethical and professional knowledge, skills and behaviours required in a changing and challenging environment? None of these are new concepts, but ones that we must all engage with. Further details about the sessions and workshops can be found on our website at [www.archaeologists.net/conference](http://www.archaeologists.net/conference) and we are now running our Call for Papers.

The conference will also include the usual selection of excursions, networking and social events.

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### Yearbook and Directory 2019 correction

Streek, Mr David PCifa (8475) 2015 streeky02@gmail.com



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