

NHPP 3A1: Unknown Marine Assets & Landscapes

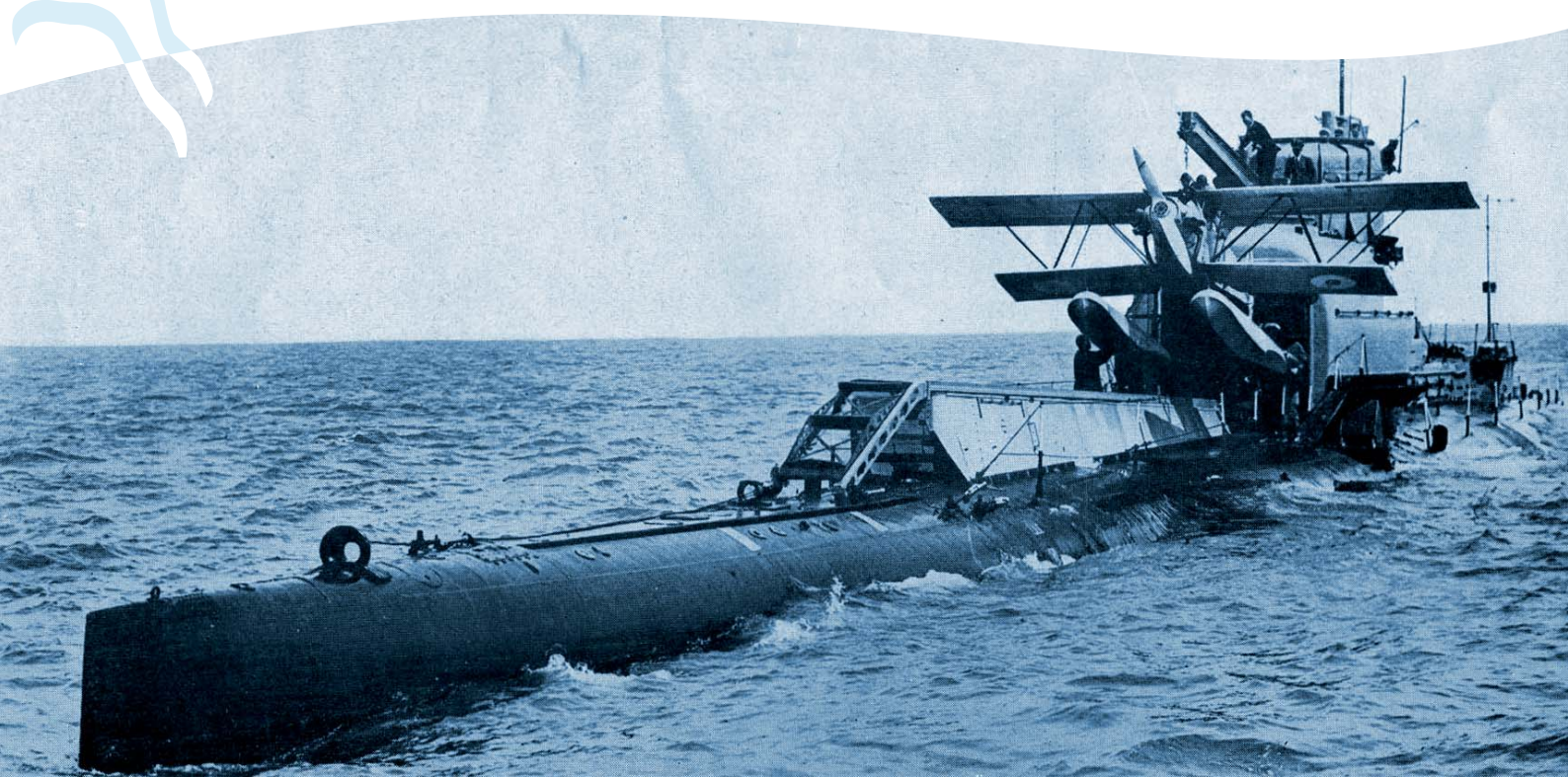
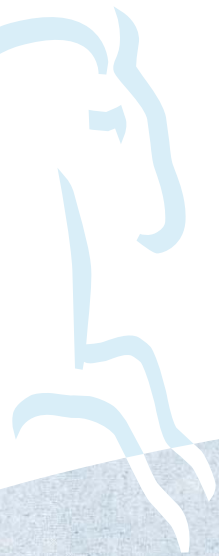
Strategic Assessment of Submarines in English Waters

Project Report

For
English Heritage

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CA Report 6655

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NHPP 3A1: Unknown Marine Assets & Landscapes
STRATEGIC ASSESSMENT OF SUBMARINES IN ENGLISH WATERS

CA Project: 4132

EH Ref: 6655

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Summary

In January 2013, Cotswold Archaeology was commissioned by English Heritage to undertake a Strategic Desk-based Assessment of Submarines in English Waters. Two submarines, HMS/m *A1* and *Holland No. 5* are currently designated under the Protection of Wrecks Act 1973 in England, while a small number of further examples are presently designated under the Protection of Military Remains Act 1986. The aim of the project was to inform a policy on future designation approaches to this resource by identifying the best examples of submarine wrecks within England's Territorial Waters; thereby contributing towards the overall national programme of planned designation and ensuring that the full weight of statutory protection is given where threat is most urgent, or where future threat may be most appropriately forestalled.

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Thanks is also extended to all of the many people and organisations who supplied data and advice during this project.

Project Team

The project was managed on behalf of Cotswold Archaeology by Steve Webster. The report was researched and written by Karen Walker. Sally Evans undertook initial data searches and worked on database and the GIS, supported by Andrew Baines. The illustrations were prepared by Leo Heatley.

1 DESCRIPTION OF THE PROJECT

1.1 INTRODUCTION

Cotswold Archaeology was been commissioned by English Heritage to undertake a strategic assessment of wrecks of submarines within English Territorial Waters. The aim of the study is to inform a policy on future designation approaches by identifying the best examples of submarines within 12 nautical miles of the English coastline (**Figure 1**).

Effective designation is reliant on the provision of strategic assessment to underpin the core functions of protection and management of, and access to, the marine historic environment in order to realise wider social, cultural, economic and environmental benefits. Both the National Planning Policy Framework and the UK Marine Policy Statement recognise the need to protect and manage cultural heritage in a manner appropriate to its significance.

This desk-based study will contribute to the overall national programme of planned designation and ensure that the full weight of statutory protection is given where threat is most urgent, or where future threat may be most appropriately forestalled.

1.2 PROJECT BACKGROUND

The background to the project, as set out in the brief (EH 2012) indicated that: at present, the proportion of vessels currently afforded statutory protection on account of their historical, archaeological, or artistic importance is limited to 47 historic wreck sites in Territorial Waters adjacent to England. This is to be contrasted to a known c.3000 wreck sites and c. 34,000 recorded losses. Only two submarines, *A1* and *Holland No. 5* are currently designated under the Protection of Wrecks Act (1973) in England while a further ten sites within English Territorial Waters (*A7*, *L24*, *M1*, *M2*, *Swordfish*, *Umpire*, *U12*, *U1018*, *UB65* and *UB81*) are currently designated under the Protection of Military Remains Act (1986).

English Heritage wishes to explore the expansion of the designation base by undertaking a thematic approach to the wreck resource. Submarines have been selected as a theme on account of their special technological, historical and human interest. Given their relatively recent history, submarine losses are also well documented and, particularly for Royal Naval vessels, limited in number.

Data held in the National Record of the Historic Environment indicates that there are 90 identified and 19 possible submarines and a further 36 recorded submarine casualties within English Territorial Waters. As a small number of submarines are registered as Historic Vessels with National Historic Ships UK, (*Holland No. 1*, *XE 8*, *X24* and *Alliance*), this project also addresses submarines listed on the Register of Historic Vessels. Submarine hull exhibits at UK museums are also considered.

1.3 AIMS AND OBJECTIVES

Project Aim: The Aim of the study is to inform a policy on future designation approaches by identifying the best examples of submarines in England within the Territorial Waters.

Project Objectives: The objectives of the project are to:

1. Audit, assess and map relevant data held by National and Local Historic Environment Records;

2. Identify and cross-reference submarine hull exhibits at accredited museums;
3. Liaise with National Historic Ships UK, MoD, Submariners groups and relevant researchers;
4. With English Heritage, identify (and accurately locate through desk-based sources) the best examples of asset types (coupled with a condition assessment of those assets most at risk through neglect, decay or other threats);
5. Recommend sites for selective investigation;
6. Provide recommendations for expansion of the Maritime Craft Thesaurus for submarines.

1.4 PROJECT SCOPE

The scope of the project, as set out in the brief (EH 2012), is as follows: Submarine casualties, whether by intent (e.g. *U480*, Isles of Scilly), accident (e.g. *K4*, Scotland) or design (as in the Deadlight Fleet, N. Ireland), lie within all sectors of UK waters. This study, however, addresses only those sites in England, to include the English Territorial Waters. The potential of the resource beyond 12nm will not be addressed, though has been referred to.

The research was not confined to British submarines, but necessarily included research into the development use and loss of German vessels. It also touched on the vessels of other nationalities where there was potential for the presence of such vessels to be present, including those of France and the USA. The potential for Italian, Japanese and Russian vessels was also considered, but not evidenced in the datasets assessed.

2 METHOD STATEMENT

2.1 INTRODUCTION

The approach taken reflects best practice as set out by the Institute for Archaeologists (IfA) in their standards and guidance for Historic Environment Desk-based Assessment (IfA, 1994, revised November 2012).

2.1.1 Data Suppliers

The main data suppliers and principal sources consulted were:

- Records of known and possible submarine sites, and casualty records, held by English Heritage;
- UK Hydrographic wreck records (accessed from Seazone via English Heritage);
- Records of recorded submarine losses held by relevant Local Authority HERs;
- Register of Historic Vessels, National Historic Ships UK;
- Data related to submarines held by the Receiver of Wreck;
- RN Submarine Museum, Gosport;
- Chatham Historic Dockyard; Curator of Submarines;
- MoD;
- Submariners Association;
- Submariners Association of Kiel;
- Appropriate primary sources;
- Appropriate secondary sources;
- Appropriate registered museums & exhibits;
- Other relevant sources and researchers.

Searches were sent to data repositories, and the resulting data was entered into a project database and mapped in a GIS. The project database has been updated with the source lists and text generated from the sources. Where multiple positions are available these have all been entered into the GIS for later analysis and assessment.

2.1.2 Sources

Primary research on unpublished records (of which there is a vast body of material), has not been undertaken for this project. The use of (now historical) submarine fates and positional data as recorded in contemporary official records and in older published syntheses is clearly a starting point for any assessment of submarine wrecks, with the large proviso that it is recognised that they contain many inaccuracies, and that surveys and diver identifications are required before wreck identities can be considered sound. Internet searches have been used to provide an indication of the whereabouts of key documents and examples of the type of material available in England are given in Annex 6.

It has been said, that even for the main characteristics of submarine classes, 'there is no general source that is totally reliable, be it the Yard records, Admiralty, Ministry of Defence (MoD), Royal Navy, or any one of the major reference books or the internet' (Hool and Nutter 2003, 17). Even for submarine fates, campaign and overview statistics, exact figures are not always available, and at times conflicting information has been published. Note also, that build, launch and commission dates are variously cited, as are decommission, sale and breaking dates.

