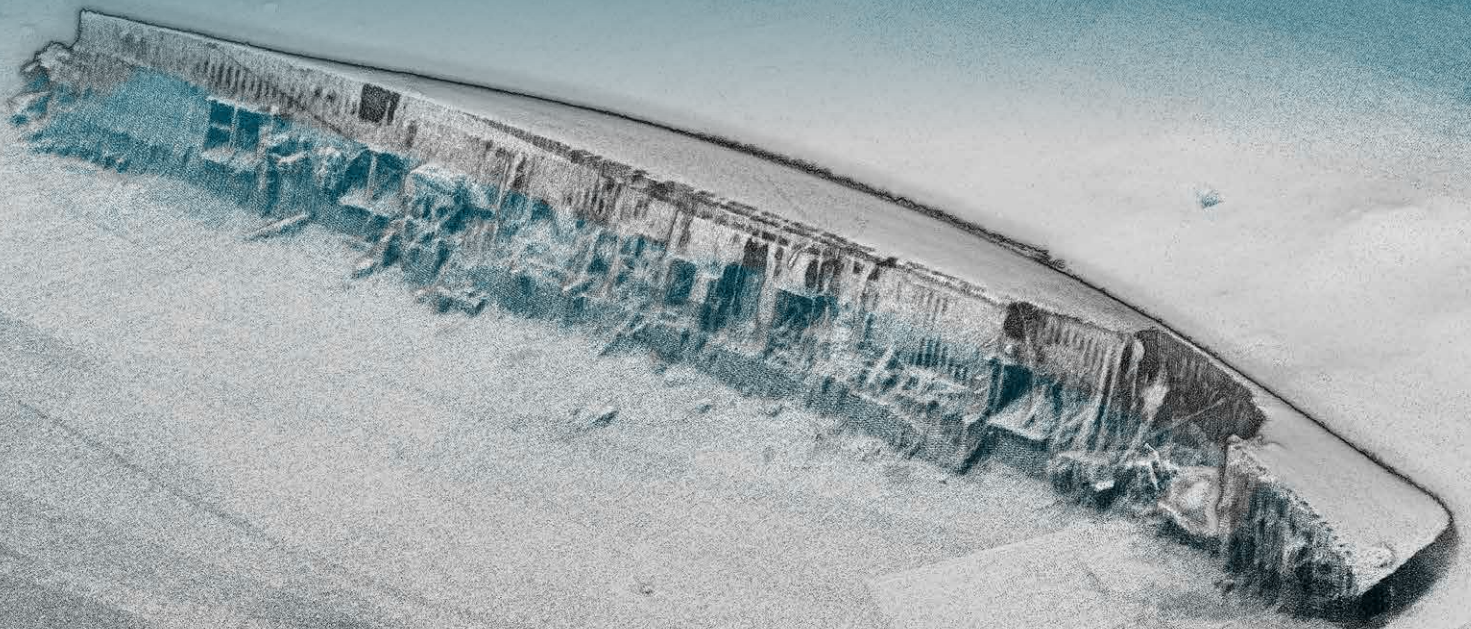




Managing Shipwrecks

Antony Firth
Fjodr



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HONOR FROST FOUNDATION

10 Carlton House Terrace
London SW1Y 5AH
www.honorfrostfoundation.org

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Cover image: High-resolution multi-beam image of the SS *Chiripo* – a merchant vessel sunk by a mine shortly after leaving Belfast Lough in 1917 – surveyed as part of *World War I shipwrecks in the Irish Sea: commemoration, visualization and heritage management*. ©INFOMAR, Marine Institute and Ulster University, courtesy Dr. R. Plets.

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Executive Summary

Shipwrecks are often the first thing people think of when they hear about underwater cultural heritage (UCH) or maritime archaeology. Indeed, people's fascination with wrecks long predates the development of maritime archaeology as a discipline. Spectacular discoveries by archaeologists have matched and extended people's expectations, and continue to do so. Shipwrecks offer fascinating insights into the past: famous names; vivid stories; remarkable artefacts; extraordinary preservation; global links; tragic losses. Throughout the world, the archaeological investigation of shipwrecks captures public imagination and provides tangible connections to the maritime lives of our predecessors.

Shipwrecks present distinct and complex issues because there are so many other interests that affect them – more so than other forms of archaeological site underwater. The complexities of managing shipwrecks apply the whole world over. The sea is an open, accessible environment and many activities that might affect the archaeological significance of wreck sites are themselves beneficial – even essential – for the marine environment and society at large. All of these different forms of activity have their own administrative and regulatory frameworks. Different organisations and government departments all have distinct responsibilities and although these overlap in respect of wrecks on the seabed, the different sectors do not always align.

For the first time, this report sets out the archaeological and historical interest in shipwrecks alongside nine other sectors in the UK: Commemoration; Fishing; International Interests; Nature Conservation; Navigation Safety; Ownership; Public and Environmental Risk; Recreation; Sea-Use. The ten sectors together are presented alphabetically as equal interests relating to wrecks, all with their own relevance and benefits to society or the marine environment. The intention is not to insist that the archaeological value of wrecks must prevail in all circumstances. It is, however, a demonstration that the archaeological interests of wrecks sit alongside these other uses and should be taken thoroughly into account.

Mapping out the details of the multiple interests in UK shipwrecks enables clearer understanding of the complexity surrounding shipwrecks and indicates opportunities for integration. It is also hoped that this report might serve as a template for mapping out equivalent sectors in other countries. Hence this report is intended to facilitate dialogue, integration and better protection of the archaeological value of shipwrecks wherever they are found.

There is no single overarching framework for the management of UK shipwrecks nor is one likely to emerge. There is, however, scope to rationalise some arrangements and to find ways of enabling a multiplicity of interests and frameworks to work better alongside each other. This report is a step towards a more coherent future by stimulating discussion – across all ten sectors – about better ways of managing shipwrecks.

Recommendations

1. Implement a clear policy on shipwrecks that applies across all ten sectors identified in this study, applicable internationally, nationally, regionally and locally; and by public, private and civil institutions. The UK Marine Policy Statement already provides the core of such a policy.
2. Adopt a unified, informed and comprehensive system for dealing with all government-owned shipwrecks as a matter of priority. Many shipwrecks are owned by UK Government yet such ownership appears not to have been used consistently or effectively to secure benefits across different sectors.
3. Ratify the 2001 UNESCO Convention as the best means in international law for protecting UK interests in wrecks that lie in the waters of other countries, and in international waters. The provision for shipwrecks in which the UK has an interest that lie outside UK territory is patchy and contested.
4. Conduct research to better understand the value of wrecks, to appreciate the array of considerations that inform public interest, and to quantify economic benefits. Work is required to understand the value of wrecks to nature conservation and to recognise the economic benefits of wrecks arising from commercial fishing, sea angling, recreational diving and heritage.
5. Recognise the archaeological and historic value of shipwrecks as equal and parallel to the values that drive other sectoral interests in wrecks. Management should seek to facilitate multiple uses in ways that do not compromise each other or the significance of each wreck.
6. Avoid or minimise activities that disturb wrecks; archaeological advice on the implications of any disturbance should be obtained and appropriate mitigation put in place. Greater integration and communication of wreck data has an important role to play in conserving shipwrecks.
7. Engage people in investigating the stories of wrecks as well as sharing with them the results of investigations. By definition, wrecks administered by public authorities are managed in the public interest. Access to information about wrecks, and to wrecks themselves, should only be restricted where access would cause a risk to human safety, to the environment, or to the condition of the wreck.

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Abbreviations

3D	Three-dimensional
ADS	Archaeological Data Service
ALDFG	Abandoned, Lost and Discarded Fishing Gear
AMAA	Ancient Monuments and Archaeological Areas Act (1979)
BSAC	British Sub-Aqua Club
CBA	Council for British Archaeology
CHP	Civil Hydrography Programme
ClfA	Chartered Institute for Archaeologists
CNCC	Council for Nature Conservation and the Countryside (Northern Ireland)
CWGC	Commonwealth War Graves Commission
DAC	Digital Archive Centre
DAERA	Department of Agriculture, Environment and Rural Affairs (Northern Ireland)
DCMS	Department for Digital, Culture, Media and Sport
DfT	Department for Transport
EEZ	Exclusive Economic Zone
EOD	Explosive Ordnance Disposal
FIPAD	Fisheries Industry Protocol for Archaeological Discoveries
HFF	Honor Frost Foundation
HLF	Heritage Lottery Fund
HMS	His/Her Majesty's Ship
IFCA	Inshore Fisheries and Conservation Authority
INSPIRE	Infrastructure for Spatial Information in Europe
MEDIN	Marine Environmental Data and Information Network
MCA	Martime and Coastguard Agency
MCZ	Marine Conservation Zone
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MOD	Ministry of Defence
MOJ	Ministry of Justice
MPA	Marine Protected Area
MPS	Marine Policy Statement
MSA	Merchant Shipping Act (1985)
NAS	Nautical Archaeology Society
PADI	Professional Association of Diving Instructors
PWA	Protection of Wrecks Act (1973)
RCAHMW	Royal Commission on the Ancient and Historical Monuments of Wales
SAA	Sub-Aqua Association
SNR	Society for Nautical Research
UCH	Underwater Cultural Heritage
UK	United Kingdom
UKHO	UK Hydrographic Office
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WWI	World War One
WWII	World War Two

Introduction

Shipwrecks are often the first thing people think of when they hear about underwater cultural heritage (UCH) or maritime archaeology. Indeed, people's fascination with wrecks long predates the development of maritime archaeology as a discipline. Spectacular discoveries by archaeologists have matched and extended people's expectations, and continue to do so. Shipwrecks offer fascinating insights into the past: famous names; vivid stories; remarkable artefacts; extraordinary preservation; global links; tragic losses. Throughout the world, the archaeological investigation of shipwrecks captures public imagination and provides tangible connections to the maritime lives of our predecessors.

The Honor Frost Foundation (HFF) promotes the advancement of, and research in, maritime archaeology, principally in the eastern Mediterranean. Fostering the protection of UCH is an important objective of HFF; the HFF Steering Committee on Underwater Cultural Heritage was established to provide advice and support in this regard.

Shipwrecks are not the only type of site addressed by maritime archaeology. HFF promotes investigations and research in coastal archaeology, ports and harbours, submerged prehistory and every other dimension of this broad subject. However, shipwrecks are an important focus and they present distinct and complex issues, especially in terms of looking after their physical remains on the seabed.

Interests in Shipwrecks

One of the reasons that shipwrecks need protection as archaeological sites is because there are so many other interests that affect them – more so than other forms of archaeological site underwater. The complexities of managing shipwrecks apply the whole world over and they can be difficult to overcome. In many respects, maritime archaeology has changed beyond recognition since the early days of the discipline in the 1960s when Honor Frost was herself a pioneer. But the pressures on shipwrecks – and the difficulty of looking after them – would still seem very familiar to her.

The United Kingdom has been at the forefront of maritime archaeology – and efforts to protect shipwrecks as archaeological sites – since the 1960s. In 1964, Honor Frost was amongst the small group who met to set up the British Nautical Archaeological Research Committee: the law covering the ownership of wrecks in the sea was one of the matters raised in that first meeting. Throughout the fifty years since that time, reconciling archaeological protection with all the different factors that apply to shipwrecks has continued to demand considerable attention, alongside all the advances that have been made in research and investigation.

UK experience shows that advances in maritime archaeology need to be accompanied by the development of adequate means of managing archaeological interests in combination with all the other interests in shipwrecks. Some interests are not compatible with good archaeological practice and many countries, including the UK, have laws to regulate activities that damage archaeological sites underwater. The sea is, however, an open accessible environment and many activities that might affect the archaeological significance of wreck sites are themselves beneficial – even essential – for the marine environment and society at large. These different forms of activity often have their own administrative and regulatory frameworks. Different organisations and government departments all have distinct responsibilities and although these overlap in respect of wrecks on the seabed, the different sectors do not always align – creating complexity.



The sea is an open accessible environment and many activities that might affect the archaeological significance of wreck sites are themselves beneficial – even essential – for the marine environment and society at large.