Extensive reading has been undertaken from a substantial number of the acknowledged key (English language) volumes on British and German submarine development, individual histories and warfare. The body of published material on submarines and submarine warfare is enormous, as the third edition of an 800 page themed bibliography of *Submarine Warfare in the 20th & 21st Centuries* by Huygen (2009) demonstrates. The literature continues to increase, as academics and military historians continue to re-assess the effects of the unprecedented pace of change in naval technologies which submarines represent, and its impact in warfare (see for example, Breemer, 2010). Key observations and specific data are cited with bibliographic references, however more generally known or acknowledged background information is not interrupted with references. The historical background has provided a general framework for the project, and served to provide details of the context for each individual wreck assessment in terms of: the status of the class of submarine; its position within the development of the submarines as a whole; variations between the class and earlier and later classes of vessel; the rarity of the vessel etc.

Extensive internet searches, and where possible personal communication have been used to assess current diver information and interests as well as to search for overseas information and in tracking archives and museum and artefact information. This data, which includes video footage of a number of wrecks, has been used to reinforce individual wreck condition assessments. Commentaries on internet discussion sites (sometimes appended to the bottom of YouTube videos) were also read. However, these discussions were treated with caution and rarely used as they generally presented conflicting and uncorroborated evidence.

Where it was possible to see video footage or a site plan the diver data was used to inform the condition statement in the database and in Annex 01. One of the other key diver sources used here were reports submitted to, and recorded by the UKHO in the survey history section of the UKHO wreck sheets. However, overall one of the areas of data that it

was hardest to tap into in a structured, consistent manner at a desk-based level was that concerned with site condition.

A by no means exclusive list of sites visited is provided as Annex 7.

2.1.3 **Nomenclature**

Nomenclature cited also varies: HMS A1, HM/S A1, A1 etc. For reasons of simplicity, throughout this report the HMS has been omitted except when quoting directly. Similarly, with U-boats, it was felt unnecessary to differentiate between the boats of the German Imperial Navy (Kaiserliche Marine) and those of the Kriegsmarine as no boats with the same numbers were reported as wrecks within the study area.

This report has divided the 20th century into five periods: Pre-war, First World War, Interwar, Second World War and Post-war. (As per, 'Category band definitions and codes List 3, Periods', English Heritage 2008). The period in which a boat was lost may be different to the period of construction and the main period of use. The results section of the report and the figures use the loss dates. It should be noted that several of the submarines sank more than once – some having been raised and re-used.

The difficulties associated with 'manner of loss' have been recently explored using the submarine A1 as an example (Wessex Archaeology, 2011, 27). The report states that:

'The record for the wreck of HMS A1 (NRHE UID 911782) is a good example of this. The A1 was a British submarine which tragically sank after a collision with the SS *Berwick Castle* during an attack exercise in 1904. It was raised by the Neptun Salvage Company of Stockholm and put back into service after repairs, but following an explosion in 1910 in which seven men were injured, it was used as a target and accidentally sank whilst running under autopilot. The manner of loss for the vessel is listed in the known resource as 'explosion', 'scuttled' and 'foundered'. However, whilst it was clearly a significant event in the life cycle of the HMS A1, the explosion described did not result directly in the final loss of the vessel. Whilst it may be said to be linked to the decision to use the vessel as an expendable target and therefore indirectly to the final loss, this term does not relate to the primary cause of final loss. Similarly, whilst the use of the term scuttling helps to describe the circumstances of loss, it was not the direct cause of loss.'

In instances where the manner of loss as recorded in some of the primary data sources, appears to conflict with the documented history of the vessel this is explained within the text. In all cases the intended outcome is to indicate the manner of loss that lead to the wreck reaching the seabed in its current position.

The loss date used in this report is the final sinking date (or the date from which a boat was declared missing). As the following charts (01 and 02), using actual data demonstrate, slightly different results are obtained by using build or loss dates. This issue is explored further in Section 4.2 below.

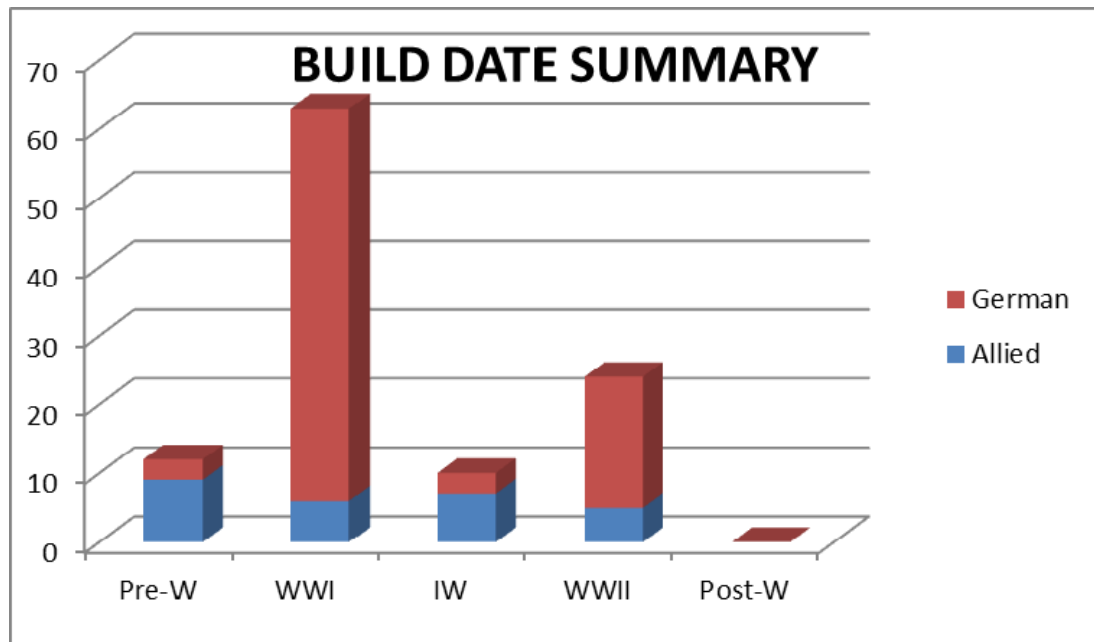


Chart 01: Distribution of wrecks by period using build dates

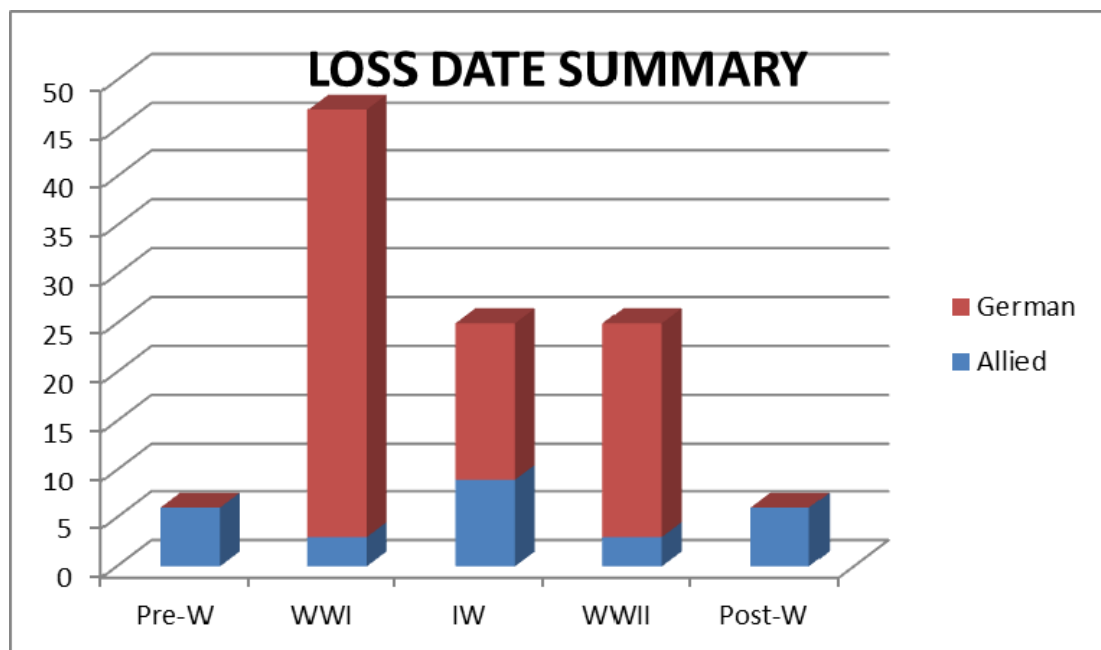


Chart 02: Distribution of wrecks by period using loss dates

There may have been considerable loss of life associated with a first sinking which is not necessarily the case with the final sinking (for example, *A3, Untiring*). The Memorial panels at the RN Submarine Museum, Gosport document loss of life on British submarines.

2.2 DATA ANALYSIS AND LIAISON

The data analysis stage of the project involved sifting all of the collected data to provide text for each known submarine wreck to a standardised format. This has drawn on the criteria listed in the *Ships and Boats: Prehistory to Present - Designation Selection Guide* (EH May 2012), i.e. Period; Rarity; Documentation; Group Value; Survival/Condition; and Potential.

In addition to being informed by the data generated during Stage 1, the wreck text also received input from liaison with a range of submarine experts and heritage and museum professionals.

One of the key categories of information generated was data concerning the position, identification and condition of individual wrecks generated from contact with avocational divers. This avenue of research was scoped and contact was made with some avocational divers and vessel skippers. The method of scouring the internet for diver reports was also trialled. It was the latter method that proved to be by far the most productive in terms of volume of data and speed of data collection. There is a wealth of data still awaiting to be tapped into, but this requires a far more wide ranging project with different aims from this one.

The other main activity that took place during Stage 2 was the GIS-based analysis of wreck position. Experience gained during past work indicated that there may be conflicting positional data for at least some of the sites. This was addressed by an informed assessment of the source data and a through GIS based analysis.

2.3 ASSESSMENT

The Assessment Stage of this project assessed all the data generated in order to produce a list of the best examples of all asset types, and to subject each selected vessel to a brief designation assessment.

The designation assessment includes an assessment of the wrecks in relation to the non-statutory criteria for designation under the Protection of Wrecks Act (1973), but has also considered the relevance and desirability of alternative means of protection, such as scheduling under the Ancient Monuments and Archaeological Areas Act (1979, as amended in 1983). Summarised wreck report information is presented as part of the Individual Wreck Assessments in Annex 1).

Site condition and 'risk status' has been assessed in line with *Protected Wreck Sites at Risk: A Risk Management Handbook* (EH, 2008). This broadly considered: condition; vulnerability and trajectory.

3 HISTORICAL BACKGROUND

3.1 PRE-WAR

The history and significance of submarines is closely tied with that of naval and merchant ships, technological developments, defence of trade, warfare and a number of other themes which are very relevant today, particularly in a maritime island country such as Britain. The early history of submarines has been well documented, and will not be repeated here. 'Records of attempted submergence date from at least the 16th century; the first experimental submarines were built in the 1620s, and fourteen types of submersible craft are known to have been patented in England by 1727' (English Heritage 2012, 16). British experimental designs included an 18th century craft - a sloop called the *Maria*, which was converted and deliberately sunk in Plymouth Sound. It did not resurface and its exact location has not been found.

Towards the end of the 19th century there was a considerable amount of submarine development in several countries including France, Russia, Spain and the United States. In Britain there was little official support for submarine research, although William Garrett

designed and built a steam driven submarine, *Resurgam*, in 1879 which was lost off the Welsh coast in 1880. The wreck was recently located and given statutory protection. Garrett later collaborated with Thorsten Nordenfellt, building four submarines one of which was sold to Greece and two to Turkey, but the designs were not taken up more widely (Bowers, 1999).

Key developments for the submarine were the petrol engine for surface running, the electric motor for submerged propulsion and a submarine-launched weapon system (Bowers, 1999, 9). Irish engineer J.P. Holland who had emigrated to America after years of experiment, designed the first 'recognisably modern' submarine for the US Navy, producing the first submarine to be commissioned into the US Navy, and other Holland Class designs that went on to be sold to various navies around the world including those of Russia, Norway and Japan (*ibid.*, 191).

After Holland applied the horizontal rudder to the latest in a series of designs (the Holland 7), the Admiralty, in 1900, placed a contract with Vickers Sons and Maxim for five improved Holland Class Boats to be built under licence (Cocker 2008, 14), intended as developmental and training craft (Brown 1999, 79). The Holland Class submarines had internal combustion engines and electric motors. *Holland No. 5* was the first submarine to be commissioned into the Royal Navy and also the first to be fitted with a periscope (English Heritage 2012, 16). They were a successful but short-lived class, quickly replaced with new improved designs. *Holland No. 5* lies off the coast of Sussex and is designated under the Protection of Wrecks Act. The fate of *Holland No. 1* is an early example of one of the trends that will become apparent later in this report. Following the decision to scrap the Holland Class vessels, it was sold for breaking up; however, it foundered while under tow. It was recovered in 1982 and is now on the National Historic Ships Register (**no. 427**) and following extensive conservation work is on display at the RN Submarine Museum, Gosport. *Holland No. 5* also foundered while under tow and *Holland No. 4* sank but was raised and later expended as a gunnery target, while *Holland No. 2* and *Holland No. 3* are believed to have been broken up.

The A, B and C Class submarines that followed, were improved Holland boats, designed by, and mostly built by, Vickers at Barrow-in-Furness. Six C Class submarines were built by HM Dockyard, Chatham, thereby introducing the other early influential submarine constructor. Two of the three boats of the class in English Territorial Waters (the *A1* and the *A7*) have statutory protection. The B and C Class were launched between 1904 and 1910. By September 1907 Britain had 29 submarines (Brown 1999, 10). Eleven of the larger, faster B Class were built and 38 of the C Class boats (which were very similar to the preceding class). The majority of these submarines were sold for scrap, (the B Class post-1916 and C Class post-war). Submarines *B2* and *C11* are known wrecks within the study area. The D and E Classes incorporated changes in technology and ambition. The boats had diesel engines for the first time and were designed for offensive purposes. Deck guns were added from *D4* onwards. The E Class went on to serve with distinction during the First World War in large numbers.

In Germany, early experiments dated back to 1850, but only three boats were built prior to 1902. In 1902 a Spanish engineer, Raymondo Lorenzo d'Equivilley-Montjustin who had previously worked with the French submarine designer Laubeuf, started work at Krupp's Germaniawerft shipyard at Kiel (**Figure 2**). Trials ships were built up to 1911. Plans for the German High Seas Fleet in 1912 included a maximum of 70 U-boats to be built by 1919. The submarines were seen as a defensive patrol mechanism for use in conjunction with the main surface fleet. A purchase from Fiat-Laurenti at La Spezia was also authorised for research comparison but not made before the outbreak of war. Three pre-war built

German boats were lost in the First World War in English Territorial Waters. *U8* was trapped and destroyed by gunfire in 1915, and two were destroyed by mines (*U11* in 1914 and *U37* in 1915) (**Figure 2**).

3.2 FIRST WORLD WAR

In August 1914 Britain had 73 (sometimes quoted as 74 submarines), more than any of its allies, but most closely matched by France. Germany had 31 submarines, Austro-Hungary five and Turkey none (Ellis and Cox 2001, 251).

By 1918-19, submarines of several different classes were in use by the Admiralty. Key design changes were incorporated in the various different classes and 'improved' classes, built before and during the First World War. Many novel technologies and tactics had been employed and the significance of submarine warfare had become very apparent. Aggregate losses by the Armistice numbered 54 British submarines from a total of 91 allied losses, and 178 German losses from the 185 Central Power losses (Ellis and Cox 2001, 275). The majority (132) of the U-boats sunk were in the last 18 months of the War (Lloyd 1975, 103).

The diesel powered J Class boats (1915-1917) were the forerunners of the K Class boats intended to operate with the battle fleet (Cocker 2008, 43; 47). A single J Class boat (*J6*) was sunk by gunfire from a Q-ship off Blyth in 1918 (the loss location has been examined by the UKHO and no wreck has been found), and the rest went to the Royal Australian Navy after the war. The class forms a considerable diving and visible submarine heritage resource in Australia (cf Seal, 2009). There are no K Class wrecks in the study area though there are examples in Scottish waters, and some remnants from a K class may reportedly survive from a boat beached and scrapped *in situ* in Portsmouth Harbour.

Initial German naval strategies were confused, in part by the varied influence of political aims and military solutions. The legal niceties of International Law in relation to blockades and the practicality of the most effective use of small submersibles as warships presented a number of problems. The initial solution was a compromise, the blockade of the Thames estuary. It was followed by later periods of both intensified and unrestricted U-boat warfare interspersed with returns to restricted and completely halted warfare, as the German High Command reacted to external political pressures and internal military demands. From 1906 to 1918 the Imperial German Navy ordered 811 U-boats, of which 343 were commissioned.

During the war, the main German design runs were found to be slow to produce, due to their relative sophistication and size. The UB, small coastal types that were capable of transportation by rail in sections, and the UC minelayers were however produced in large numbers and appear well-represented in the wreck registers. The wrecks of the *UB65* and *UB81* are protected under the PMRA (**Figure 1**). The UB and UC classes were refined during the war and most examples are of the later UBIII and UCII types.

The potential threat of submarines as a commerce destroyer had not really been appreciated by either side before the First World War, but the unrestricted U-boat campaigns of 1915 and 1917 demonstrated the problems of defence of merchant shipping and the danger this posed to Britain (Lloyd 1975, 102). In April 1917, 'one out of every four vessels leaving the United Kingdom was sunk, the greatest loss rate in history' (*ibid*). 'Safe channels' were supplemented by use of the convoy system and with the entrance of the Americans into the War, the widespread use of depth charges and aircraft, the U-boat threat was largely overcome. The expenditure of resources was prodigious, for example,

the creation of the Northern Barrage between March and November 1918 used 56,760 American and 16,300 British mines (Navy Department, 1920) and 80,244,020 feet of wire rope (Roebbling's Sons Co, 1920).

3.3 INTERWAR

After the war, submarines were lost to a variety of causes. Over 100 submarines were taken off the RN active list between 1919 and 1923. By 1922, 81 submarines were left on the strength, mainly H and L Class, but some C, E and G Classes. Of the D Class submarines (the first diesel powered submarines, also fitted with wireless transmitters), four were lost beyond English waters and the rest were decommissioned after the war. First World War submarines lost in the interwar period within English Territorial Waters include *E43*, *G3*, *G11*, *H11*, *L1*, and *M1* (**Figure 2**).

Some 115 U-boats with their cargos were interned at Harwich after the Armistice and were later dispersed amongst Allies where they were examined and tested and later scrapped. Damaged and unfinished U-boats were also destroyed in German shipyards. Under the Treaty of Versailles, Germany was prevented from keeping, buying or building submarines. The dire economic situation combined with the prevalent belief in future world peace meant that many British submarines were also scrapped and sold after the war, including vessels that had seen little service or were incomplete (Parker 2008, 32).

Underwater ranging (Asdic) was developed with some success during the First World War and unfortunately, led to some complacency and a belief that technology had countered the threat of submarines. However, new and experimental designs continued to be researched and built during the 1920s and 30s. These proven technologies underlay the classes in service during the Second World War, when British-built boats required only a limited supplement of nine lend-lease and four captured boats, which were employed mainly for training purposes. Late WW1/Interwar built or designed boats that sank in the study area include *H52*, *L24*, *M2*, *Minerve*, *P555*, *Swordfish* and *Unity*.

3.4 SECOND WORLD WAR

During the Second World War, the Battle of the Atlantic reflected German strategy to cut British overseas links, preventing supplies reaching the country. U-boats were again instrumental in implementing the strategy, and unrestricted submarine warfare was once again used. After the fall of France, the German navy was in a strong position to attack the western approaches from U-boat pens on the Atlantic seaboard. In 1939 Germany had 57 operational U-boats rising to 434 in 1944 and 429 in 1945 and technological developments had continued to be made throughout the War.

Key German shipbuilding areas are shown on **Figure 3** (See also Annex 8). German U-boat designs were successful; they included some like the Type VII, which were small and very uncomfortable for their crews and others like the larger Type IX designs that had immense range (Williamson 2006, 8). The Kriegsmarine were adept at developing new tactics and 'of all the branches of the Wehrmacht, few were so successful, and came so near to bringing the enemy to its knees' (ibid). Losses however were heavy. Figures vary; Lloyd (1975, 117) suggests that 785 out of 1,162 U-boats were destroyed, whereas Parker (2008, 72) puts the number at 727 U-boats lost from 1,154 commissioned (excluding those under construction), and Kemp (2003, 287) gives 783 lost to enemy action and a further 51 to accidents. Germany lost two thirds of all the men who served in the submarine force, almost 27,000 in total (Parker 2008, 72). See Chart 03 for a summary of numbers of ships sunk against U-boats lost throughout First and Second World Wars. This shows how the

Allied tactics and strategies increased U-boat losses as the conflicts wore on (the chart figures were adapted from Terraine (1989/2009, 766-769) and Gibson and Prendergast (1931/2003, 380).

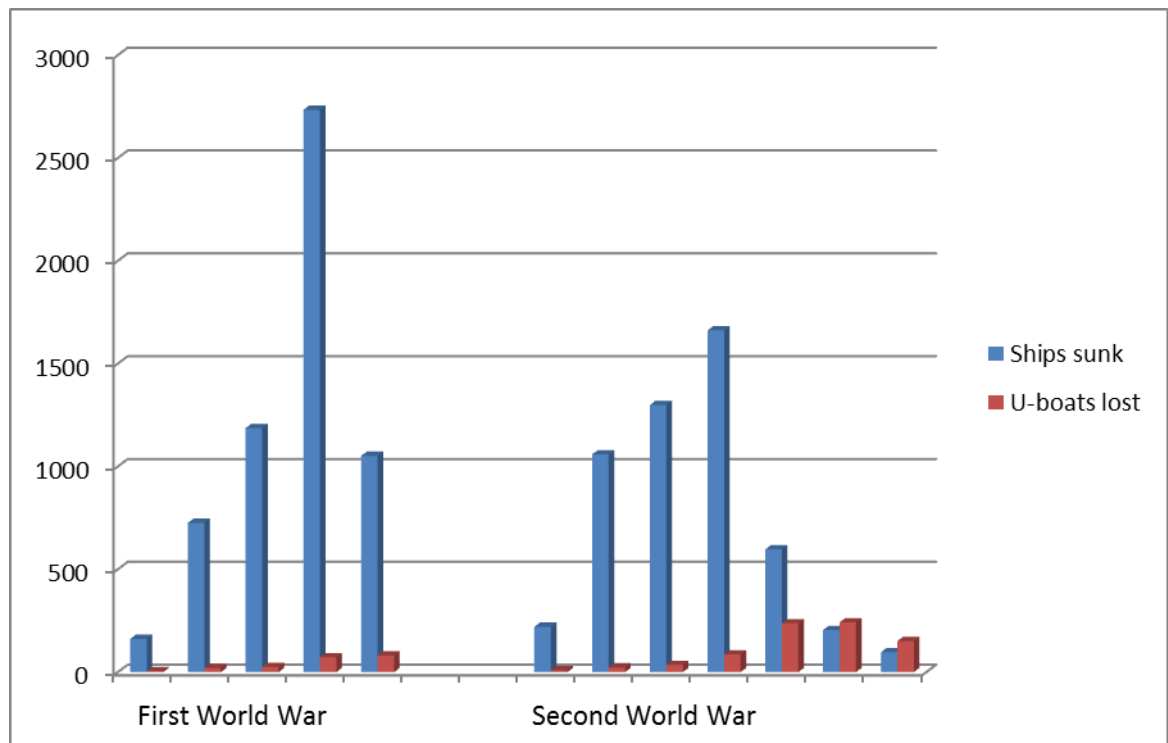


Chart 03: Annual loss of merchant and naval shipping versus U-boats lost for the First World War and the Second World War

In comparison, the British lost some 74 submarines, 341 officers and 2,801 ratings and America lost 52 submarines, 375 officers and 3332 men. This partially explains the disparity in numbers between German and British classes of submarines identified in English Territorial Waters. *U12* has been nominated by German authorities to represent all others lost within UK jurisdiction although the site of the wreck itself has not been located (Young and Armstrong, 2006, 269). In addition to the blanket coverage offered to U-Boats by the designation of *U12* under the PMRA, *U1018* and *UB65* have been individually protected under the act (**Figure 1**). *U534*, a 1942 type 1XC/40 U-boat, sank in the Kattegat in 1945, was raised in 1993, and is now on display in Birkenhead.