This report sets out the different sectors with interests in wrecks alongside each other, to alleviate this complexity and indicate opportunities for integration. The report describes the situation in the UK in the knowledge that all these different sectors have parallels elsewhere in the world including in the eastern Mediterranean, which is HFF's principal focus. By mapping out the details of the multiple interests in shipwrecks in the UK, it is hoped that this report might serve as a template for mapping out equivalent sectors in other countries. Hence this report is intended to facilitate dialogue, integration and better protection of the archaeological value of shipwrecks wherever they are found.

Scope

No distinction is made in this report between the wrecks of ships and boats; the terms 'wreck' and 'shipwreck' are used to apply to both. However, the wrecks of aircraft underwater have not been included. Aircraft wrecks are increasingly regarded as being of archaeological importance and many of the points made in this report are equally relevant to them. However, legal and administrative arrangements specific to aircraft wrecks may also apply, and these have not been included in this report.

As indicated, this report focuses on shipwrecks found in the sea, including in estuaries and intertidal areas. The wrecks of ships and boats may also be found in rivers and under what is now dry land, in areas that were once water but have been infilled by natural processes or reclamation. Some of the most important archaeological discoveries of wrecks have been in rivers or on land. However, the

sectoral frameworks that apply in these circumstances are likely to be different to those that apply at sea and they are not addressed specifically in this study.

History and Character

Wrecks of all ages have been found at sea, stretching back across millennia. Even in the earliest history of modern humans, their physical presence in places separated by the sea, their use of marine resources and representations in early art suggest that they were seafaring people. Apparently simple craft can be capable of long journeys, yet it is also plain that people were making complex craft far back in prehistory; the oldest shipwreck that has been found so far – near the island of Dokos in the Aegean – is four to five thousand years old.

Around the UK, evidence on land for seafaring stretches back to the Mesolithic (6,000–12,000 years ago) whilst the earliest evidence so far of seafaring vessels and their cargoes dates to the Bronze Age (2,800–4,500 years ago). For the UK, the importance of the sea as a means of transport and communication, the sometimes hazardous character of its waters, and a range of environments that favour the survival of shipwreck material, all contribute to there being a particularly rich resource of shipwrecks here. Many significant wrecks have been investigated by archaeologists, especially of the wooden sailing vessels that dominated shipping until the mid-nineteenth century. Sailing ships continued to be common until the end of WWII but, from around 1850 onwards, vessels with hulls or engines made of iron and steel, powered by coal and subsequently oil, became prevalent.

Metal ships with engines are less prone than wooden sailing ships to some of the calamities of seafaring, but they bore the brunt of the intense conflicts fought in the seas around the UK during WWI and WWII. Many of the known wrecks around the UK were sunk in these periods. It is their ferrous hulls and major components such as boilers that have enabled these wrecks to survive as upstanding features on the seabed, giving rise to many of the different interests discussed below. But there is a paradox: these most prominent wrecks are made of a material that is unstable in seawater; over time they will corrode and collapse. In contrast, wooden shipwrecks – whose protruding elements are generally eaten away in the environmental conditions prevailing in UK waters – can survive in amazing condition where they are buried; the remains of wooden vessels will probably survive for longer than the metal wrecks that seem common today. The opportunity for us to appreciate and investigate metal shipwrecks – to discover and share what they can tell us about our maritime past – is finite.

The positions of many wrecks around the UK are known, especially of prominent metal wrecks that show up on hydrographic surveys. In many cases the positions of these wrecks have been correlated with information about their identities, so that their names and histories are known too. There are, however, many wrecks whose identities are uncertain or unknown. There are also discoveries of ‘new’

wrecks each year. As noted above, wooden wrecks and the wrecks of smaller vessels tend not to be so obvious to the usual methods of survey, and the mobile character of the seabed can cause wrecks that were once buried to become suddenly apparent (while others are hidden again). Seabed survey methods have become more sophisticated in recent years and are being applied much more systematically to the seabed around the UK, resulting in new discoveries. This study encompasses wrecks that are known and identified, wrecks which have yet to be identified, and wrecks that are yet to be discovered.

Shipwrecks as UCH

The complexity of frameworks applicable to wrecks has certainly not lessened in the last 50 years, but at least the value of underwater cultural heritage and the historic environment – including wrecks – is more clearly recognised both internationally and in the UK. The 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage has become an established framework and standard, enshrining the archaeological value of shipwrecks in international law. The UK has yet to ratify the 2001 UNESCO Convention but supports most of its provisions and has formally adopted the principles set out in the Convention's *Rules concerning Activities Directed at Underwater Cultural Heritage* (known as 'the Annex') as best practice in the management of underwater cultural heritage. The UK has also made clear commitments in the UK Marine Policy Statement – which is binding on decisions made by all public authorities – about the importance of the historic environment, including wrecks, and the ways they should be treated. The basis for considering the archaeological values of wreck sites alongside many other interests is, therefore, firmly established.

No distinction has been raised in this report about the archaeological interest in wrecks relative to their age. The 2001 UNESCO Convention uses a figure of 100 years since sinking in its definition of UCH, but the UK does not generally use age as a criterion in its own archaeological definitions. Features dating to WWII and even the post-WWII era are commonly regarded as 'heritage assets' in the UK. Certainly, wrecks dating to WWII have the potential to be considered significant in archaeological or historical terms, remembering also that the construction of a ship and much of its biography may date several decades prior to its loss.

The archaeological and historical interest in shipwrecks is addressed under the heading 'Heritage' below, alongside nine other sectors. The ten sectors together are presented alphabetically as equal interests relating to wrecks, all with their own relevance and benefits to society or the marine environment. The intention is not to insist that the archaeological value of wrecks must prevail in all circumstances. It is, however, a demonstration that the archaeological interests of wrecks sit alongside these other uses and should be taken thoroughly into account. It is also a plea for the multiple interests of wrecks to be addressed in a more integrated fashion, for the benefit of all, both in the UK and around the world.

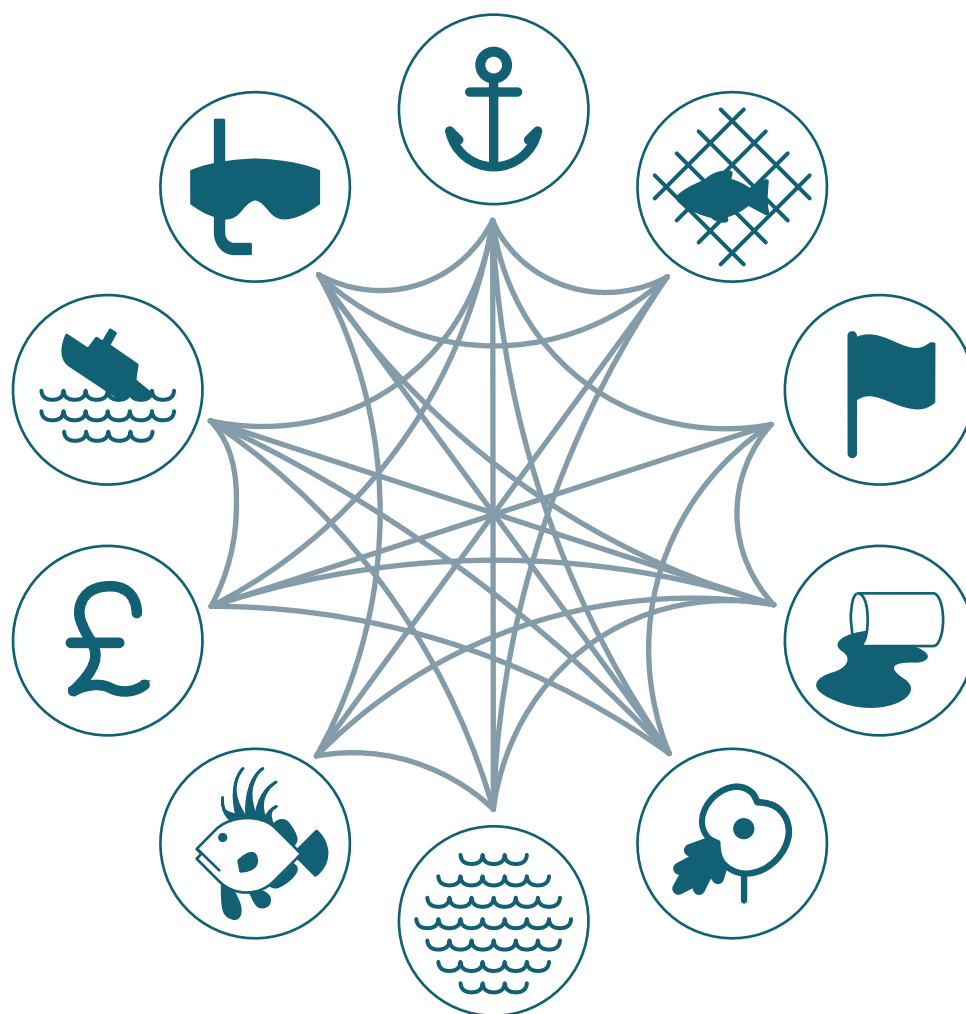


Figure 1 Chord diagram indicating the complex web of relationships between different interests affecting the management of shipwrecks.



Figure 2 The wreck of the *Rosalie Moller* is a key site for divers visiting the Red Sea. Built on the Clyde by Barclay, Curle & Co. in 1910 and sunk by German bombers in October 1941. © Barry Jarvis.

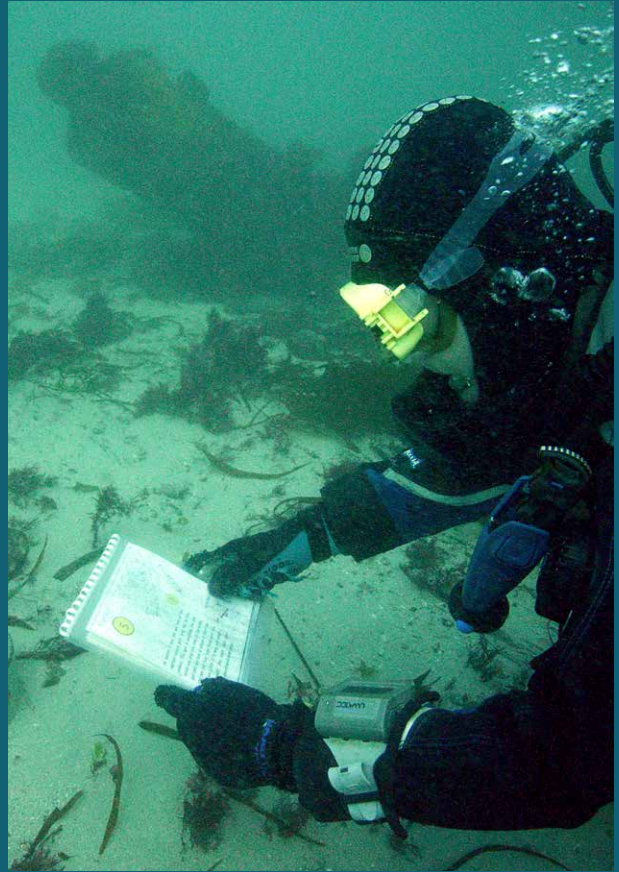


Figure 3 Diver using a guided trail around the wreck of HMS *Colossus*, a 74-gun sailing warship lost in the Scillies in 1798. © CISMAS, courtesy Historic England.



Figure 4 A cargo of mining equipment marks the remains of the Wheel Wreck – an as-yet unidentified cargo ship lost in the Scillies during the Industrial Revolution. © CISMAS, courtesy Historic England.



Figure 5 The *Star of Hope* was a barque built in Peterhead, Aberdeenshire in 1865 and registered in the Baltic port of Memel when driven ashore at Southport in 1883, carrying cotton from North Carolina to Liverpool. © John Dempsey, Sefton Coast Landscape Partnership.