Other than the X-craft (midget submarines), only one new class of UK submarine was built during the war, the diesel-electric A/Amphion Class in service from 1945. Alliance is an A Class vessel launched in 1945 (though heavily modernised in 1958-60), and is on the National Historic Ships Register (no. 100) and on display at the Royal Navy Museum, Gosport. There are a number of X-craft on display in the UK including *XE8*, (1944, National Historic Ships Register no. 448) *X24* (1942-5, National Historic Ships Register no. 1843), *X7* (1943, part). There are also two Biber Class German Submersible, X-Craft Midget Submarines on display; *Biber 90* (1944, Imperial War Museum) and *Biber 105* (1944+, the Royal Navy Museum, Gosport).

3.5 POST-WAR

At the end of the war 156 U-boats surrendered, and 116 were scuttled northwest of Ireland in 1946 as part of Operation Deadlight (**Figure 6**). A few of the U-boats were not designated by Operation Deadlight and some of these were claimed as prizes.

A number of improvements to earlier classes and experimental designs were used after the war. Nuclear propulsion provided a dramatic change to capability. The world's first operational nuclear powered submarine USS *Nautilus* was launched in 1954. The first UK nuclear submarine *Dreadnought* (S101) was commissioned in 1963 and at the same time the design was advancing for a much larger nuclear-powered submarine to carry very long range ballistic missiles. The aim was to complement the fleet of conventionally-powered submarines (SSKs) with nuclear-powered submarines of two types: hunter-killer (SSN) and a platform for the nation's nuclear deterrent (SSBN). The SSKs were to patrol designated areas in order to detect transiting Soviet submarines, with the SSNs to thwart attempts by the Soviet submarines to launch a land-attack with missiles or counter patrolling SSBNs (ARL, 2012).

Many people, including anti-war demonstrators, saw the submarine as an embodiment of all that was worst about conflict in the atomic age. They saw the submarine as a device that was particularly well-suited to serve as a symbol of Cold War (Harrington 2003, 10). Moreover it should be recognised that the operation of the United Kingdom's Strategic Deterrent by the submarine branch of the Royal Navy has permanently altered the public perception of the submarine service. In the 1919 publication of Jane's Fighting Ships for instance, the submarine was rated as a minor category placed after Coastal Motor Boats, but before the other innovation tested in the First World War, the aircraft carrier (Jane's 1919). In the 1989-90 edition the submarine has become the first category for major naval powers, again followed by the aircraft carrier. The previous markers for rating naval power, the big-gun ships (Dreadnoughts, Battleships, Cruisers, etc.), have been completely eclipsed by the potential destructive power now embodied in submarines.

Although one of the most significant characteristics of the Cold War was the use of military technological confrontation as a surrogate for actual military conflict (Harrington 2003, 1), some of these vessels also faced wartime conditions. 'The sinking of the Argentine Cruiser *General Belgrano* by HMS *Conqueror* in the Falklands Campaign was the first time that a major surface combatant has been sunk by a dived submarine capable of keeping up with its target indefinitely, and to be able to select the tactical moment to strike, under the operational command of a headquarters 8000 miles away... thereby denying the Argentine surface naval forces a further role in the conflict' (Cocker 2008, Foreword, Vice Admiral Sir Lancelot Bell Davies). *Conqueror* was decommissioned in 1990, and parts from this submarine (including periscopes and a control panel) are on display at Gosport.

Dreadnought (S101) was decommissioned at Chatham and towed to Rosyth, where she was laid up in 'afloat storage' until she can be safely disposed under the auspices of the UK Ministry of Defence (MoD)'s Submarine Dismantling Project (SDP). Her nuclear fuel has been removed but much of her interior remains intact. She was docked down during 2012 for her periodic hull inspection and re-preservation. Campaigners hope that she will be returned to Barrow-in-Furness after decommissioning as a tourist attraction in the town ([http://en.wikipedia.org/wiki/HMS_Dreadnought_\(S101\)](http://en.wikipedia.org/wiki/HMS_Dreadnought_(S101)); <http://www.in-cumbria.com> Accessed 01/11/2012). Seventeen decommissioned nuclear submarines of the Swiftsure, Resolution and Valiant Classes are laid-up at Devonport or Rosyth, and are likely to be dismantled. Two of the seven Trafalgar Class submarines have also been decommissioned. The Cold War era submarines, *Ocelot* and *Courageous* are on display at Chatham and Devonport respectively. At the time of writing, the Royal Navy has a commitment to build seven Astute Class submarines; two of which have been accepted and four are in progress. This is a £9.8 billion programme sustaining more than 10,000 jobs, a large proportion of which are based at the construction yards at Barrow-in-Furness (MoD August 2013, 8).

Submarine warfare appears often in popular culture, forming its own sub-genre of war films dating from c.1915 onwards and there is a huge body of published factual accounts and histories of submarines as well as fictional material. The submarine emerged from the Second World War as a naval success story and a potent symbol of technological achievement effectively harnessed to the purposes of war. In Britain it can be argued that, in terms of wider cultural perceptions, the public profile and status of the submarine were never higher than they were in the aftermath of the Second World War. The submarine had not only proved its value as a weapon in the course of that war, it had also established itself in the public mind, perhaps for the first time, as a legitimate and honoured branch of the naval service whose exploits could be as celebrated as those of destroyers and battleships (Harrington 2003,1-2). The approaching centenary of the First World War provides an opportunity not only to remind people of the role of submarines in that conflict but also to raise awareness of the small numbers of remaining submarine heritage assets and threats to those assets and, more generally, of the significance of submarines.

Between 1901 and 2012 over 550 submarines were commissioned in Britain and of these at least 159 can be accounted lost (Kemp 2003, 290). This figure does not include submarines deliberately sunk as targets. Despite having only one and half centuries of development, many different classes of submarines have been used by the Royal Navy. There are numerous monuments and plaques erected both individually and collectively in the memory of the officers and men of the British Navy who have lost their lives in submarines during peace time and wartime. They include a monument to the eleven men lost in the *A1* in 1904 (plus those lost in the *A3*, *A5* and *A8*) at the Clayhall Royal Naval Cemetery Haslar, the National Submarine Memorial on Victoria Embankment, London erected 1922, and a memorial at Gosport erected 16/04/2013 to those lost in the *Affray* in 1951.

4 RESULTS

4.1 INTRODUCTION

It should be noted that the dataset for submarines is recognised as being dynamic and subject to change as more comes to light (Serena Cant, English Heritage, pers. comm.). In February and May 2013 data was received from English Heritage and from the UK Hydrographic Office (via Seazone). The two datasets have been compared and contrasted with the list issued by English Heritage with the project brief and with evidence from additional research. It should be noted that there is a high degree of correspondence between all sources, and that, therefore, a GIS plot can be considered a relatively reliable and informative visual summary of the information currently available.

The EH list included 171 entries within the 12 NM limit. However, it should be noted that the list contains a number instances where there are multiple entries for single vessels. These duplications are created where distinct strands of evidence, such as reports of sinkings (documentary event) and actual wrecks, are both referenced to the same vessel but at different locations and with different monument numbers. In these instances the coordinate of the sea bed remains has been included on the GIS plot rather than that of the documentary evidence.

A number of other EH entries are also for recorded sinkings rather than identified sea bed remains and will, therefore be left off the final list. For example, NREH record 1244283 HMS A2 is, for a wreck that was subsequently raised and sold for scrap.

The report includes a tabulated list of wrecks on the seabed within the English Territorial Waters with suggested identifications for at least 81 German, 24 British, one French, and two American-built submarines. Of the latter, one was the First World War boat *H11* and the second was the *P555* a 'Lend-Lease' boat, both built at the Fore River Shipbuilding Co., Quincy MA (**Figure 2**).

It should be noted that the results and patterns discussed below, being restricted to English Territorial Waters, ignore boats wrecked outside (in some cases, just outside) of this area, and therefore they are only part of a larger overall distribution. The interpretation of the spatial distributions may therefore be seen as incomplete. The wrecks in St George's Channel and boats in French, Dutch or Belgian waters in the English Channel are important examples of this larger dataset or assemblage.

Overall this assessment synthesised the records as follows:

Data Type	Number
Confirmed submarine wreck (confirmed ID)	27
Confirmed submarine wreck (possible ID)	66
Wreck (possible submarine)	19
Subtotal	112
Loss/lift position	9
Documented loss	18
Subtotal	27
Total	139

Table 01: Records Breakdown

This resulted in a breakdown of wrecks by identity as follows:

Identity	Number	Record Type	Duplicate Records
Allied	14	Confirmed submarine wreck (confirmed ID)	0
	9	Confirmed submarine wreck (possible ID)	0
German	13	Confirmed submarine wreck (confirmed ID)	0
	53	Confirmed submarine wreck (possible ID)	6
	9	Wreck (possible submarine)	0
Unknown	9	Loss/lift position	4
	18	Documented loss	2
Totals	139		12

Table 02: Record Breakdown by Nationality

Following resolution of the duplicate records the following totals were taken forward for the rest of the assessment:

Identity	Number	Record Type
Allied	15	Confirmed submarine wreck (confirmed ID)
	8	Confirmed submarine wreck (possible ID)
	4	Documented loss
Total	27	
German	13	Confirmed submarine wreck (confirmed ID)
	47	Confirmed submarine wreck (possible ID)
	9	Wreck (possible submarine)
	4	Loss/lift position
	11	Documented loss
Total	84	
Unknown	10	Confirmed submarine wreck (possible ID)
	10	Wreck (possible submarine)
	1	Loss/lift position
	1	Documented loss
Total	22	
Dead Records	6	Duplicate Loss/Lift and Documented Loss records
Totals	139	

Table 03: Records Analysis

Key:

Entries in **Blue** are for known wrecks on the seabed

Entries in **Red** are for documentary records that relate to recorded loss positions and salvage sites, and for duplicate records.