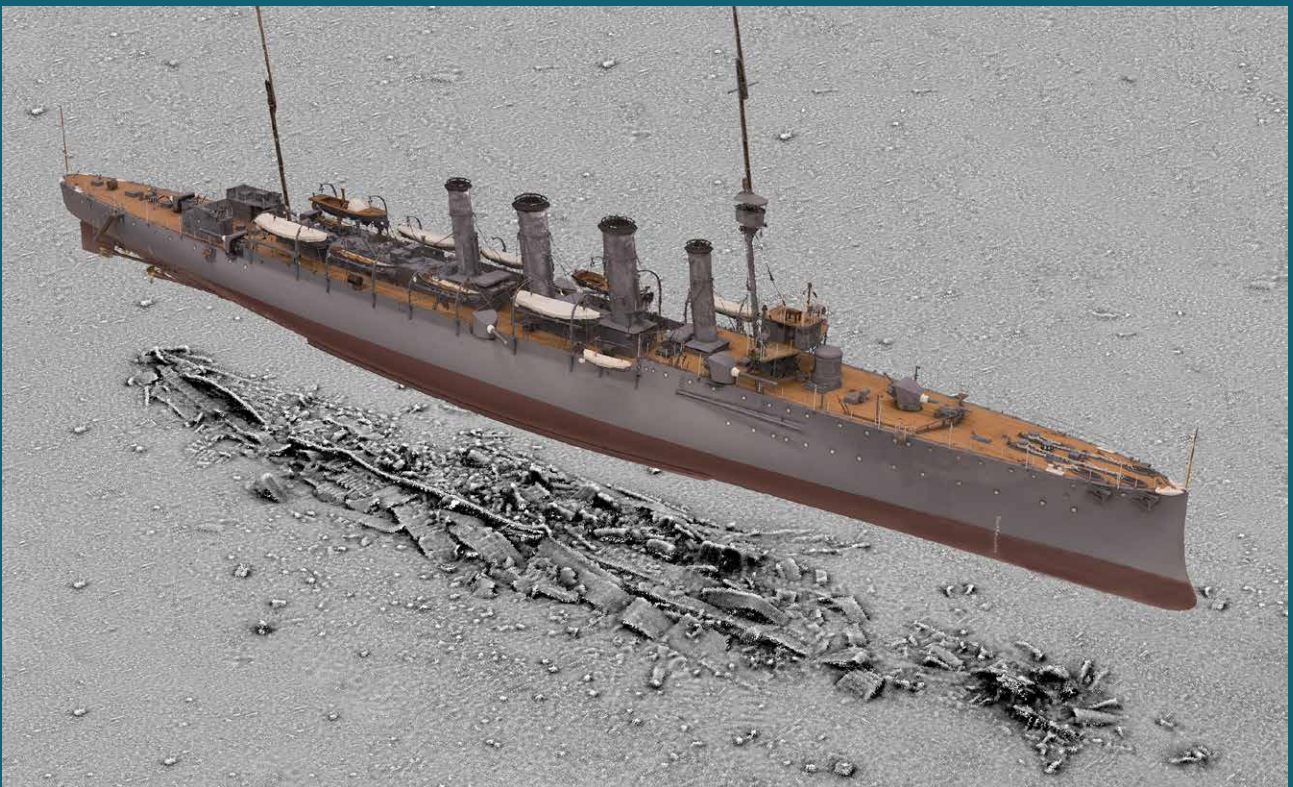


Figure 6 Composite image of HMS *Falmouth*, torpedoed in the North Sea in August 1916, showing the wreck on the seabed and the ship's original form. Courtesy of Historic England. Contains Maritime and Coastguard Agency data. © Crown copyright.



Shipwrecks are often associated with deaths amongst those who were onboard, either in the wreck itself or afterwards.

The bodies of those who died usually remain unrecovered, lost at sea. In some cases, human remains may be associated with the wreck. In other cases, the bodies of those who died might never be found, or be washed ashore and be buried on land; yet they still retain a connection to the place where their death unfolded.

There are many memorials on land to people who died in shipwrecks, including graves of those who came ashore but also memorials that commemorate those who have no grave. The greatest provision for commemorating people who died at sea is by the Commonwealth War Graves Commission (CWGC).¹ Their responsibilities include thousands of people who died at sea in wartime who are named individually on graves or memorials and are listed in the CWGC's database. The CWGC encompasses the war dead of WWI and WWII, including naval personnel but also the crews of cargo ships and fishing vessels who were lost through enemy action. However, civilian seafarers killed in wartime because of 'marine peril' rather than enemy action appear not to be regarded as war dead and are not commemorated.

Seafarers who died in WWI and WWII are also commemorated in parishes all over the UK, as are seafarers from other periods. Graves and memorials embellished with nautical symbols are to be found in many locations, stretching back across the centuries, and the unmarked graves of seafarers sometimes feature in archaeological investigations.

As well as this commemoration of seafarers on land, shipwrecks themselves may be a focus for people to remember and respect the lives of those who died. Wrecks are also places where human remains may still be present. Provisions in the UK for commemorating shipwrecks are principally concerned with people who died in the wars of the twentieth century, especially on warships. Outside these circumstances, provision is inconsistent and there are significant gaps.

Shipwrecks where people died in wartime are commonly referred to as 'war graves' but this term has no precise legal meaning. Specific ships may be designated either as a 'protected place' or as a 'controlled site' under the Protection of Military Remains Act (PMRA) 1986, which is administered by the Ministry of Defence (MOD). A shipwreck can only be designated as a protected place if it sank on or after the 4th August 1914 (when the UK entered WWI); a shipwreck can only be designated as a controlled site if it is less than 200 years since it was lost. Only ships that were lost in military service can be designated under the PMRA 1986. This is commonly accepted to include warships and civilian ships in military service, though the scope of application to civilian ships has been disputed. The approach to designation has been very selective.



Most vessels lost in WWI and WWII – be they warships, merchant ships or fishing vessels – have no particular protection for their commemorative value, irrespective of loss of life or the presence of human remains.

There is no formal provision for recognising the commemorative importance of shipwrecks lost before 4th August 1914 or more than 200 years ago. There is no provision at all that acknowledges the commemorative value of shipwrecks of any period that were in civilian service when lost.

In England and Wales,² removal of any human remains from a place of burial on land requires a licence under the Burials Act 1857 administered by the Ministry of Justice (MOJ). Human remains on shipwrecks have not been deliberately buried, so it is likely that the Burials Act 1857 does not apply. Nonetheless, MOJ has indicated that its licensing requirements should apply to human remains found on wrecks and other maritime sites that are more than 100 years old. Professional standards relating to human remains, such as those of the Chartered Institute for Field Archaeology (ClfA), can be expected to apply irrespective of the environment in which human remains are found.

The gaps in provision for the commemorative value of shipwrecks seems to be lagging behind a growing wish amongst the public to commemorate those lost at sea, and to protect their last resting places.

Not all commemoration is linked to deaths from shipwrecks. Growing interest in family history and greater accessibility of archives such as crew and passenger lists is raising public interest in the ships on which their ancestors served or voyaged. This interest may extend to the wrecked remains of those vessels, irrespective of whether there was loss of life. The interest in all people aboard ships, not just those who died, is apparent in initiatives such as the 1915 Crew Lists project by the National Archives and Royal Museums Greenwich.³

The commemorative aspect of shipwrecks is emotive and can generate considerable political and media interest. It underlines the degree to which shipwrecks embody direct connections to individuals, including people associated with the vessel, their families and communities; but also to relatives and communities today who hold those connections dear. Additionally, the personal stories associated with shipwrecks can have resonances for a much wider public who may have no family or community connection to them.

As well as the emotional and empathic response to shipwrecks, it is important to note that these personal links may be accompanied by stories, photographs, documents and archives that are held privately in family collections rather than in public institutions. The research carried out through family history and these privately-held sources can be a valuable source of information about shipwrecks.

**Fishing is perhaps the most widespread and extensive use of the sea.**

Commercial fisheries within UK competence are administered by national authorities in each home country, including the Marine Management Organisation (MMO), Marine Scotland, Welsh Government and the Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland. In England, local Inshore Fisheries and Conservation Authorities (IFCAs) manage fisheries within six nautical miles. IFCAs have responsibilities towards the marine environment including features of archaeological or historic interest.⁴

Wrecks may be targeted by commercial fishing for a range of species using different kinds of gear, including potting; fixed nets; towed nets and trawls directed at mid-water species over wreck sites; and bottom trawling in the general vicinity of wrecks. It is worth noting that the presence of a wreck need not be confirmed: fishing will be directed at 'marks' – features on the seabed where fish aggregate. These features may be well-known wrecks, but they may also be seabed anomalies whose character is not currently known but which might prove to be wrecks on further investigation.

In 2016, the UK had over 6,000 fishing vessels, almost 5,000 of which were under 10m in length. Over 11,000 fishermen were employed landing over 700 thousand tonnes of fish and shell fish with a value of over £900 million.⁵ From the available statistics, it is not possible to determine what percentage of commercial fishing is attributable to activity on or near wreck sites.

Sea angling is a further dimension to fishing, a proportion of which is directed specifically towards shipwrecks. A study of sea angling in England in 2012⁶ estimated that there were 884,000 sea anglers in England. About three quarters of time spent sea angling takes place from the shore and a quarter from private and rented boats or charter boats. It concluded that sea angling supported £2.1 billion of total spending and over 23,600 jobs. The study identified 399 charter boats in England. As with commercial fishing, it is not possible to distinguish how much sea angling is directed at wrecks, but it seems likely to form a substantial percentage of boat-based sea angling. In English inshore waters, sea angling is managed by IFCAs; it is managed by national authorities in Scotland, Wales and Northern Ireland.

With wrecks providing a target for commercial fishing and sea angling, and also forming obstructions on the seabed generally, snagging of gear on wrecks is a particular hazard. Snags can lead to loss of fishing gear – which may represent a significant economic loss – and in some circumstances has led to fishing vessels being sunk, causing injury and drowning. For example, the Belgian beam trawler *Noordster* caught its gear on an unidentified snag off Beachy Head in 2005 and sank with the loss of three crew.⁷ The availability of better position-fixing and echosounders might be expected to reduce risks at least for more prominent wrecks, though the risk of snagging less visible wrecks will continue.



One consequence of fishing vessels encountering shipwrecks is that wreck material may be recovered in their gear, or a wreck is discovered when divers are sent down to investigate gear that has been snagged. Several of the UK's most significant historic wrecks were first brought to archaeological attention as a result of fishing.⁸ Artefacts recovered in fishing gear continue to be an important source of information and their reporting is being encouraged by, for example, the Fisheries Industry Protocol for Archaeological Discoveries (FIPAD).⁹

A reciprocal consequence of encounters between fishing and shipwrecks is that damage can occur to wrecks and to the artefacts that are associated with them. Heavy towed gear pulled by powerful vessels is likely to seriously compromise wooden wrecks and artefacts exposed at the surface. Several studies around the world have drawn attention to such impacts.¹⁰ Impacts on wrecks may date back to fishing activity many decades ago, but the introduction of new areas or forms of fishing activity could lead to additional degradation. As noted above, encounters with wrecks represent a financial risk and hazard to fishing, so it is unlikely that impacts will be intentional; accidental damage to wreck material is, however, a concern, especially where fishermen are seeking to place their gear as close as possible to a wreck to target species that favour these locations.



Although not always well-represented in archaeological records, wrecks of fishing vessels are an important component of the heritage of the fishing sector.

Previous impacts from fishing are demonstrated by the presence of gear on wrecks, which is relatively common in UK waters. Some of this trapped gear clearly relates to direct impacts, but gear that has been lost or discarded elsewhere and moved in tidal currents can also become entangled. Abandoned, lost or discarded fishing gear (ALDFG) on wreck sites can obscure the features of a wreck and present a hazard to divers. It may also contribute to 'ghost fishing' where gear continues to trap marine creatures. The removal of ALDFG is beneficial to marine life but could cause damage to wreck sites depending on the methods of removal that are used.

A substantial proportion of the vessels lost in UK waters over the centuries have been fishing boats. Although not always well-represented in archaeological records, wrecks of fishing vessels are an important component of the heritage of the fishing sector. Many important aspects of the fishing industry, its people and communities are likely to be reflected in the remains of wrecks on the seabed – including the tragic loss of many fishing vessels and fishermen serving with the military in WWI and WWII.



In the UK, wrecks on the seabed came to be recognised as heritage in need of legal protection during the 1960s.

Artefacts from wrecks had, however, been finding their way into museums for much longer and investigations of the remains of boats and ships found on land or in intertidal areas stretch back to the nineteenth century. The heritage value of boats and ships has also been recognised by taking specific examples – such as HMS *Victory*, the *Cutty Sark* and SS *Great Britain* – into preservation. Many historical documents, artworks, drawings and photographs of ships that lie on the seabed have been incorporated into archive collections over the centuries. Heritage interests in wrecks encompass, therefore, a very wide range of museums and archives as well as institutions involved in investigating wrecks underwater.

Responsibility for heritage in the UK is devolved to the governments of the home countries: Scottish Government; Welsh Government; the Northern Ireland Executive; and, in England, the Department for Digital, Culture, Media and Sport (DCMS) for UK Government. Each has its own heritage agencies: Historic Environment Scotland; Cadw and the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW); the Department for Communities, Northern Ireland; and Historic England. Each country also has, to some degree, its own laws relating to the protection of wrecks as heritage sites.¹¹ In each case, however, only specific selected wrecks are protected under heritage legislation; they are not all protected according to a blanket criterion such as age, for example.

Wrecks are also subject to overarching policies on the historic environment set out in the UK Marine Policy Statement (MPS), which is binding on many decisions made by public authorities. National and regional marine plans also contain policies on the marine historic environment that apply to wrecks. In implementing such policies, marine planning authorities (the Marine Management Organisation; Marine Scotland; Natural Resources Wales; and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland) are advised by their national heritage agencies. Marine licences for activities that may have adverse effects on the significance of historic wrecks can be subject to archaeological requirements before a licence is issued, or to conditions attached to the licence.

Other legislation relating to wrecks has been co-opted to afford heritage benefits, notably the salvage provisions of the Merchant Shipping Act (MSA) 1995. The MSA 1995 requires that all material from wreck sites is notified to the Receiver of Wreck – an official in the Maritime and Coastguard Agency (MCA) – who liaises with archaeological authorities if the wreck appears to be of historical interest.

Many of the wrecks designated under the Protection of Military Remains Act 1986, referred to under Commemoration, date to WWI and WWII and

are considered to have heritage value. By November 2018, all WWI wrecks will meet the 100-year criterion that defines Underwater Cultural Heritage in the 2001 UNESCO Convention and UK Government policy.

As well as administering legal protection of selected wreck sites, the heritage agencies maintain their own archaeological records of wrecks; conduct or support research, investigation and management activities; and promote public knowledge and awareness of wrecks as heritage. Each heritage agency makes extensive information about wrecks and their management available to the public.¹² The heritage agencies also support the Archaeological Data Service (ADS), which includes reports and archives relating to wreck investigations. Wreck-related data from archaeological investigations is also held in Data Archive Centres (DACs) co-ordinated by the Marine Environmental Data and Information Network (MEDIN).

Artefacts and documentation relating to wrecks are held by a very wide range of museums and archives. Some museums are linked to specific wrecks or collections of wreck material, such as the Mary Rose Museum. Several DCMS-funded national museums and MOD-funded service museums have collections that include shipwreck material, as do national museums in Scotland, Wales and Northern Ireland. Artefacts derived from shipwrecks – such as recovered cannons and anchors – are displayed in a variety of public spaces at the coast, having received varying degrees of attention over the years. Museums and archives offer a critical interface with the public in terms of culture, learning and visitor experience relating to ships and wrecks. Museums with a maritime dimension are amongst the most visited attractions in the UK whilst even much smaller maritime heritage sites make a significant contribution to the economy and sense of place locally. Building links between heritage attractions on the coast and the wrecks offshore has a range of social and economic benefits.¹³

Higher Education plays an important role in shipwreck heritage. Often regarded as world leaders in this field, UK universities attract both domestic and overseas students. Archaeological investigations of wrecks in UK waters and further afield feature in teaching and research. The UK also has a strong basis of maritime archaeology in civil society, supported by specific bodies such as the Nautical Archaeology Society (NAS) and Society for Nautical Research (SNR), by diving organisations, and more widely by archaeological organisations such as the Council for British Archaeology (CBA). Expertise in the investigation of wreck sites is provided by a range of professional archaeological practices – often collaborating with companies providing specialist services such as hydrographic and geophysical survey – which are contracted by heritage agencies and sea-users. Standards for professional practice are set out by the Chartered Institute for Archaeologists (CIfA). The Heritage Lottery Fund (HLF) plays a major role in funding projects relating to wreck sites and other forms of maritime heritage. Through the projects it helps fund, the HLF has supported existing museum collections relating to shipwrecks and enabled new investigations, usually with public participation as a major element.

Ships that now lie wrecked and static were once dynamic, capable of journeys between countries and often having crews and contents drawn from different places around the world.

Consequently, ships frequently have an international dimension to them, which will continue if the ship is wrecked. From a UK perspective, there are two sets of circumstances in which the international dimension of a wreck may be especially important: first, where there are foreign interests in a wreck that lies within UK waters; second, where a wreck in which there are UK interests lies in international waters or the domestic waters of another country.

The complexity presented by the international dimension of wrecks is increased by the fact that maritime space is split into different zones over which the coastal state has different degrees of control relative to other states. The respective rights of states in maritime zones are set out in the UN Convention on the Law of the Sea 1982, which includes general provisions on protecting underwater cultural heritage such as wrecks.¹⁴

The respective responsibilities of states for wrecks and other forms of UCH were elaborated by the UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001.¹⁵ In particular, the 2001 UNESCO Convention set out the rights and obligations of states towards UCH in each maritime zone. The Convention established several principles, including that UCH shall not be commercially exploited. The UK did not become a signatory to the 2001 UNESCO Convention though it supported most of its provisions; the UK government has recently re-asserted

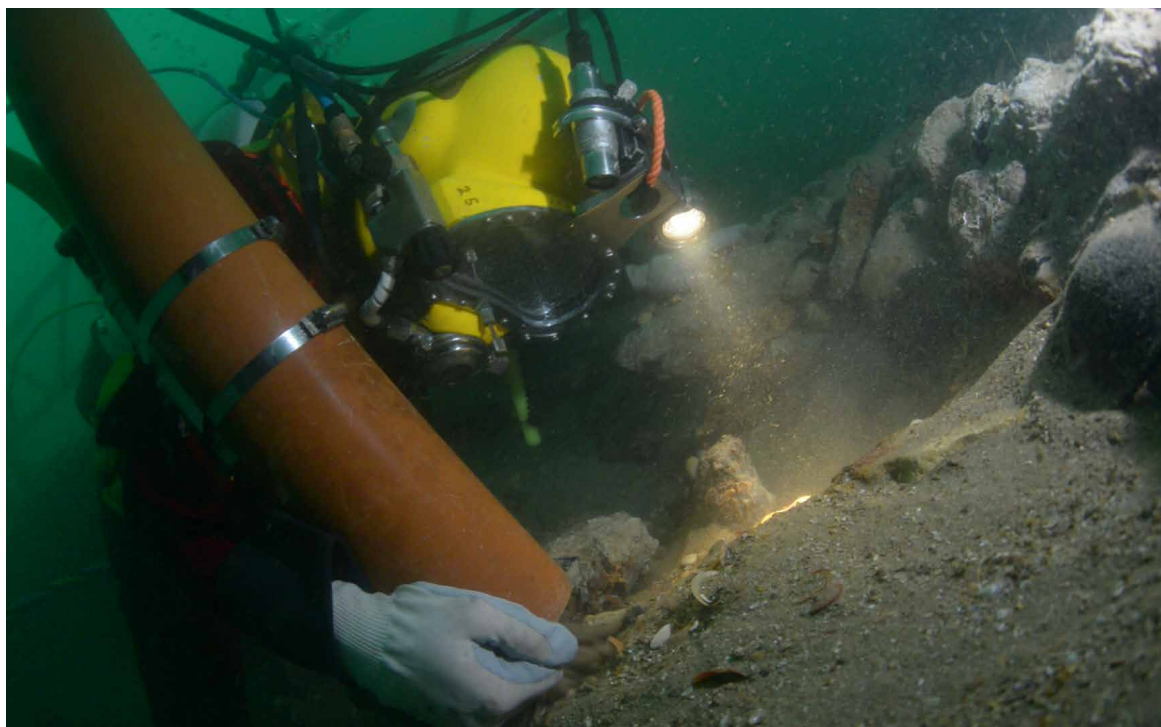


Figure 7 Archaeological excavation on the wreck of the Dutch East India Company ship *Rooswijk*, sunk on the Goodwin Sands in 1740. © Historic England and Rijksdienst voor het Cultureel Erfgoed.

its adoption of the principles set out in the Annex to the 2001 UNESCO Convention as best practice in the management of UCH.¹⁶

Foreign interests in wrecks in UK waters may be based on the original sovereignty of the vessel if it was a warship, on ownership of the vessel or its contents (such as cargo), or the nationality of crew or passengers, for example. The UK has worked closely with other countries over the investigation of wrecks in UK waters in which those countries have an interest, such as the recent joint investigation with the Cultural Heritage Agency of the Netherlands of the eighteenth century East Indiaman *Rooswijk*, off Kent. Even where such collaboration occurs, the UK's domestic rules on the investigation of protected wrecks and on the conduct of marine activities apply to foreign nationals.

Equally, the domestic laws of the coastal state will apply to the protection or investigation of vessels in their waters in which the UK has an interest. Being such an important maritime power in the past means that there are large numbers of wrecks in other countries' waters around the world that have links to the UK. In the case of UK warships, the UK claims that sovereign immunity still applies and that the UK should be consulted in the event that any investigations are anticipated. However, not all states accept the UK's contention that older wrecks continue to be sovereign immune. There are also very large numbers of civilian vessels – especially cargo ships – that were built or owned in the UK or which were crewed by UK nationals or carried UK-owned cargoes. The legal doctrine of sovereign immunity does not encompass the wrecks of civilian vessels.

As well as being lost in the coastal waters of other countries, many UK ships were lost on the high seas, beyond the territorial jurisdiction of any state. Again, the UK maintains its interests in such vessels and has designated some UK warships in international waters under the Protection of Military Remains Act 1986, under which UK nationals and UK-flagged vessels are required to obtain a licence before carrying out restricted activities. DCMS and MOD have published joint guidance on the *Protection and Management of Historic Wrecks outside UK Territorial Waters*.¹⁷ This guidance relies on sovereign immunity and UK domestic legislation, which do not provide comprehensive protection for UK interests in wrecks in international waters. The international framework provided by the 2001 UNESCO Convention offers a distinct advantage in this respect.

In addition to its own domestic waters, including the Territorial Sea, Continental Shelf and Exclusive Economic Zone (EEZ) of the UK, the UK also has jurisdiction over the waters of the UK Overseas Territories. The UK is developing a series of very large Marine Protected Areas to protect the marine environment in the EEZs of South Georgia and the South Sandwich Islands, St. Helena, Pitcairn, Ascension and Tristan de Cunha. Although not intended expressly to apply to wrecks, these large MPAs are likely to offer a degree of protection from activities that might cause damage to shipwrecks.



Wrecks – especially those made of metal or with major metal components – can serve as a distinct habitat for marine life because they provide a hard substrate and localised topography that is often different to the surrounding seabed.

Especially in areas dominated by soft sediments where hard substrates are largely absent, wrecks present localised niches of high species diversity and abundance amongst encrusting animals, and they are also associated with large amounts of fish.¹⁸ This is of course reflected in the attractiveness of wrecks to commercial fishermen, sea anglers and divers. In addition to their value individually, the broad distribution of wrecks may make an important contribution to habitats regionally and act as refuges and stepping stones for different species either in their larval or adult stages.¹⁹ In Scapa Flow, the biodiversity of wrecks has been recognised and protection of wrecks through heritage legislation is thought to contribute to the presence of horse mussel beds, which are a Priority Marine Feature for nature conservation.²⁰

The characteristics of wrecks as habitats has received a certain amount of scientific attention around the world but recognition of the potential value of wrecks in the UK from a nature conservation perspective seems to be underdeveloped. However, the colonisation of HMS *Scylla* – sunk as an artificial reef in 2004 – has been closely monitored and the presence of protected species has been recorded.²¹ A number of plans to sink further wrecks as artificial reefs off Dorset, Sussex and in the Sound of Mull, for example, are in preparation.

The role that wrecks can play in supporting specific habitats is recognised in the system of marine habitat classification used in the UK. Wrecks are acknowledged as providing substrata for several types of communities in infralittoral and circalittoral zones.²² Thousands of surveys of seabed habitats and species carried out by volunteers as part of the Seasearch project around the UK have been on wreck sites.