This statistical breakdown indicates that, at the time of writing, there were 112 known submarine wrecks within ETW. Of these 23 relate to Allied vessels, 69 to German losses and 20 are for unknown submarines.

4.2 RESULTS BY PERIOD

As the vessels are all modern, steel hulled and have engines for propulsion, they will be discussed by period. Submarines were developed largely as weapons of war, and it is appropriate therefore to divide the 20th century into five periods Pre-war, First World War, Interwar, Second World War and Post-war, into which the submarines can largely be grouped – although there is some overlap of use between some submarine classes and some periods (see method statement). Summary details of all Allied wrecks are given, by period, in Tables 04 and 05.

Period	Allied losses within ETW
Pre-WWI	6
WWI	3
Interwar	9
WWII	3
Post-WWII	6
Total	27

Table 04: Allied losses within ETW by Period

Period	German losses within ETW
Pre-WWI	0
WWI	43
Interwar	17
WWII	24
Post-WWII	0
Total	84

Table 05: German losses within ETW by Period

Build Date	Loss Date	Total	Allied	German
Pre-WWI	Pre-WWI	6	6	0
Pre-WWI	WWI	7	3	4
WWI	WWI	39	0	39
WWI	Interwar	25	8	17
Interwar	Interwar	1	1	0
Interwar	WW2	5	2	3
Interwar	Post-WW2	2	2	0
WW2	WW2	22	1	21
WW2	Post-WW2	4	4	0

Table 06: Breakdown by Build Date and Loss Date

4.2.1 Pre-war

Six pre-war British vessels are known wrecks within the study area: one Holland boat, three A, one B, and one C Class. **Figure 2** shows the locations of Royal Navy submarine wrecks lost during the pre-war period, plus submarine bases and Flotilla numbers of the time. There is also one Holland boat on display in the RN Submarine Museum at Gosport. As is to be expected with the pre-war built category sunk before the war, accidents are the largest cause of loss. As early as 1905, Captain RH Bacon, RN was presenting a paper to the Institution of Naval Architects entitled 'Notes on the causes of accidents to submarine boats, and their salvage'. *Holland No. 5* was lost while under tow to the breakers yard. *A1* sank twice, (1904 and 1911), *A3*, sank in February 1911 was raised and used as a target

sinking again in May 1912. *A7* was trapped in the mud of Whitesands Bay in January 1914. *B2* and *C11* were lost in collisions (1912 and 1909 respectively).

There are no wrecks of German submarines sunk before the outbreak of war in English Territorial Waters. Surviving pre-war German boats are rare, but note that three became war losses within the study area (see below). *U1* is a museum boat in the Deutsches Museum, Munich.

4.2.2 **First World War**

Only three British submarines (*C29*, *D5*, *E6*) were lost in study area during the First World War. **Figure 2** shows their locations, plus submarine bases and the disposition of Flotillas in 1916. *C29*, *D5*, *E6* were all pre-war designs, and all were lost to mines in 1915, 1914 and 1915 respectively. A number of British vessels of this date were wrecked in Welsh (*H5*) or Scottish Territorial Waters (*C34*, *D6*, *E39*, *E49*), or outside of UK territorial waters, for example, *J1*, *J2*, *J4* and *J5* (sunk off Southern Australia and all now popular dive sites).

At the outbreak of the war, the majority of Royal Navy submarines, (64), were in home waters. Most of these were obsolescent survivors of the A, B and C Classes spread in a defensive pattern covering the main naval bases at Portsmouth, Devonport and Chatham. As the surface fleet was re-positioned to reflect the strategic necessities of attack and defence against the main German Fleet across the North Sea, the submarine flotillas were accordingly shifted to cover the northern and eastern flanks of the United Kingdom. The A Class boats continued to be used for harbour defence and numbers of the B and C classes were used as primary attack and defence units while the navy awaited receipt of increasing numbers of later designs (see Annex 9).

The overseas auxiliary flotillas at Gibraltar, Malta, Hong Kong and Australia were bolstered by new flotillas based in the Baltic and Marmora, both of which fought essential offensive campaigns. In spite of limited association with fleet actions towards the start of the war, the majority of the submarines in home waters were focussed on defensive actions. During 1916 the most effective D, E and H Class boats were concentrated in the 8th flotilla based at Harwich, with a further 10 boats detached for duty in the Mediterranean and Adriatic. However, the majority of the boats were still concentrated on coastal defence, in part a reflection of the increasing seriousness of the position vis-à-vis the German Flanders and Heligoland based flotillas of submarine minelayers and attack boats operating in British coastal waters in increasing numbers.

By 1917 the bulk of the Royal Navy's submarines were still based in English and Scottish ports, with 14 based in Southern Ireland, 15 in the Mediterranean and three in Hong Kong. While many of them remained as local harbour defence and as coastal patrol defence, increasing numbers were assigned to fleet duties, 12th flotilla K boats, and in aggressive minelaying patrols across the North Sea, E Class adaptations.

By the end of the war the balance and nature of the submarine fleet had changed dramatically. While some boats were still retained as local defence, the fleet was composed primarily of the later E and H Class boats with increasing numbers of the K, L and R Classes. The offensive capability of this fleet was growing rapidly and presented the navy with opportunities only dreamt of in the early part of the war. By the end of the war the RN had lost 54 submarines, of which 28 had been lost in the North Sea.

German First World War losses are by far the largest category of submarine wrecks in the study area (**Figure 2**). Summary details are given in Table 05 above. There were three pre-

war built German war-time losses in English Territorial Waters during WWI. U8 was trapped and destroyed by gunfire in 1915, and two were destroyed by mines (*U11* in 1914 and *U37* in 1915).

At the start of the war the German Imperial navy had 28 submarines in operation. Of that total, *U1* to *U4* were not of the standard required by war activities and *U5* to *U18* had heavy-oil engines. Only *U19* to *U28* had diesel engines and could be considered modern vessels. By the end of December *U29* to *U38* were in service. During 1914, the U-boats were used as a reconnaissance device and weapon against mainly military targets. The slow rate of build of the ocean-going U-boats forced the German Imperial Navy to request the design and build of smaller coastal patrol boats (UB) and minelayers (UC). By the end of 1914 five U-boats had been lost, all of which were of obsolescent designs and of which *U11* features in this report.

1915 saw the development of Bruges as a base for the newly arriving UB and UC Class boats (**Figure 4**). By February the Germans had also decided to declare the waters surrounding the British Isles a war zone for merchant shipping. There were exceptions for neutral vessels, hospital ships and Belgian Relief vessels, however, the emphasis on submarines as an instrument of commercial blockade had begun. The sinkings of the liners *Lusitania* and *Arabic* resulted in suspensions to unrestricted warfare and the policy was curtailed after September. During 1915, 14 U-boats, two UB boats and three UC boats were lost, of which the *U8*, *U37*, *UB4* and *UC2* feature in this report.

During 1916, the pace and extent of the submarine war started to pick up. In March a compromise to the restrictions on submarine warfare allowed freighters to be torpedoed within the declared war zone. The sinking of the steamer *Sussex* resulted in further complaints from America and restrictions were re-imposed in April. Thereafter, the various types of U-boat in western waters were instructed to work in conjunction with the High Seas Fleet. On the opposite side of the Channel, planning was underway to attempt to constrain the use of the Bruges base by mining operations off Zeebrugge; Zeebrugge and Ostend being the outlets via canals for the Bruges-based Flanders Flotillas of UB and UC boats. 1916 saw the loss of seven U-boats, eight UBs and seven UCs. The *UB29* and *UC19* date from this year.

The numbers of U-boats, improved UBs and UCs had climbed by the end of 1916, and 1917 saw the start of unrestricted submarine warfare by February 1917. However, the convoy and escort system was in place by June and losses of submarines started to climb. During 1917 63 submarines were lost, 19 U-boats, 12 UBs and 32 UCs. Of these, one U, five UBs and nine UCs have been found within the study area. 1918 continued in a like manner with 69 losses, comprising 17 U-boats, 42 UBs and 10 UCs, of which 16 UBs and seven UCs have been found within the study area.

Only a single war-time built U class boat was wrecked in English Territorial Waters. *U48* (*U43* Class) was grounded and destroyed by gunfire in 1917. The vast majority of First World War wrecks in the study area are UB and UC Classes:

- Type UBI: *UB4*, *UB12*, *UB17*;
- Type UBII: *UB29*, *UB30*, *UB31*, *UB33*, *UB38*, *UB41*;
- Type UBIII: *UB55*, *UB56*, *UB58*, *UB65*, *UB72*, *UB74*, *UB75*, *UB78*, *UB81*, *UB107*, *UB109*, *UB113*, *UB115*;
- Type UCI: *UC2*, *UC6*, *UC11*;

- Type UCII: *UC19, UC21, UC26, UC32, UC39, UC46, UC47, UC49, UC50, UC51, UC64, UC70, UC72, UC75, UC77, UC?*

A considerable proportion of the German submarine war had been concentrated on British coastal waters. During the periods of restricted warfare, inshore mining and sinkings of small vessels such as colliers and fishing boats had continued. During the periods of unrestricted warfare the larger U-cruisers had ranged far afield, but a proportion of the UB and UC boats had remained at the Bruges base to continue the inshore struggle. The Dover Barrage (see Bacon, 1932) is associated with a large number of U-boat wrecks in the narrows of the English Channel. See also Humphreys 1998, for a general description of the extent and activities of the Dover Patrol.

4.2.3 *Inter-war*

The Armistice brought an abrupt, and in some quarters unexpected, halt to hostilities with Germany. Large numbers of submarines were cancelled, but some orders continued to be completed throughout 1919 and 1920. At the same time the Admiralty took the opportunity to take stock and decommission obsolete designs and worn-out boats. During 1921 the submarine fleet was reduced by as many as 42 boats. During the five years after the war, all the old stocks of A, B, C, D, and G Classes were removed. The bulk of the E and H Classes were also reduced.

Due in part to the large numbers of existing boats still in service, L Class mainly with some H, the design and production of new classes of submarine was slow. Between 1920 and 1938 orders and completions ran at an average of two per year while reductions ran at nearly 6 per year. Since the gap between the order being placed and completion could be between two and three years, the designs ordered from the mid to late 1920s were entering service in the early 1930s. Later orders were still, in part, under construction by the beginning of the Second World War. Nonetheless, by 1939 the Royal Navy had retained only a limited number of L and H Classes for training purposes, and had a small but relatively modern submarine force available, although some larger boats assigned to the Far East in the 1920s had already been in service for ten years or more (O P and R classes see below).

The wrecks of the *G11, L24, M1* and *M2* (**Figure 2**) are the results of continuing accidents, as was the *H47* in Welsh waters.

It can be seen from the statements above, that between the end of 1918 and the middle of the 1920s a large number of superfluous British submarines were disposed of. Submarines were distributed/sold to a wide variety of scrap merchants and yards, some large concerns and others small, around the coasts and rivers of Britain (**Figure 6**). The wrecks of the *E43, H11, H52* and *L1* represent this activity (as apparently, does the *E39* in Welsh waters). Scrapping of submarines was a small part of a large programme of shipbreaking. The British scrapyards industry also benefitted from the disposal of large numbers of German submarines during the early part of the 1920s. Again, a number of these boats avoided complete destruction. Parts of at least twelve German boats from this period of activity (one UBII, ten UBIIIs, and one UCIII) have been found within the study area.