Marine nature conservation is administered by authorities advised by national advisors (Natural England; Scottish Natural Heritage; Natural Resources Wales; Council for Nature Conservation and the Countryside (CNCC) in Northern Ireland) within UK territorial waters and by the Joint Nature Conservation Committee beyond territorial waters. A network of Marine Protected Areas has been developed to protect important species and habitats, which – in many cases – will encompass wreck sites. Even though they are not directed specifically at the ecological value of wreck sites, the inclusion of wrecks within MPAs may – where there are restrictions on marine activities – afford incidental protection.

Restrictions within nature conservation MPAs may also affect the investigation of wreck sites. In the case of Marine Conservation Zones (MCZs), the authority that designates them can take into account the economic or social consequences of the MCZ, including consequences



for the remains of vessels of historic or archaeological interest.²³ Investigation of wreck sites for archaeological purposes could, in principle, have an effect on habitats or species of nature conservation importance within an MPA. However, a recent study concluded that as archaeological investigations are typically of short duration, small footprint and impermanent, then they are generally unlikely to present a significant risk.²⁴

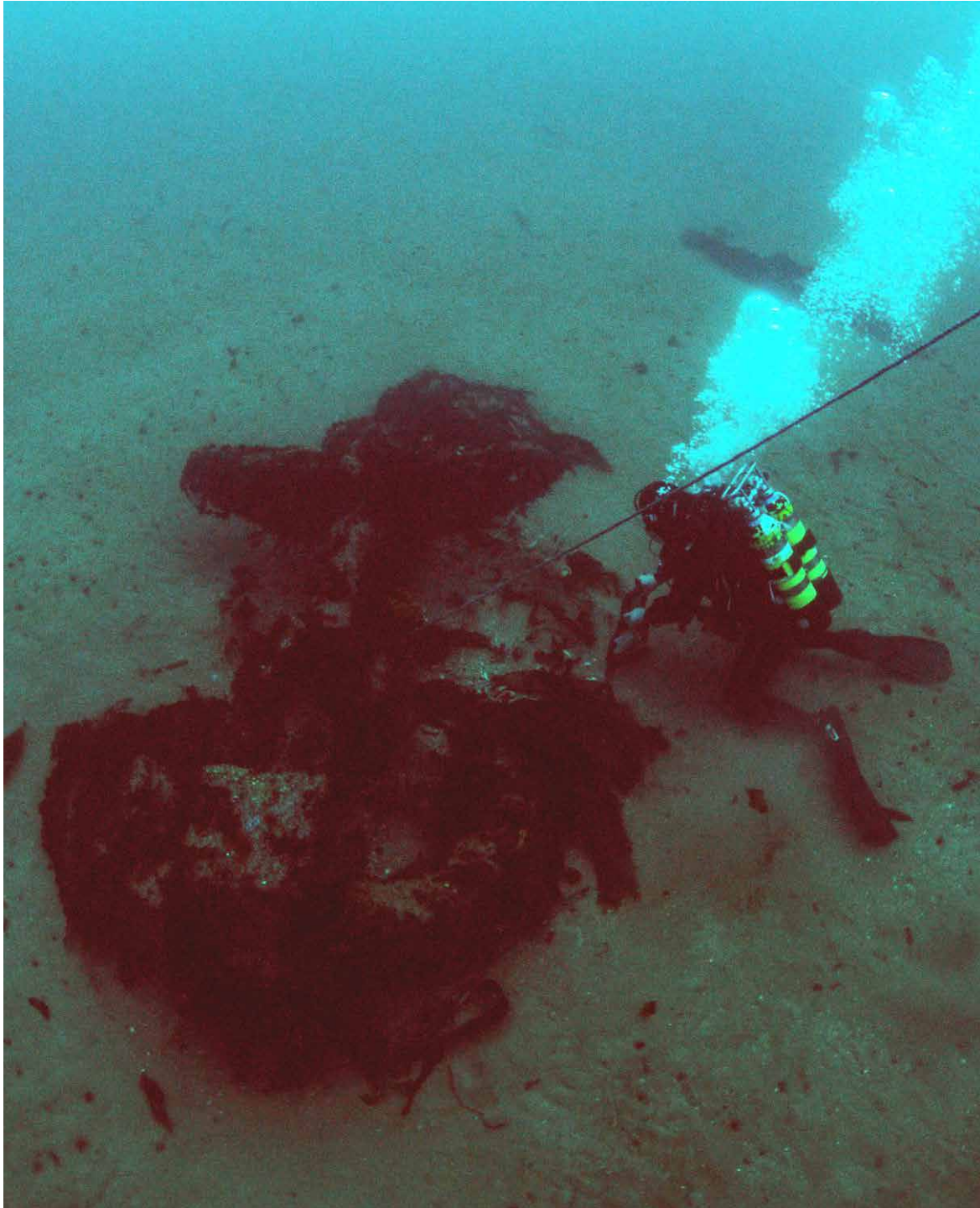


Figure 8 An underwater archaeologist with the Marine and Fisheries Division's Scientific Dive Team inspects an anchor from HMS *Drake*, torpedoed near Rathlin Island, Northern Ireland, in 1917. © Crown Copyright, DAERA.



The presence of wrecks has always been a major concern for navigational safety, because a wreck can become an obstruction to the safe passage of other ships and boats.

The waters around the UK are, in many places, relatively shallow. It was not uncommon for ships to come to rest on the seabed with their upperworks and rigging still above water. As they break up, the visible traces above water will disappear – but there may still be a major obstruction just below the water, causing a hazard to vessels with a deeper draught or at low tide. Collisions can occur between ships and wrecks, so it is essential that the position of wrecks – and the ‘least depth’ over the wreck – are known. Some wrecks are buoyed because of the hazard they still present to navigation.

Although wrecks will break up to some degree as a result of initial wrecking and environmental factors such as weather and tides, it has been commonplace for wrecks to be a focus of dispersal activities solely to reduce the hazard they present to shipping, irrespective of any attempts at salvage. This is an important distinction: dispersal is carried out to remove or reduce the obstruction, not primarily to recover material from the wreck; though material may be recovered and it might be disposed of as ‘salvage’ to cover the costs of dispersal. Entire vessels may be moved in the course of dispersal, either whole or in parts. Wrecked vessels may even have been re-floated, repaired and returned to use. Often, however, extensive wreckage may remain on the seabed after dispersal, the wreck having been broken down sufficiently to enable safe navigation in the waters above. Although destructive, a wreck that has been dispersed may retain many of its original features because dispersal is only intended to remove the hazard – the shallow sections – and no more. Extensive dispersal activities were carried out by the Royal Navy during and after WWI and WWII. Prior to the availability of high resolution geophysics, it was difficult for those carrying out dispersal operations to know the exact state of the vessel once they concluded their activities, so records of dispersal carried out in earlier decades may be imprecise.



Although destructive, a wreck that has been dispersed may retain many of its original features.

As wrecks present such a hazard, there is a long history in the UK of recording wrecks on hydrographic surveys, and of providing authorities with legal powers to carry out dispersal. The UK Hydrographic Office (UKHO) includes wrecks on its charts and developed a comprehensive wreck database to support its charting activities. Access to information from the database can be obtained through a variety of third-party providers, including the privately-operated Wrecksite²⁵ which specialises in wreck data.



Information in the UKHO wreck database is directed primarily at the needs of charting and navigational safety, but it often includes historical information such as the identity of the vessels, details of the wreck event, and the subsequent survey history. Information has been added to the wreck database from surveys by the Royal Navy, a wide range of sea-users including divers, and by civilian survey vessels. The UKHO wreck database continues to be updated and is a very important source of information.

In recent years, one of the greatest contributions to survey data about wrecks has come through the Civil Hydrography Programme (CHP), which is a government-funded programme administered by the Maritime and Coastguard Agency to update nautical charts and publications. The surveys are carried out by civilian survey companies on long term commercial contracts using multibeam bathymetric echo sounders. As well as acquiring survey data over extensive areas, specific investigations are undertaken of known wreck sites in order to update the UKHO wreck database. These wreck investigations typically obtain much higher resolution three-dimensional (3D) data of wreck sites than has been available previously.

One of the methods used to find the 'least depth' over a wreck is to use a wire sweep, to establish the depth at which a wreck first presents an obstruction. It is worth noting that 'sweeping' is a survey method; it is not an attempt to disperse the wreck.

Hydrographic surveys are also carried out by a range of authorities with navigational responsibilities around the UK, notably port and harbour authorities. Increasingly, such authorities also use high resolution multibeam equipment. Survey results are shared with the UKHO for charting, and details of wrecks are added to the UKHO wreck database. Amongst their responsibilities towards the safety of navigation in their areas, navigation authorities may be required to raise, remove or disperse wrecks. Notwithstanding, they also have obligations to maintain the accessibility of objects of archaeological or historical interest by virtue of their environmental responsibilities.²⁶

Trinity House, the Northern Lighthouse Board and the Commissioners of Irish Lights are General Lighthouse Authorities with responsibilities towards the safety of shipping. As well as being responsible for marking wrecks with buoys, they are also required to remove wrecks that are an obstruction or pose a danger to navigation that are outside the areas regulated by navigation authorities.

The various bodies that have an interest in wrecks from a navigational perspective have often been established for many years. Their records may contain details of wreck-related activities stretching back many decades. These organisations' archives can be a useful source of information. As well as correspondence, archive material can include drawings and charts. The UKHO also maintains a very extensive archive of historic charts and surveys that can be visited at its offices in Taunton.

In most circumstances, the fact that a vessel has been wrecked does not change the ownership of the vessel or its contents: they continue to belong to the original owners.

Even if the crew has 'abandoned ship', the ownership of the ship is not abandoned. Equally, ownership is not altered by the passage of time during which a vessel is on the seabed, or by the owners not doing anything to recover their property. Ownership of a wreck and its contents may be transferred to someone purchasing a wreck, or to an insurer if they have paid out a claim, but in all these circumstances the wreck continues to be owned.

Wrecks may represent large quantities of valuable material either due to the materials used in their construction or because of the items carried, which can be re-used or sold if they can be recovered. Taking action to save things from a ship has been regarded historically as a positive benefit that should be encouraged, leading to the development of the law of salvage. Generally, somebody who saves something from a wreck does not become its owner, but they have a tie to the material until the owner provides them with a proportionate reward. Although originally developed to apply to wrecks at the time that wrecking occurred, the principles of salvage law have been extended to include wrecks that have been on the seabed for many years.

The principles of salvage law were incorporated into the Merchant Shipping Acts in the nineteenth century, which provide for a Receiver of Wreck. Things that have been lost or discarded from a ship or boat are considered to be 'wreck'. Anyone who finds or obtains wreck in UK tidal waters is legally obliged to notify the Receiver. The Receiver then takes steps to find the owner and to make sure that the person who recovered it – the salvor – is rewarded. If no owner can be found, it is common practice for the material to be returned to the salvor in place of a salvage award.

Despite the passage of time, many wrecks still have an identifiable owner. In particular, the UK Government is the owner of many wrecks. Unless it has subsequently sold them, the government still owns the wrecks of all Royal Navy warships, the wrecks of ships that were in military or government service, and the wrecks of cargo ships sunk in WWI and WWII for which 'War Risks' insurance was paid. Warship wrecks are administered by the MOD whilst wrecks insured as War Risks are administered by the Department for Transport (DfT). In effect, many historic wrecks are owned by UK Government. Nonetheless, establishing the current ownership of wrecks can be a complex business, noting that ownership may have been split between the vessel, different elements of its cargo, and personal belongings. It may also be difficult to establish the ownership history of a wreck after wrecking, particularly if there has been some form of salvage agreement in the past.

Salvage can occur in a range of circumstances. When a ship gets into difficulties today, salvage services are generally provided by specialist

companies under a standard form of contract and overall co-ordination is provided by the Maritime and Coastguard Agency (MCA). Items of modern wreck are administered by the Receiver of Wreck.

Commercial operations involving extensive recoveries from sunken vessels in order to sell artefacts or for the scrap value of metal (sometimes referred to as 'weighing in') have been widespread at various points in time. Illegal recovery operations – for private gain not in the interests of the owner and not in accordance with salvage law – are also known to occur. Neither salvage nor illegal recovery are likely to be consistent with safeguarding the historical or archaeological significance of a wreck, and can encourage a market in historic artefacts that causes more wrecks to be disturbed. Salvage of historic wrecks continues to be strongly opposed by the heritage community.



Neither salvage nor illegal recovery are likely to be consistent with safeguarding the historical or archaeological significance of a wreck.

One consequence of the introduction of marine licensing in the UK from 2009 onwards is that recovery of wreck from a sunken vessel is now likely to require a licence in advance from the relevant marine licensing authority if any lifting equipment is to be used or there will be an impact on the seabed. The marine licensing authority will take advice from the relevant national heritage agency if the wreck might be of archaeological or historical interest.

If wreck material is lifted entirely by hand then a marine licence is unlikely to be required. Recoveries by hand continue to be made by recreational divers taking 'souvenirs' though this is discouraged by diving organisations, and there are some voluntary 'no take' schemes that are intended to retain the intactness and interest of wrecks for divers. There have been a number of cases in recent years of joint working by government agencies to take enforcement action against divers who have broken the law when recovering material from wrecks.²⁷

If a wreck has been designated under heritage legislation or the Protection of Military Remains Act 1986, any form of recovery is likely to be an offence unless a specific licence has been obtained, even though the wreck is still subject to ownership and salvage law.

It should be borne in mind that ownership of a wreck does not include ownership of the seabed in which it may be embedded. In general terms, the seabed out to the limit of territorial waters is owned by the Crown, as are sovereign rights to the seabed beyond territorial waters to the limit of the UK Continental Shelf. The Crown's rights are administered by The Crown Estate and it will be necessary to obtain their permission before investigating a wreck if any activities encroach on the seabed, irrespective of ownership of the wreck.²⁸



As well as posing a risk to navigation, wrecks can give rise to a number of other risks.

Many wrecks from the twentieth century went down whilst carrying substances that are harmful to the environment, especially oil. Oil tankers were amongst the vessels sunk, but from WWI onwards many ships were themselves fuelled by oil and carried large volumes in their bunkers. There have been instances of trapped oil seeping into the water from a number of wrecks, leading to complex operations to seek to remove oil to avoid further pollution. There is also concern that the continued degradation of steel wrecks may lead to catastrophic collapse and release of large quantities of oil, causing major pollution incidents. There are a range of other substances on wrecks that could also give rise to pollution risks. The MOD Salvage and Marine Operations team has a major programme to assess and mitigate pollution risks from vessels formerly in UK military service.

Another class of material frequently associated with vessels in military service is ordnance either as ammunition for use on the vessel, or being carried as cargo. Ordnance is in fact a widespread risk in many sea areas around the UK due to sea mines and aerial bombs from WWI and WWII. Generally speaking, wrecks lying on the seabed are not subject to Explosive Ordnance Disposal (EOD) activities unless there is a specific risk to the public. Nonetheless, ordnance underwater is still 'live' and if it is recovered accidentally it must be subject to appropriate EOD procedures. Marine operators in high risk areas often have EOD contractors on hand and the Royal Navy also has specialist teams available. Possession of weapons and explosives – including those recovered from wrecks – is subject to stringent legislation.

In rare cases, the presence of ordnance on wrecks presents an extraordinary hazard. The wreck of the *Richard Montgomery*, wrecked near the mouth of the Medway in Kent, contains a large amount of ordnance that it would be dangerous to remove. Access to the wreck is prohibited and it is regularly monitored for signs of instability.

Wrecks that are generally accessible to the public because they can be reached at low tide by walking or swimming are sometimes considered a risk to public safety. The public have, for example, been warned against trying to walk out to the WWII wreck of the *Vina* off Brancaster, Norfolk, because of the danger that they may be cut off by the tide.

Where they are visible, wrecks may be regarded as eyesores. Although more often a concern for relatively modern boats that have fallen into disrepair, it may be difficult to distinguish between new and old vessels. The apparent eyesore might be the protruding elements of a vessel long embedded in the foreshore, or a historic vessel disguised by a veneer of more recent modifications. The appearance of a wreck on the foreshore as an eyesore can be exacerbated by vandalism and by their components being used for beach bonfires.



Figure 9 HMT *Elk* was built as a trawler by Cook, Welton & Gemmel of Beverley. *Elk* served as a minesweeper throughout WWI and returned to fishing, before being requisitioned again in WWII. HMT *Elk* was sunk by a mine off Plymouth in November 1940. © Barry Jarvis.



Recreational diving has always had a major focus on wrecks since its introduction in the UK in the 1950s.

Wreck diving continues to be very popular in the UK diving community and the quality of wrecks in UK waters has become a draw for divers from around the world. Wrecks are popular as dive sites for a range of reasons, including for their history, for the marine life they attract, for the technical challenges they present and for the sense of exploration. The amount of recreational diving in the UK has been estimated at over 4.5m diving days each year.²⁹

Recreational diving has a broad economic and social impact through its infrastructure of diving organisations, networks of dive clubs, retailers, privately owned dive boats and charter boats. A case study on the wreck of HMS *Scylla* – sunk intentionally as an artificial reef – estimated that in its first year, the wreck had generated almost £1.4m additional expenditure from diving including over £900k on tourism related businesses.³⁰ It has been estimated recently that diving expenditure in Scotland is £38m annually. The calculations point to an expenditure for the UK as a whole of at least £360m;³¹ a significant proportion of this total is likely to be directed at wreck diving.

Wreck diving forms part of the syllabus of most diver training organisations, with both the British Sub-Aqua Club (BSAC) and the Professional Association of Diving Instructors (PADI) offering specific courses. Wreck diving is also a core feature of technical diving, encompassing wrecks that were previously inaccessible due to depth. Diving organisations make specific provision for wrecks in training because of the additional hazards that may be associated with wrecks, but also to encourage responsible behaviour under the rubric ‘Respect Our Wrecks’ established jointly by BSAC, PADI and the Sub-Aqua Association (SAA). BSAC also has a Code of Practice for Wreck Divers that emphasises the archaeological and historical importance of wrecks, highlighting both the legal obligations and best practice.

Wreck diving has also been a focus for divers becoming involved in archaeological and historical investigations through volunteering or membership of special interest groups, notably the Nautical Archaeology Society (NAS). Divers volunteering on wreck projects have been a key element of the broader discipline of marine archaeology in the UK since the 1960s. As well as offering archaeological training to divers and other members of the public, the NAS runs an ‘Adopt a Wreck’ scheme which now encompasses over 120 wrecks in UK waters and overseas.

The importance of wrecks to recreational sea angling has been addressed under fishing, above.

As well as the obvious importance of wrecks to recreational diving and sea angling there is clearly a broader interest in wrecks amongst the wider public, reflected in their leisure activities. Interest in wrecks arising

from family history has been noted under commemoration, above; interest in wrecks is also reflected in visits to museums and maritime heritage centres, addressed under heritage. A poll by Historic England in 2016 observed that 48% of people thought that maritime heritage was historically significant and worth saving; higher than parks and gardens, transport or industrial heritage.³² The persistent interest of the general public in wrecks is apparent in broadcast, print and online media in which documentaries, books and articles about wrecks feature frequently.

The interest of people onshore in wrecks that lie offshore has become a particular focus recently, supported by technological developments. Conventional means of engaging the onshore public, such as signboards and wreck walks, are being enhanced with the results of digital visualisations from geophysical and photogrammetric surveys. The widespread use by recreational divers and others of digital photography, both still and video, is revolutionising the availability of images of shipwrecks and creating fantastic opportunities for the recreational sector to get involved in the scientific study of shipwrecks and in raising public awareness. Digital technologies are also being developed to enable people – wherever they are – to carry out ‘virtual dives’. This is an area of very rapid development and seems likely to increase significantly the number of people around the world taking a recreational interest in UK wrecks.

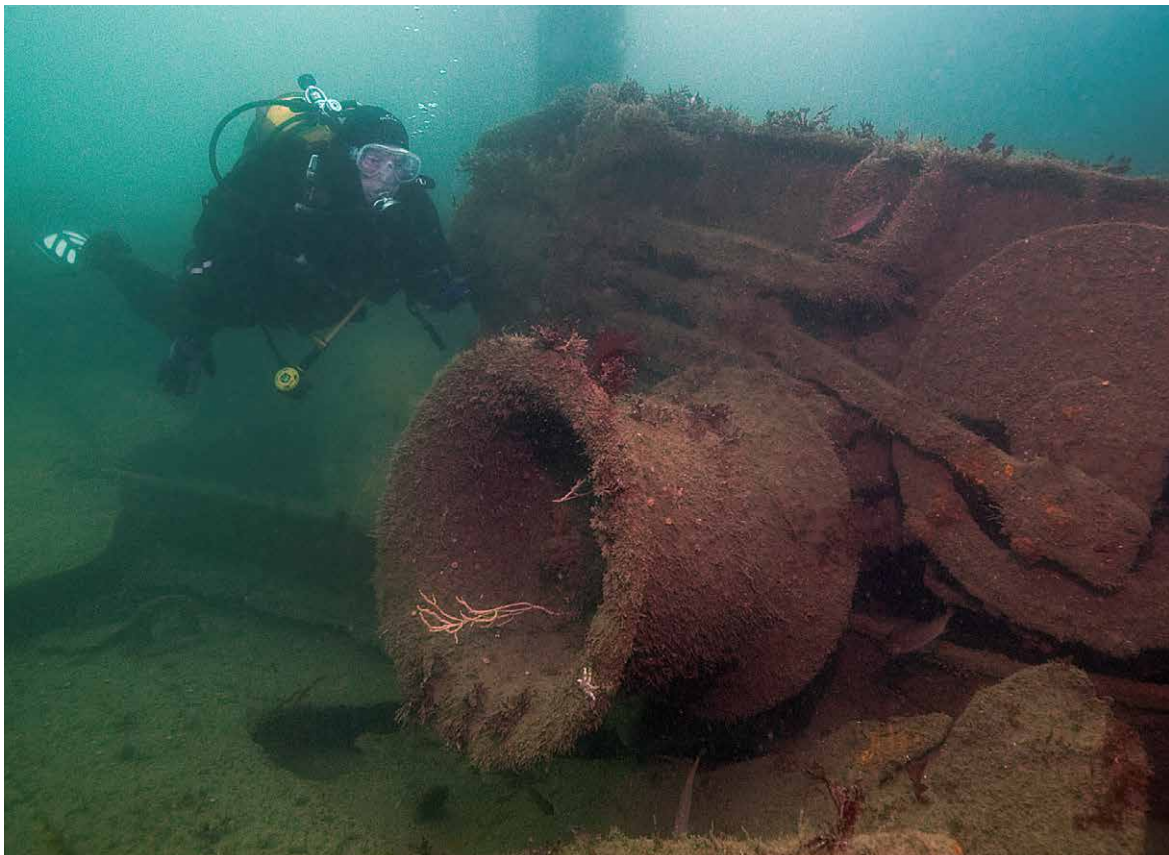


Figure 10 The SS *James Eagan Layne* is a WWII Liberty Ship built in New Orleans and sunk in March 1945 in Whitsand Bay, Cornwall en route from New York to Barry after being torpedoed by U-399. © Barry Jarvis.



Shipwrecks are an undeniable feature of the environment for a broad range of sea-users beyond the specific sectors discussed above. Consequently, shipwrecks may have implications even in marine sectors for which wrecks are not a particular focus.

Over the last decade the regulation and administration of the UK Marine Area³³ as a whole has changed significantly through the introduction of a series of marine acts that apply generally to activities at sea. Specifically, the marine acts introduced marine planning, which is the preparation of marine plans at either national or regional level to provide broad direction for the location and conduct of marine activities. The marine acts also introduced an updated approach to marine licensing, through which applications to carry out specific activities are considered and regulated. The details of marine planning and licensing differ in each home country,³⁴ but the UK Marine Policy Statement³⁵ provides an overall context and is statutorily binding in the marine planning and licensing system of each country.



It is common for marine developments to encompass wrecks within their immediate footprint or in the wider area in which environmental effects may occur.

As noted previously, marine licensing applies to some activities conducted on wrecks because the type of activity is licensable wherever it occurs, rather than because it is taking place on a wreck. Also as noted previously, the ownership of and sovereign rights to the seabed are managed by The Crown Estate. A licence is required from The Crown Estate for activities that physically affect the seabed, including surveys. If activity on a wreck has physical effects on the seabed then a licence will be required from The Crown Estate in addition to any requirements for marine licensing.