Construction of U-boats was not a priority for the German Navy, from 1935 to 1939 63 boats were laid down. While a proportion of these were of Type VII, the small Type II and large Type IX continued. A comparison between Type VIIB and U105-U114 Class from 1918 shows many similarities. However, improvements had been made in maximum surface range, maximum safe depth and torpedo warhead load. The main differentiation was in

command and control. The use of radio had changed the ability of commanders to manoeuvre large groups at will. Assuming there was a large group available. Even in the spring of 1939, the German Navy was working to a long term project which allowed for 162 submarines to operate in the Atlantic and 60 coastal boats by 1948. The emphasis was on the completion of a formidable surface fleet. On the outbreak of war the German submarine arm found itself with 57 boats in commission, and allowing for slow build rates and operational losses a likelihood that the number of boats on station would start to fall as the war continued. Both the British and the Germans at the outbreak of war had relatively modern fleets of submarines in smaller numbers than either side would have liked.

The developments taking place in France have been ignored up to now in this study due to the lack of any wrecks of French design within the study area. It should be mentioned at this point, that one French vessel of inter-war design and build was wrecked off the English coast after the War. The *Minerve* was of the Minerve Class and was launched in 1934. The submarine was built at the Arsenale Cherbourg which was established in the 19th century to supplement French naval shipbuilding capacity. It specialised in submarines prior to the First World War and afterwards (Winkalerth, 2000, 216). The Free French boat was lost under tow to the breakers in 1945 (see Post-war).

4.2.4 **Second World War**

At the beginning of the Second World War the Royal Navy had 60 submarines ready for service. They were divided into six numbered flotillas with two, the 1st and 4th based in the Mediterranean and Hong Kong respectively. The rest were based in home waters. A re-distribution of naval forces took place at the beginning of the war in a similar manner to the start of the previous war. Early patrols were again sent across the North Sea, with other areas in 1940 including off Norway, the Bay of Biscay and the Channel.

The early stages of war saw the loss of numbers of submarines of inter-war build. Within the study area the wrecks of the Swordfish (S-Class Group I, completed 1932) and the Unity (U-Class prototype completed 1938) represent the British examples. In the period just prior to the outbreak of the Second World War, most of the 46 operational German Navy submarines were Type II coastal boats. Interwar built German boats wrecked in English Territorial Waters during the war comprise the *U13* and *U16* (both Type IIB boats in service by 1935-6, both based in Kiel, in the 1st and 3rd Flotilla's, respectively) and the *U40* (Type IXA in service 1938-9, based with the 6th Flotilla in Wilhelmshaven).

The fall of France presented the navy with two problems. The Germans quickly took advantage of the French ports to base submarines on the west coast of France, thereby avoiding the problems of a transit through the Dover Straits. In addition, the Mediterranean had been left within the French Navy's sphere of influence, so many of the new U and S Class boats were dispatched to counter the loss of the French Navy and to attack the Italians in the Mediterranean. The production of new submarines continued apace, with four additional flotillas being created. Of these, the 9th was based in Dundee was formed mainly from surviving crews and boats from European navies overrun by the Germans, the 10th was based at Malta and was involved in the struggle for the control of the Mediterranean.

By 1941 the 10th Flotilla in the Mediterranean was becoming effective; however additional demands were made on the submarine service to cover arctic patrols to bolster the Russian forces. Some of the new S and T Class submarines were diverted to this task. Aggressive patrolling in the Mediterranean and its offshoots continued throughout 1942 and 1943, resulting in the sinking of up to 1,300,000 tons of shipping for the loss of 41 boats. This

period presents a demonstration of the varying fortunes of the British and German submarine services in that by the end of 1943 the Battle of the Atlantic had effectively been lost by the Kriegsmarine while the Royal navy had successfully tipped the balance in the Mediterranean. By 1944, the focus of the submarine service was returning to the Far East. During the previous year decisions had been made to discontinue production of the smaller boats and concentrate on the T Class and the newly designed A Class (1945) in order to continue the struggle with Japan. There are no T Class submarines in English Territorial Waters or on display, however the *Tantivy* (T Class, group 3, 1943) was sunk in Scottish waters as a target in 1951.

The only new design to reach production was the A Class which was required to have higher surface speed, greater endurance and a greater diving depth than the preceding S and T Classes. Not only was the A Class required to have a short construction time, but the probability of changes to submarine equipment had to be factored in. The A Class boats were to be heavily modified during their service lives. There are no wartime losses of A Class (1945) submarines in the study area, however the *Affray* (1945) sank off Alderney (Channel Islands) 16th April 1951.

A single Allied boat, *Umpire* (U Class Group 1, completed 1940) was sunk in English Territorial Waters though a collision in July 1941. This adds to the significance of the surviving museum boats of this period. Alliance is an A Class (1945) vessel launched in 1945 (though heavily modernised in 1958-60), and is on the National Historic Ships Register (no. 100) and on display at the Royal Navy Museum, Gosport. There are a number of X Craft on display in the UK including XE8, (1944, National Historic Ships Register no. 448 – registered under the name *Expunger*), X24 (1942-5, National Historic Ships Register no. 1843), X7 (1943, part).

At the beginning of the war, the German submarine service was instructed to operate under the German Prize Ordinance rules of 1936 which were based on the Treaty of London of 1930. The submarines were to be used initially for the close blockade of the United Kingdom. In August 1939, 18 U-boats were sent to sea, five of the Type II and 13 of the Type VII. The Prize Ordinance restrictions were held in place until the autumn of 1940. Three boats were wrecked in English Territorial Waters in the early years of the war (U13, U16 and U40). The protected wreck *U12* is contemporary with these boats but the wreck site has not yet been located. Thereafter, unrestricted submarine warfare and organised wolf-pack attack operations against convoys were the order of the day. The details of the fiercely-fought conflicts of the next three years will not be considered here, a surface craft, typically E Boats, replaced the submarine in the torpedo attack role and as a result there are no identified German submarine wrecks dating from this period within English Territorial Waters. However, it should be noted that during this period the German submarine service suffered most of its losses and the majority of its experienced crews were gone by the beginning of 1944.

Following the D-Day invasion, attempts were made to disrupt supplies to France. During this period the *U1191*, a type VIIC boat based in St Nazaire with the 7th Flotilla was lost in June 1944 within the study area.

The German submarine service high command continued through the remaining months of the war to send Type VIIC and Type VIIC/41 boats into United Kingdom inshore waters in an attempt to slow the progress of the Allies. In part, the delaying tactic was in the hope that the improved Type XXI and Type XXIII electro-U-boats would prove effective if enough could be launched. It was also the case that there has a hope that a return to shallow

waters might negate some of the advantages that the Allies had gained in anti-submarine warfare in the open sea. A combination of snorkel use, restrictions to radio-communications and problems with Allied depth-charge use against submarines resting on the sea bed, gave some positive indications at first. However, the end result was heavy losses in inshore waters with at least 19 wrecks identified within the study area from this period.

The campaign from August 1944 to May 1945 resulted in increasing monthly sailings of U-boats assigned to United Kingdom waters, with a proportion allotted to the English and St George's Channels, which resulted in most of the known wrecks:

- Type VIIC: *U247, U275, U322, U399, U400, U480, U650, U681, U1024, U1191, U1195, U1199, U1208, U1209*;
- Type VIIC/41: *U325, U1018, U1021, U1063, U1274*.

The losses show both the overall lack of experienced crews and the restrictions placed on the operating bases by the invasion of France. The losses are, as expected, of Type VIIC and Type VIIC/41 boats. The last campaign failed to delay the inevitable, and the new classes were not used in any numbers, only seven went out on operational patrols from Flotilla 11. During the last months of the war the bases on the French coast had been abandoned and the submarines regrouped in Germany and Norway, hence the overwhelming predominance of the newly re-formed Flotilla 11 at Bergen in this sample *U534*, a 1942 type *IXC/40* U-boat, sank in the Kattegat in 1945, was raised in 1993, and is now on display in Birkenhead. There are also two Biber Class German Submersible, X Craft Midget Submarines on display, *Biber 90* (1944, Imperial War Museum) and *Biber 105* (1944+, the Royal Navy Museum Gosport).

4.2.5 **Post-war**

The end of the war cut short the production of the British A Class (1945), before it could be effective. By the end of the war many of the earlier small boats of the U and S Classes had been lost or worn out. There followed another period of scrapping and disposals. The bulk of the effective fleet rested on the T Class and the emerging examples of A Class boats. These would form the core of the peacetime fleet and many would survive for some considerable time as much-modified boats.

Allied wrecks sunk post-war in English Territorial Waters comprise six vessels. Two boats span three of the five periods covered by this report. The Inter-war Free French *Minerve*, (1934-1945) was lost under tow to breaker's in September 1945, wrecked and broken up where she lay. The P555 (1922-1947), an American S Class lend-lease submarine, was deliberately sunk as an ASDIC target. The other four wrecks were built during the war and disposed of afterwards. *Safari* (1941-1946) and *Sidon* (1944-1957), were both S Class (group 3) boats and the *Untiring* (1943-1957) and *Upstart* (1942-1959) were both U Class War Emergency boats. The *Safari* foundered on the way to the scrap yard. The *Sidon*, which had suffered a fatal explosion in 1955, was raised, then deliberately sunk as an ASDIC target in 1957. Both the *Upstart* and the *Untiring* went to the Greek Navy (1945-1952 and 1946-1952, respectively) and on their return, were deliberately sunk as ASDIC targets.

Outside English Territorial Waters, an S Class (Group 2) submarine from 1934 (*Sealion*) was sunk as a target off Scotland in 1945. The A Class, *Affray* (1945) sank outside English Territorial Waters off Alderney (Channel Islands) on the 16th April 1951. There are no T Class submarines either in English Territorial Waters or on display in the UK, however, the *Tantivy* (T Class, group 3, 1943) was sunk in Scottish waters as a target in 1951. The bridge, forward

edge of sail and part of outer casing of *Totem*/INS *Dakar* (1945, T class Group 2) were raised and are on display in Haifa as a memorial for the *Dakar*.

The post-war Porpoise Class is not represented in English Territorial Waters, however the *Grampus* (1955-8) was sunk in Scottish waters as a target in 1980, and the *Narwhal* (1957) was sunk off English waters as a target in 1985. Post-war boats currently on display in the UK include, *X51 Stickleback/Spiggen* 1954 (Submersible, X Craft Midget Submarine), the *Ocelot* 1962 (Oberon Class), and *Courageous* 1971 (Churchill Class). *Onyx* was another Oberon Class submarine, built by Cammell Laird at Birkenhead originally ordered by the Royal Canadian Navy but transferred whilst under construction, and commissioned into service in 1967. She was the only non-nuclear submarine of the Royal Navy to take part in the Falklands War. She was decommissioned in 1991, displayed at Birkenhead then moved to Barrow-in-Furness in 2006, with the intent that it should be the key exhibit in a proposed new Submarine Heritage Centre at Barrow-in-Furness. In June 2013, she was towed away for scrapping.

No German submarines sank in English Territorial Waters during this period.

4.3 PATTERNS AND INTERPRETATION

4.3.1 *Key Submarine Building Areas*

The British submarine wrecks in English Territorial Waters generally are a good reflection of the pattern of UK submarine production, with the majority of British submarine wrecks having been built by Vickers of Barrow-in-Furness, and other yards being represented by smaller small numbers and smaller time ranges. (See Annexe 08 for submarine building yards and areas). No Scottish built-boats are amongst the known wrecks.

4.3.2 *Operational Areas (bases)*

The earliest British submarine bases mirror the locations of the larger naval bases. During the First and Second World War submarine flotillas were moved as required both to defend the coastline of the UK and to be in a position to be able to attack enemy forces. In like manner, the early German operational bases were augmented in the First and Second World War by secondary bases in captured territories, which allowed either safer transit routes or shorter journeys to target areas. The location of the sample area therefore will show British losses close to their bases both through accidents and wartime actions, whereas German losses will demonstrate either wartime target areas or defended transit routes.

4.3.3 *Targets*

Six allied submarines identified in English Territorial Waters were deliberately sunk as targets (*A1, A3, P555, Sidon, Upstart* and *Untiring*), some having been raised after previous accidents. These are distributed around the South coast. (Other examples of British submarines used as targets but either not located or outside English Territorial Waters include: *Holland No. 4, D1, H4, L26, P553, Sealion* (S Class), *Stubborn* (S Class), *Tantivy* (T Class) *Achates* (A/Amphion Class) and *Porpoise, Narwhal* and *Finwhale* (all Porpoise Class)). The remnants of a group of six German submarines which broke their moorings while awaiting use as targets can be found close to shore near Falmouth. It is reported that *UB74* has been used by the Royal Navy as an ASDIC target. A noteworthy use of First World War German submarines as targets occurred in 1921 when three boats (*U117, U140* and *UB148*) were included in the US military tests organised by Colonel Billy Mitchell (Darby, nd <http://atlanticwreckdivers.net/Mitchell/Mitchell.html>, accessed 24/05/2013).

4.3.4 Breakers

The patterns exhibited by the wrecks in English Territorial Waters also reflect the known history of disposal of submarines at different times. This also fits within a broader pattern, as from Spring 1919 the Admiralty started selling redundant naval vessels 'including 22 Dreadnaught battleships and battle cruisers, totalling about 500,000 tons' (Naval History Website cited in Goacher and Mossop, 2011). Not all scrapyards were in large towns, submarines that foundered or were lost while being towed to the scrapyards were often scrapped on the beaches where they ended up. There is often local history value to such incidents even if little remains hidden under the sand (e.g. Hastings *U118*, 15/04/1919, which was a famous local attraction at time, and two coastguards died after working as watchmen on wreck). Despite the contemporary fame (particularly of German vessels), some doubt as to the identity and number of such vessels exists. The Eastbourne and Hastings boats are a case in point, *UB121* having been broken up at Eastbourne and *U118* (often mistakenly cited as the *UB118*) and *UB131* at Hastings. There are four British vessels (*E43*, *G3*, *G11* and *L1*) which also fall within this general pattern, one of which has a warning of sharp metal sign on the beach but no information about the nature of any possible remains.

The possibility of remnant scraps of submarine being found in areas of former scrapping must be considered. Some vessels lay on mudflats or in yards for years awaiting scrapping. The documentary evidence is not always clear, but some submarines are known to have been resold to other scrap merchants. Some artefacts from the scrapping programmes are known to survive. At Lelant Quay, St. Ives, Cornwall for example, shuttering panels containing riveted portholes have recently been formally recorded archaeologically. The panels have been attributed (Langley and Small, 1988), to the port side and superstructure of a motor torpedo boat destroyer, built into the bank around 1920. One of the most prominent ship-breaking companies Thomas Ward Ltd had yards at Lelant and Hayle.

Rumours of a possible submarine buried under the sand at Coronation Park (formerly Coombe Mud), Dartmouth are supplemented by contemporary photographs of a vessel lying on mud flats. It has been speculated to have been either the *E52* or the *A8*; the latter having been sold to the Phillip Yard at Dartmouth and stripped there (World Naval Ships). More tangible evidence for partly-scrapped remains can be found at Humble Bee Creek on the Medway. Despite difficulties of accessing the remains, they are visited (Kent History Forum; MSEP, 2011). 'The boats were purchased for scrap by a Mr Albert Batchelor (who owned a local cement works) and their engines and generators removed at his works in Halling. How the three boats that can still be seen today ended up on Stoke Saltings (the other two are at Slede Creek) is unknown, ... only the two boats at Slede Creek were actually scrapped, possibly because of the difficult working conditions. Attempts to identify the remaining boat remain unresolved' (MSEP, 2011). There are rumours of remnants of a K Class submarine (*K15*) in Portsmouth Harbour (see Annex 4). This all implies that the exact fates of boats, even when they were sold and are recorded as 'scrapped' is sometimes less than clear, that the possibility of remnants in certain areas should not be discounted, and that further research (both documentary, particularly in commercial archives, and survey) might be beneficial.

4.3.5 Deposition Causes

Table 07 shows the location of known wrecks by coastal county.

County	Number of submarine wrecks
Cornwall	29
Cumbria	1
Devon	8
Dorset	12
Durham	1
East Yorkshire	3
Essex	2
Hampshire	8
Kent	32
Lincolnshire	1
Norfolk	4
North Yorkshire	9
Northumberland	5
Suffolk	5
Sussex	9
Tyneside	1

Table 7 Summary distribution of wrecks by County

As Chart 03 below shows, deposition patterns of submarine wrecks vary considerably between the German and Allied examples. The German losses (82) can be divided simply into two sets of war losses, 44 in the First World War and 22 in the Second World War, and a further 16 examples of boats lost on the way to the breakers, or incompletely broken up, in the interwar period. The Allied boats (27) show a wider, and more even spread of reasons. For the allied submarines, the 'main locational histories' of the boats confirms the patterns described above. Only six can be described as war losses, with a further seven lost in peacetime accidents (3 pre-War, 4 Interwar). Seven were lost on the way to the breakers, six were sunk as targets and one was sunk for a film.

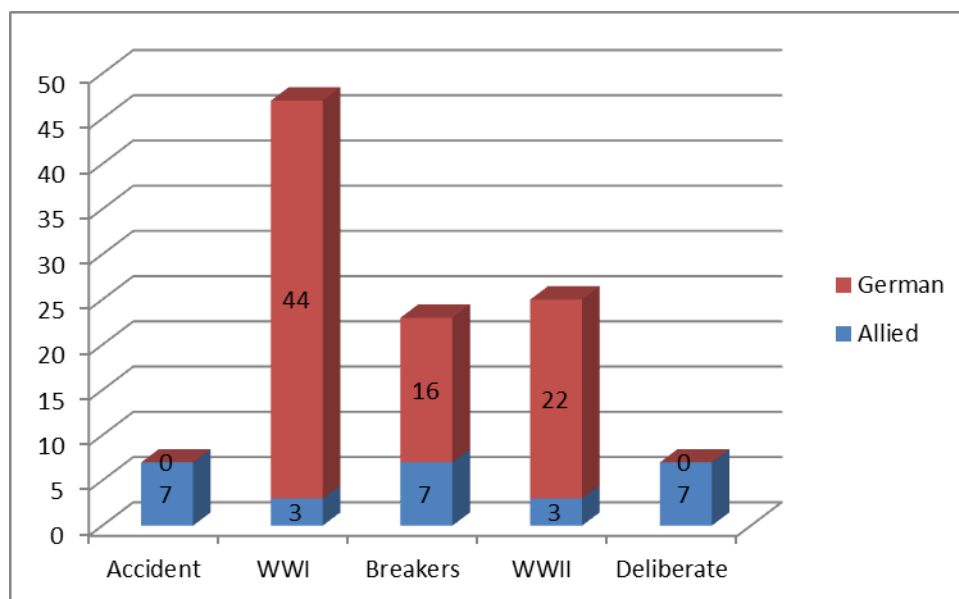


Chart 04: Deposition patterns of submarine wrecks by 'fate'

The cause of loss may be used as a partial guide to the potential of the wreck to survive in good condition, with some loss reasons implying a greater degree of survival. Thus it may

be suggested that the 16 vessels reported to have foundered could survive in better condition than the 24 that were sunk from depth charges. However, the individual wreck assessments have shown this to be a side issue, and that in practice a greater range of factors, some not apparent at the level of research conducted for this project, have affected the current condition of a site on the seabed. Indeed, in many respects vessels lost by aggressive action during wartime are more likely to have remained on the seabed free of interference for longer than better known, well surveyed peacetime losses. This anonymity has protected some sites from losses associated from commercial salvage, clearance (either for reasons of navigation or munitions) and casual recovery of fixtures, fittings, stores and personal effects by divers.

Wrecks lost as a result of stranding have all been broken up where they came to rest. Therefore they will be poor in terms of the condition of any surviving remains. However, these sites will potentially be accessible to a much greater number of people (rather than just divers), and as such offer the possibility for display and interpretation.

Another factor that may affect the significance of a wreck on the seabed is connected with the circumstances of loss. Of the 28 sites where the seabed remains are connected with a secure Identification, 15 are Allied Vessels and 13 are German. Amongst the Allied losses, the 4 Pre-First World War Losses (*Holland No. 5, A1, A3 and A7*) were all lost as a result of foundering whilst under tow or, as in the case of the *A3*, deliberate scuttling (in that case for use as a gunnery target).

The only Allied wartime loss within ETM, *Umpire*, was run down by an armed trawler after having suffered engine failure. The interwar losses were all the result of accidents with the exception of the loss of the *H52* that was sunk as part of the making of a film (see 5.4 below for more details). Some of the accidental sinkings resulted in great loss of life and have left important seabed remains (e.g. *M1* and *M2*), however it is not the cause of loss that is the main feature contributing to these sites significance.

Of the German losses, nine occurred during the First World War. Four losses were (or may have been) caused by submarines striking mines (*UB41, UB81, UB107* and *UC51*), of which the loss of *UB81* is notable in that after striking a mine the crew managed to raise the forward torpedo tubes above the surface and seven crewmen escaped before a collision occurred with a British patrol boat and she sank. *UB41* may have been sunk by a German mine illustration the indiscriminate nature of this form of warfare.

UB74 was sunk by HMS *Lorna* with depth charges. The loss of *UC70* was by the same means, however in this case it involved cooperation between different arms of the military. The submarine was spotted lying submerged and was attacked by a Blackburn Kangaroo patrol aircraft before being sunk by depth charges from the British destroyer HMS *Ouse*. The loss of *U8* was also not straight forward. She became trapped in anti-submarine nets, was forced to surface and sunk by gunfire from HMS *Gurkha* and HMS *Maori*.

The loss of *UB65* remains unknown in spite of detailed diver investigation. One theory is that she suffered a leak. *UC75* was rammed and sunk by HMS *Fairy*.

Of the four later losses, *U322* was found in the channel where she was believed to have been sunk by a Canadian frigate HMCS *Calgary*, discounting the previously held belief that she had been sunk off Shetland. *U1274* was sunk in the North Sea by HMS *Viceroy* with the loss of all hands.

4.3.6 Summary

With a few isolated exceptions, many of the submarine wrecks in English Territorial Waters are found in tight or more broadly defined geographic clusters. Although many losses during peace time were the results of accidents, the vessels involved were often, if possible, salvaged and some were later deliberately sunk as targets. Vessels under tow, to and between, scrapyards were lost in significant numbers. During war time the clusters largely result from specific military circumstances. The large numbers of German boats caught by the Dover Barrage/Patrol are the most obvious example. The locations of bases from which submarines trained and sailed also changed through time in response to military requirements and in turn they effected where submarines were likely to congregate and be wrecked.

5 ASSESSMENT

5.1 CURRENT SITUATION

Currently, only two submarines in English Territorial Waters, *A1* and *Holland No. 5* are currently designated under the Protection of Wrecks Act 1973 (PMRA) in England while a further eleven* (*A7*, *L24*, *M1*, *M2*, *Swordfish*, *Umpire*, *U12*, *U1018*, *U1063*, *UB 65* and *UB 81*) are presently designated under the Protection of Military Remains Act 1986 * *U1063* added 2012. Note that as of the Schedule June 2012, submarines *E18*, *E50* and *G8* are also protected under the PMRA, but lie outside English Territorial Waters. Note that *U12* was nominated by German authorities to represent all others lost in UK jurisdiction, although the wreck itself has not been located and therefore doesn't appear in this assessment.