Some activities that affect the seabed are carried out under different regulatory regimes, including large infrastructure projects such as wastewater treatment; port development and capital dredging; generating electricity from wind farms; and so on.³⁶ Development close to the shore may be subject to local authority planning and development control. Large development projects are also likely to be subject to Environmental Assessment regulations, which require the submission of an Environmental Impact Assessment that will normally include wrecks under the heading of archaeological heritage.

Given the number of wrecks in UK waters it is common for marine developments to encompass wrecks within their immediate footprint or in the wider area in which environmental effects may occur due to changes in currents and sedimentation, for example. Wrecks that might be affected

by coastal or marine development are likely to be considered under each of the different regulatory mechanisms, including marine licensing. The different regulatory frameworks for marine development generally make provision for advice on the historic environment – including wrecks – to be obtained from national heritage agencies and from heritage services in local authorities. Investigation of wreck sites to meet archaeological requirements is usually carried out by the developer, employing specialist heritage consultants, contractors and surveyors. A great deal of investigative work directed at wrecks has been prompted by marine development in UK waters over the past 20 years. This has sometimes resulted in plans being altered to avoid specific wrecks. Provisions for mitigating and monitoring the possible adverse effects of development on wrecks are a common outcome; reports and survey data relating to wreck sites has been generated by marine development and can often be accessed through marine licensing authorities and repositories such as the Archaeology Data Service³⁷ and The Crown Estate’s Marine Data Exchange.³⁸

Several different agencies have policing and enforcement roles in the marine environment, including UK Border Force, Ministry of Defence, individual police forces and fisheries authorities. Increased vigilance towards suspicious behaviour in the maritime domain is being encouraged by Project Kraken,³⁹ which is a joint initiative by the National Crime Agency, Police, and Border Force. In recent years, wreck crime has been the subject of several successful joint investigations and enforcement activity by the Maritime and Coastguard Agency, Police and heritage agencies. Heritage crime in England, including crime directed towards wrecks, is being addressed in a Heritage Crime Programme co-ordinated by Historic England, the Police and Crown Prosecution Service. In Scotland, Historic Environment Scotland is now part of a Scottish Heritage and Cultural Property Crime Working Group with Police Scotland and other partners.



Figure 11 The exposed remains of the SS *Pegu*, a passenger and cargo liner that ran aground in the Mersey Channel in 1939. © CITIZAN.

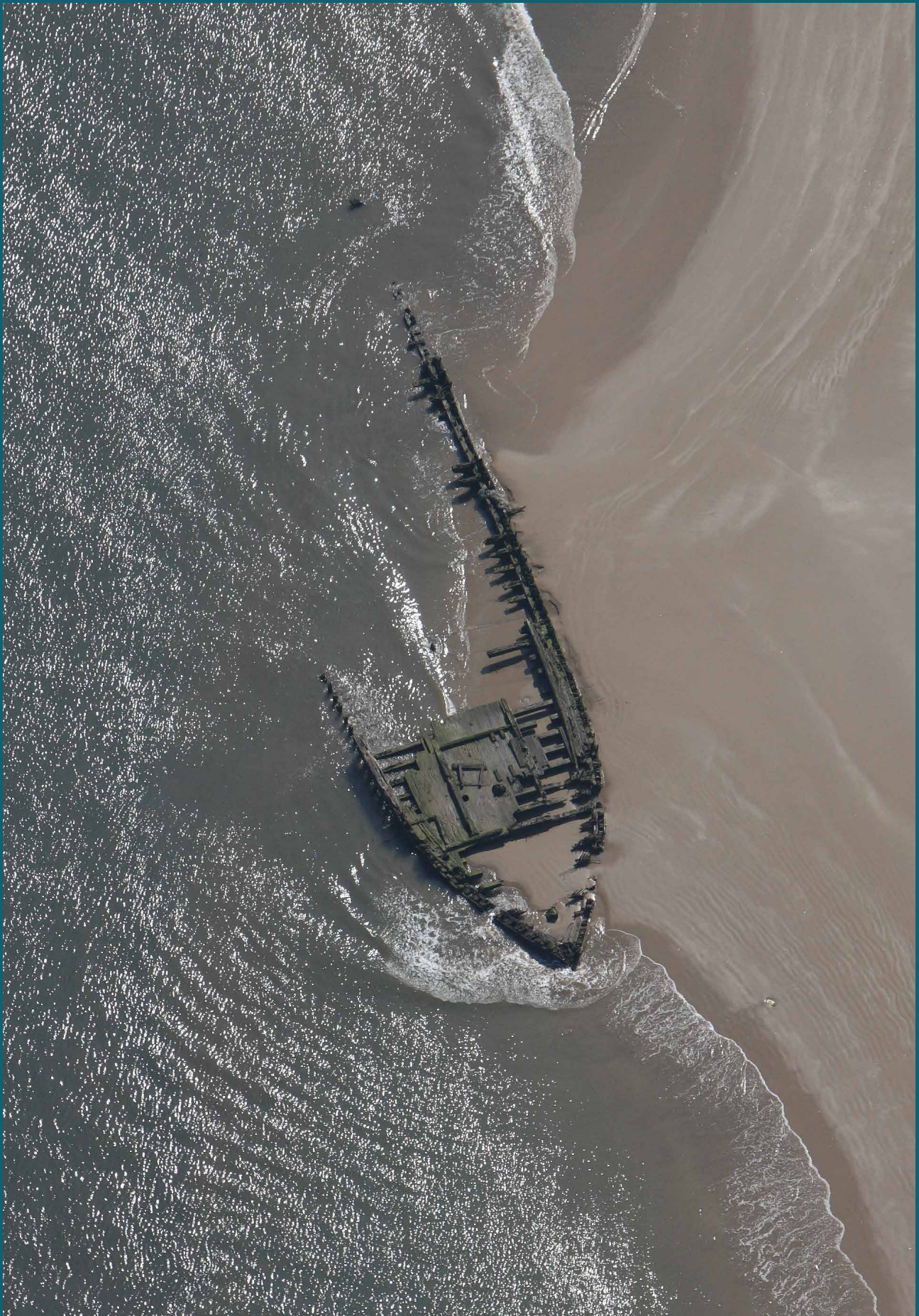


Figure 12 The *Paul* was a four-masted schooner built in Seattle in 1919 that ran aground in fog in the Towy Estuary, Carmarthen in October 1925 with a cargo of timber from Halifax, Nova Scotia. © Crown copyright: RCAHMW.

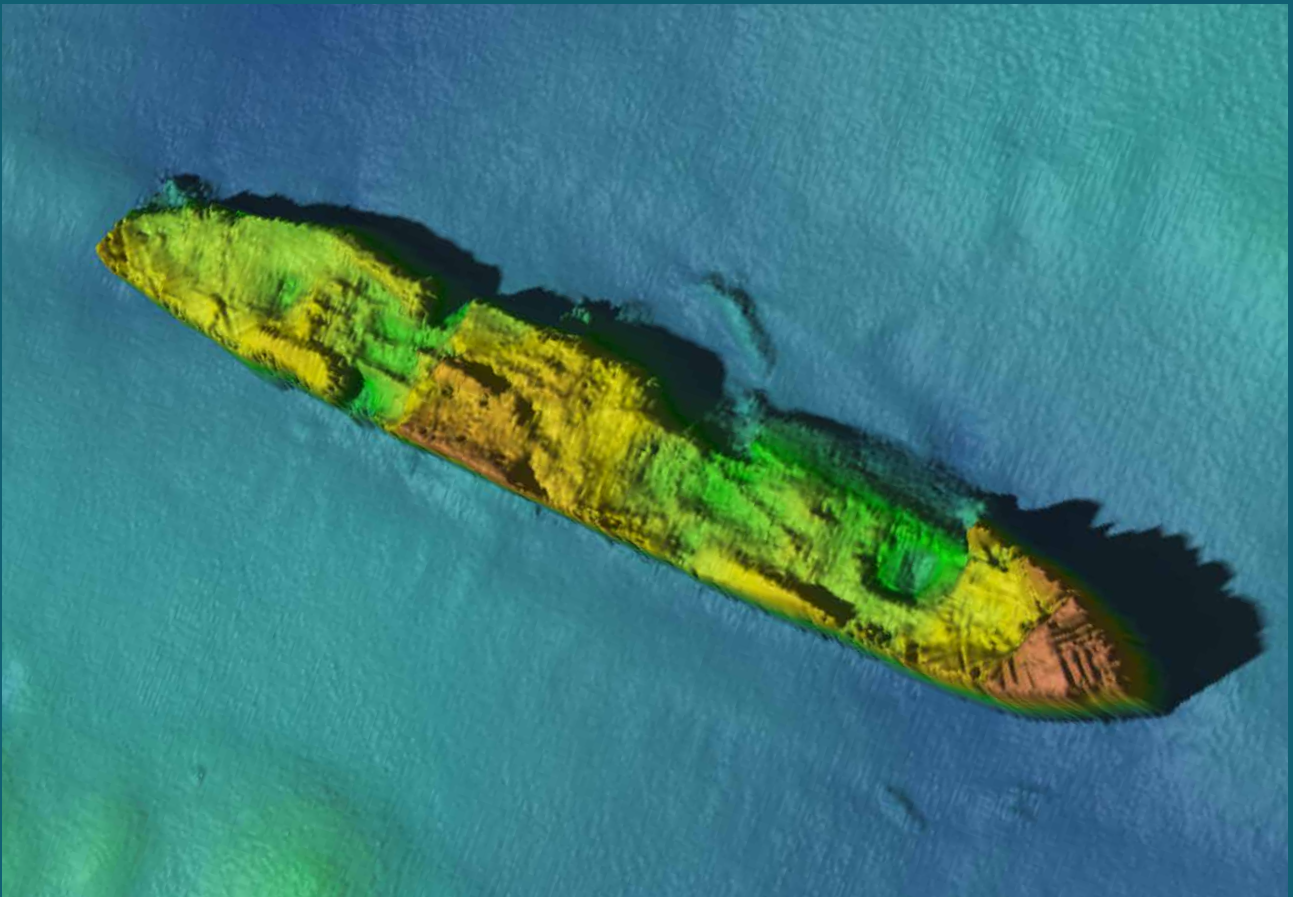


Figure 13 Multibeam image of SS *Damão* off Bardsey Island, Cardigan Bay. Built in 1911 by Swan Hunter & Wigham Richardson on the Tyne and torpedoed in April 1918 by U-boat U-91 en route from New York to Liverpool. © Bangor University, courtesy of RCAHMW.



Figure 14 The light cruiser SMS *Karlsruhe* is one of the ships of the German High Seas Fleet scuttled in Scapa Flow in 1919. Protected by Historic Environment Scotland, these wrecks attract visitors from all around the world and are important to the local economy.

Discussion and Recommendations

This report has mapped out ten different sectors that have interests, regulations and administrative systems that have a bearing on UK wrecks. These sectors are likely to have parallels in other countries. The different frameworks represent different values that need not coincide, but are all legitimate. The heritage values of wrecks do not take precedence over these other interests. However, the heritage values of wrecks are as legitimate as these other interests and should not be neglected by them.

The multiplicity of departments and agencies dealing with wrecks arises in part from the devolved character of UK government. Some frameworks are UK-wide, such as those aspects of wrecks that are administered by the Ministry of Defence and Department for Transport, including the Maritime and Coastguard Agency. In contrast, responsibility for fishing, heritage, nature conservation, sea-use and some aspects of recreation – which may all affect wrecks – are devolved to different organisations in each home country with important differences in legislation and policy. In the heritage sector, this multiplicity amongst the home countries contributes to the vibrancy of different initiatives and approaches being applied to the management of shipwrecks.

Locally-based authorities and organisations also play a significant role in some sectors, notably in aspects of land-based planning that touch on sea-use and in the role of Inshore Fisheries and Conservation Authorities. Also important are the array of civil society organisations that take an interest in their marine environment and its maritime past. It is worth underlining that throughout the UK, wrecks are not the purview only of the public sector: interests, knowledge, capabilities and expertise with respect to wrecks are spread across public authorities, civil society, private organisations and individuals.

Although all shipwrecks in UK domestic waters are covered by management provisions in one way or another, the provision for shipwrecks in which the UK has an interest beyond UK waters is less certain. The basis upon which the UK can seek to influence the treatment of UK wrecks in the waters of other countries, or in international waters, is limited in scope to selected warship wrecks and is not always accepted internationally. This is a significant flaw given the extent to which the maritime heritage of the UK is spread around the world, and it requires an international solution.⁴⁰

Plainly, there is not a single overarching framework for the management of wreck sites nor is one likely to emerge. The multiplicity of interests will continue to be represented by a multiplicity of frameworks; the question is how well do the different sectors – and elements of those sectors – interact? Is the collective result effective in safeguarding different interests, and is it efficient in its decision-making? Experience over the last 50 years suggests that these different frameworks do not always work well together,

despite long-standing commitments to collaboration. UK maritime heritage has been harmed and jeopardised not necessarily by lack of provision, but by lack of coherence amongst the sectors that already have responsibility for shipwrecks. There is scope to rationalise some arrangements but overall the objective must be to find ways of enabling a multiplicity of interests and frameworks to work better alongside each other whilst they retain their distinct perspectives.

The UK Marine Policy Statement provides a good starting point for developing a collective approach to the multiple interests of wrecks. It is a UK-wide policy document that is already binding on public decisions affecting the UK Marine Area. Wrecks are one of the most common types of heritage asset found in the marine environment. The UK MPS states:

2.6.6.2 The historic environment of coastal and offshore zones represents a unique aspect of our cultural heritage. In addition to its cultural value, it is an asset of social, economic and environmental value. It can be a powerful driver for economic growth, attracting investment and tourism and sustaining enjoyable and successful places in which to live and work. However, heritage assets are a finite and often irreplaceable resource and can be vulnerable to a wide range of human activities and natural processes.

2.6.6.3 The view shared by the UK Administrations is that heritage assets should be enjoyed for the quality of life they bring to this and future generations, and that they should be conserved through marine planning in a manner appropriate and proportionate to their significance. Opportunities should be taken to contribute to our knowledge and understanding of our past by capturing evidence from the historic environment and making this publicly available, particularly if a heritage asset is to be lost.

These sections of the UK MPS reflect the contribution that wrecks make not only culturally but also economically, socially and for the environment. The vulnerabilities of wrecks are also reflected, as is the need to manage them for the future. The policy also exhibits 'constructive conservation' in its approach to managing change, such that potential impacts are considered relative to the significance of the wreck; if changes affect significance, these can often be mitigated through recording and research that is made publicly available.

Although there are frameworks for considering the archaeological and historical significance of wreck sites, the approach to understanding their wider values seem less well-developed. This study has flagged, in particular, the economic value of wrecks to commercial fishing, sea angling, recreational diving and the heritage sector. However, the economic value of wrecks does not appear to have been comprehensively examined, either within a sector or across sectors.

Other aspects of the value of wrecks would also benefit from further elaboration. For example, the role that wrecks play in marine ecology, especially in areas where soft sediments prevail, may reinforce the value of wrecks both for nature conservation and fishing. Equally, the general public's fascination with wrecks – apparent in recreation (including in the media), heritage and commemoration – does not appear to have been the subject of detailed consideration. The evidence base for developing public policy towards wrecks appears to be significantly underdeveloped.

It is worth noting that wrecks will continue to have negative values, representing a hazard to sectors such as navigation, public risk, fishing (as potential snags for gear), and sea-use (constraining certain forms of seabed development). In some cases, direct action may be required to address the hazard that wrecks present but – with the occurrence of new wrecks being fortunately low – the circumstances where a wreck has to be removed or entirely dispersed are likely to be rare. In most cases, the risks arising from wrecks lie principally in uncertainty over their position, form, identity, condition and trajectory, all of which can be addressed through survey and research. Large amounts of effort are in fact directed to surveying wrecks and acquiring information about them – especially in sectors concerned with navigation, public risk and sea-use.

However, it is not clear that the maximum benefit is being obtained collectively from such investigations. Surveys of wreck sites for navigational safety and to inform marine development proposals, for example, generate increasingly remarkable datasets as survey capabilities improve. Unfortunately, the infrastructure for sharing data about wrecks is still relatively underdeveloped. Initiatives like the UKHO's online portal for Civil Hydrography Programme (CHP) data,⁴¹ and The Crown Estate's Marine Data Exchange for survey data and reports from the marine renewable sectors, indicate paths that might be taken towards greater sharing of wreck data to the benefit of all concerned.

The CHP has led the way not only in enabling access to bathymetric data but also in advance co-ordination of survey effort, so that capabilities and resources are deployed more effectively. This is concerned more with area based survey than wreck-specific investigations, but application of this principle has recently been demonstrated through collaboration between the Maritime and Coastguard Agency and Historic England in surveying the wreck of HMS *Falmouth*.

Wreck data – whether from new surveys or from historical sources – is generally widely dispersed sectorally and between institutions within the same sector, reflecting the variety of different interests in wrecks. Bringing together sources relating to even a single wreck can involve laborious research across multiple organisations. Undoubtedly, useful information can be missed or information lost. Better correlation of datasets and archives would be a major benefit.

As well as seeking to better correlate wreck data held by different institutions, opportunities should be sought to engage the public in finding out about wrecks.

It seems likely, for example, that a great deal of historical information about wrecks is held in private hands, in family photographs and documents. This is information that may never have been in the public domain or which has not survived in public records, but could provide a rich vein in better understanding our seafaring predecessors and the vessels in which they voyaged. Although the interest in family history is bringing such information to light, there is also a danger that it is discarded as it becomes more distant generation by generation, because its relevance is not recognised. There is some urgency, therefore, in trying to identify material relating to wrecks that is held in private hands.

Public fascination for wrecks also presents an opportunity to harness their effort as 'citizen scientists', pursuing the links between disparate sources to re-build the stories of individual ships and their careers. Public investigation of wreck sites can also encompass people who have knowledge of wrecks on the seabed – through fishing or diving for example – whether it be experience accrued over the decades, or a first opportunity to make the most of technologies such as multibeam echosounders and underwater photography.

So far, this discussion has indicated the scope for improvements to the management of shipwrecks that respect existing institutional arrangements. However, there are some areas in which formal 'joining-up' could occur. In particular, given the large proportion of wrecks that are government-owned, it might be more efficient to adopt a unified, comprehensive policy and administrative framework for dealing with government-owned wrecks. The cross-departmental approach that is taken to managing the government's historic estate on land – advised by the Government Historic Estate Unit⁴² – might offer a model at sea for the management of government-owned shipwrecks.

Shipwrecks are amongst the most important of the UK's heritage assets, both within the UK's territorial jurisdiction and far beyond. They are complex features of the seabed, but present many attributes that are positive socially and economically, as well as risks that have to be taken carefully into account. The UK frequently demonstrates excellence in dealing with wrecks – especially in arenas such as survey and visualisation; archaeological investigation and education; public engagement; museums; and in the capacity to mobilise rich archival sources. Nonetheless, the array of legal, policy and administrative arrangements across the different sectors can undoubtedly be an impediment: good outcomes are more difficult to achieve than they need be; opportunities are missed; resources are wasted; shipwrecks suffer.

This report is intended as a step towards a more coherent future for the management of shipwrecks. It has set out, for the first time, the different ways in which shipwrecks are considered. The following recommendations are offered to stimulate discussion – across all ten sectors – about better ways of managing shipwrecks.

Recommendations

Policy

1. **Implement a clear policy on shipwrecks that applies across all ten sectors identified in this study, applicable internationally, nationally, regionally and locally; and by public, private and civil institutions.**

The UK Marine Policy Statement already provides the core of such a policy, applicable throughout government. Public authorities are obliged to give effect to this policy in their own decisions and actions, and should be expected to promulgate best practice in managing shipwrecks amongst private organisations and individuals, and in civil society.

Government-owned wrecks

2. **Adopt a unified, informed and comprehensive system for dealing with all government-owned shipwrecks as a matter of priority.** Many shipwrecks are owned by UK Government. Such ownership appears not to have been used consistently or effectively to secure benefits across the different sectors that have been outlined, falling short of the positive approach that Government takes towards heritage assets that it owns on land.

UK shipwrecks beyond UK territory

3. **Ratify the 2001 UNESCO Convention as the best means in international law for protecting UK interests in wrecks that lie in the waters of other countries, and in international waters.** The provision for shipwrecks in which the UK has an interest that lie outside UK territory is patchy and contested. Recognising the global extent of its maritime heritage, the UK should seek to safeguard its cultural, archaeological and historical links to wrecks that lie beyond its territorial jurisdiction.

Multiple values

4. **Conduct research to better understand the value of wrecks, to appreciate the array of considerations that inform public interest, and to quantify economic benefits.** Work is required to understand the value of wrecks to nature conservation and to recognise the economic benefits of wrecks arising from commercial fishing, sea angling, recreational diving and heritage. Wrecks are of interest to multiple users because of the values attached to them or the risks to which they give rise. The sectors identified in this study each have a legitimate interest in the management of wrecks that need not compromise their archaeological or historic value; but many of the sectoral values and benefits are poorly understood or quantified.

Significance

5. Recognise the archaeological and historic value of shipwrecks as equal and parallel to the values that drive other sectoral interests in wrecks.

Wrecks have historical and archaeological significance. The detail and degree of their significance will vary from wreck to wreck, but all wrecks have a story to tell. None should be automatically disregarded. Management should seek to facilitate multiple uses in ways that do not compromise each other or the significance of each wreck. Collaboration in policing and enforcement across sectors should be strengthened, to curtail illegal activity that obliterates the significance of shipwrecks to the detriment of all.

Conservation

6. Avoid or minimise activities that disturb wrecks; archaeological advice on the implications of any disturbance should be obtained and appropriate mitigation put in place.

Avoiding or minimising disturbance is warranted in view of the heritage interest of wrecks, but also their commemorative and ecological interest. Greater integration and communication of wreck data has an important role to play in conserving shipwrecks. Steps should be taken to exchange existing information about wrecks and to make wreck databases interoperable. Organisations in each sector should co-operate in developing plans for new research and surveys, share results, and ensure that new discoveries of wreck sites are communicated to each other. Risks arising from wrecks should be reduced by making reliable data readily available.

Engagement

7. Engage people in investigating the stories of wrecks as well as sharing with them the results of investigations.

By definition, wrecks administered by public authorities are managed in the public interest. Participation by the public in gathering and collating information – whether they be in armchairs, in archives or at sea – should be encouraged. Particular effort should be directed to mobilising data about wrecks that is being captured by the public in digital photographs and video; and to accessing archive material such as family photographs and documents held in private hands. Access to information about wrecks, and to wrecks themselves, should only be restricted where access would cause a risk to human safety, to the environment, or to the condition of the wreck. Visualisation technologies are playing a key role in widening public access to shipwrecks and their development should be expanded.

Endnotes

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About the Honor Frost Foundation

The mission of the Honor Frost Foundation (HFF) is to promote the advancement and research, including publication, of marine and maritime archaeology with particular but not exclusive focus on the eastern Mediterranean with an emphasis on Lebanon, Syria and Cyprus. The Foundation also seeks to foster and promote the protection of underwater cultural heritage (UCH).

The Foundation was founded in 2011 with a legacy from the pioneering underwater archaeologist Honor Frost.

www.honorfrostfoundation.org

About the HFF Steering Committee on Underwater Cultural Heritage

The HFF Steering Committee on Underwater Cultural Heritage (UCH) provides advice to HFF and helps to shape its policy towards UCH.

The Steering Committee identifies potential public policy issues relating to UCH, considers the way to strengthen relationships with key audiences, advises on how to communicate activities, and implements its programme of work accordingly. The programme of work is suggested by the Steering Committee on UCH to the Trustees of the HFF, who make the final decision on the programme.

The Members of the HFF Steering Committee on Underwater Cultural Heritage are as follows:

Professor Sir Barry Cunliffe CBE – Chair

Ms Alison Cathie – Chair of HFF Trustees

Ms Jane Maddocks

Dr Adrian Olivier

Mr Peter Wolrich – HFF Trustee

Mr Robert Yorke

Dr Lucy Blue – Maritime Archaeological Director, HFF

Professor Sarah Dromgoole – Advisor

About the Author

Antony Firth is the Director of Fjordr Limited, specialising in marine and historic environment consulting. Antony is the Technical Advisor to the HFF Steering Committee on Underwater Cultural Heritage.

www.fjordr.com



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