There are also submarines that have some protection by virtue of having become museum/display ships (some of which are part of the National Historic Fleet). Despite enthusiasm and dedication by many people, with funding uncertain and high conservation costs, and with the recent examples of two Oberon Class vessels in mind (*Onyx* in the UK and *Otama* in Australia), it is probably safe to say that vessels in Accredited Museums are likely to have a more secure future than others (see Annex 2 for further information).

There are three unprotected pre-First World War vessels in English Territorial Waters which sank more than one hundred years ago. Article 1a of UNESCO Convention on the Protection of the Underwater Cultural Heritage 2001, defines "Underwater cultural heritage" as all traces of human existence having a cultural, historical or archaeological character which have been partially or totally underwater, periodically or continuously for at least 100 years'. Although the Convention would not apply within the 12 nm limit of English Territorial Waters and has not yet been ratified, the Burlington House Seminar (October 2005) raised awareness of the Convention, and it seems likely that extra consideration might be given to vessels sunk more than one hundred years ago.

UNESCO sees the merits of preservation *in situ* or, if necessary for scientific or protective purposes, the careful recovery of underwater cultural heritage. UNESCO web pages also contain a statement on "the great historical significance of the underwater cultural heritage of the First World War. The wrecks of the FIRST WORLD WAR are an important historical source of information. Many of them represent the highlight of the 20th century technology. Historians and underwater archaeologists can understand from their study how people were living in those ships, what kind of tools and machinery they were using as well as find elements of their personal lives like personal belongings, books, clothes and shoes'. If all those cultural remains were to be lost, the history of the 20th century would lack an important witness".

<http://www.unesco.org/new/en/culture/themes/underwater-cultural-heritage/world-war-i/underwater-cultural-heritage-from-wwi/> (accessed 30/08/2013).

5.2 INDIVIDUAL BOAT ASSESSMENTS

The objective of this stage of the project was to ‘identify (and accurately locate through desk-based sources) the best examples of asset types (coupled with a condition assessment of those assets most at risk through neglect, decay or other threats)’ and to recommend sites for selective investigation. There follows, a presentation of the factors contributing to the assessment phase and summary results. Detailed results of the assessment in the form of individual wreck-specific assessments are given in Annex 1.

A summary sheet has been prepared for each wreck containing the following:

Name, Class, Monument Number, NRHE Number, County, District, Parish, Area, Street, Maritime location, Location, Last updated by EH, Depth, UKHO number, Build dates, Loss Dates/ cause, Crew loss, Period, Rarity, Documentation, Group value/campaign information, survival /condition, fragility/vulnerability, manufacturer, other examples, status/designation, ‘Amenity value’, pertinent references, and a summary statement.

While most of these are straightforward, some require some additional explanation. Period, Rarity, Documentation, Group Value and Survival /Condition are non-statutory criteria used in assessing vessels for scheduling (English Heritage, May 2012, 9). Potential has not been used specifically, although historical associations – particularly in terms of vessel service records and crews or commanders have been noted. Fragility/Vulnerability and Diversity are two additional criteria used when assessing sites to designate under the Protected Wrecks Act (1973) as being likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance (ibid, 11). This study, being a consideration of a single class of vessel, ‘Diversity’ has not been specifically addressed but information regarding the numbers of each represented class built has been noted under ‘rarity’. Only estimates can be made of the likely numbers of surviving wrecks anywhere in the world for any given class because of the uncertainty of the ultimate disposal of many warships after decommission.

The Individual Boat Assessment comprises:

- Name*, Class*, Monument Number, NRHE Number, County, District, Parish, Area, Street, Maritime location, Location, Last updated by EH. These are all derived from EH records & Pastscape. * See also Location (and identity) below
- UKHO The number is from UKHO records
- Location* The locations and vessel identities cited in EH records derive from various sources (including historical loss accounts, historic and recent dive reports, and UKHO surveys), and they vary considerably as to reliability. As McCartney (2003, 16) has rightly pointed out, “the historical loss register for operational U-boats is not accurate. The loss register for British submarines is little better... The proper examination of sites by divers who report what they know will help to increase the accuracy of all loss registers in the future”. McCartney cites the example of the Swordfish previously reported as lost, position unknown, located by Martin Woodward in 1983, and examples of how boats found by survey have been identified by divers. As he points out (ibid, 17), the practice in the past has been for survey information on the location of submarine wrecks to be married with information in loss registers sometimes resulting in confusion. This study has noted those wrecks where position or identities are not confirmed, or are less than confidently stated, and has indicated wrecks that would particularly benefit from

further survey (diver/ROV) work, allowing better judgement of the significance of the remains.

- Depth – this is variously cited by different sources and depending on tidal information, the upper part of the submarine or lowest point is used etc. So the depth given may be taken as approximate, and from a number of sources.
- Build dates, Loss Dates/ cause, Crew loss: Again – these may be variously cited by different sources. Re: crew loss. Whether or not human remains are known or likely to be present is an MOD PMRA Designation criteria (Criteria, A 2001). The crew loss field raises two points. One is the likelihood of crew remaining on around a vessel. The public unwillingness to interfere with recent dead is backed by national and international law, although the definition of ‘war grave’ is in some cases open to question. Red Cross International Humanitarian Law contains provision for the dead (Petrig, 2009) and there is some popular debate amongst the diving community (for example, see ‘Ask an Expert: should you dive war graves?’ on <http://www.scubadiving.com>). As late as 2012, the mechanisms for protection of wrecks with human remains, are still being debated internationally (Forrest, 2012). The second point relates to the contemporary and current feelings engendered by the loss of the crew, in survivors, relatives and the larger population (in areas particularly associated with a boat, and generally). (Specific memorials, where known, have been noted under ‘amenity’, although this is not likely to be exhaustive).
- Period - see methods
- Rarity – a combination of number of type in class built and the number not known to have been scrapped or otherwise disposed of
- Documentation – This is a combination of historical loss reports, published accounts and documents in archives and collections or on-line. The latter IS BY NO MEANS exhaustive, but includes examples which were come across during the background research. It was beyond the scope of the project to conduct detailed desk-based research on individual boats. (Likely sources of further documentary information are presented in Annex 6). The key difference is between boats which went out and disappeared with no explanation, and those with a historical loss account. There is also some scope here to distinguish between those boats with a long war (or peacetime) record, or with notable achievements, and those boats which were lost for example in training or on their first patrol.
- Group value/campaign information - ‘a vessel’s importance may be strengthened by an association with other vessels of a similar type...Association within a wider context which reflects their use can also be a consideration. In the case of hulks, as well as having an intrinsic interest, they can contribute to the story of a landscape...’ (English Heritage, May 2012, 9). In the case of German submarines, they may be associated with vessels they sank prior to their own loss, even if not physically located in the same place.
- Survival /condition – as reported by EH and other sources
- Fragility/vulnerability – from several sources including dive reports. Seabed conditions noted.
- Manufacturer
- Other examples (addresses diversity)
- Status/designation
- Amenity value - A somewhat subjective field. Acknowledging the interests of the non-diving public, and noting the seamless nature of historic environment across the land and sea (Roberts and Trow, 2002) a few general comments might be made. The 37 principal seaside towns of England and Wales have a combined

population of just under 2.9 million people (5.7% of the population of England as a whole). Adding in small seaside towns (with a population of less than 10,000) would probably bring the total to around 3.1 million (Beatty et al 2008, 14;). Year round employment, supported by seaside tourism in 2006-8, was estimated as 210,000 and seaside tourism is growing (Beatty et al 2010, 48). One estimate of adult participants in spending leisure time on the beach in 2012 is 6 million and a best estimate of number of adult participants in leisure sub aqua diving (UK) for 2012 is 208,000 (Arkenford Ltd 2012, 6). There are in the order of 300 maritime museums in the country (Cambridge, 2012), and parts of submarines and artefacts and memorabilia from them are exhibited both in museums and less likely places (Annex 3). Based on a sample survey in 2007-8, an estimated 18 million people visit museums and galleries, and 8 million were estimated to be visiting industrial heritage (English Heritage, 2011, Appendix 1). Encouraging greater availability of information about and understanding of maritime heritage and local submarine wrecks in particular is therefore a legitimate aim. The positive local economic benefit of a protected wreck has been demonstrated by the Nautical Archaeology Society (<http://www.nauticalarchaeologysociety.org/content/local-economic-benefit-protected-wreck>). The views of the diving community are important both in their own right and as an indicator of the amenity value of the wrecks in this study. The current contents of dive-club websites and popular dive magazines have been used to judge which wrecks are seen as popular dive sites. The latter are described as 'dive site': This does not imply that other wrecks are not dived on. Memorials, though not strictly amenities, are mentioned here as they reflect the contemporary and on-going social interest in and concerns about wartime sacrifices and the necessary levels of respect for the dead.

- Pertinent references – not exhaustive and has NOT repeated the references cited in EH reports. Includes dive reports where used.
- Summary statements

5.3 ANALYSIS OF THE INDIVIDUAL BOAT ASSESSMENTS

The Individual Boat Assessments (IBAs) have demonstrated certain patterns and groupings which are discussed below. A number of factors – each with a sliding scale, have had to be considered. Of particular significance, are the following: Is a boat?

At particular risk?	Already Protected?
Significant – (by merit of either service record or rarity of type)?	A less 'significant' boat?
Well identified?	Unknown, or known only by type?
Part of a group (in terms of location and or of a specific campaign)?	An isolated example?
In good condition?	Dispersed into debris?

The same boats will, of necessity, feature in more than one, sometimes overlapping factor and possibly at different ends of the scale for different factors. A 'summary statement' has been made based on the overall qualities of each boat. Recommendations will depend on what factors are seen as the most significant. Consideration for protection should be given to significant wrecks, in reasonable condition, where identity is secure. Consideration might also be given to protecting an example from within each identified 'group'.

5.4 ALLIED VESSELS

There are six pre-war British submarine wrecks lost before the First World War, all securely identified. All such early surviving examples have an intrinsic merit as early submarines. The *Holland No. 5*, and two of the three A class vessels (*A1* and *A7*) are protected. The remaining three boats are all dive sites. *A3* and *B2* are described as in good condition and *C11* as poor condition. *B2*, as the only B Class example, must be considered particularly significant. The three boats lost during the First World War (*C29*, *E6* and *D5*) must by virtue of their age and their loss during the war, also be considered significant, although it appears that condition may be poor and identities need confirming.

Of the nine allied vessels lost between the wars, three are protected (*L24*, *M1* and *M2*). Of the others, four are reduced to debris only (*E43*, *G3*, *G11* and *L1*). The remaining two boats are both examples of the effective First World War H Class, both sold for breaking. *H11* is an early example of its class (and therefore significant), with a war record, manufactured in America and sold in 1921, she is described as being in good condition. The wreck is also a dive site. *H52* is however described as intact but damaged. A later example of the class, used as a training vessel and sold in 1927, she was deliberately sunk in 1928 as part of the film *Q Ships*.

The film, which depicts the use of merchant ships with concealed weaponry to sink unsuspecting U-Boats, is a fictional account but a number of the cast were former servicemen that had served on Q Ships. However, the heritage value of the *H52* in relation to this facet of the First World War battle at sea, given that it is a British submarine used to depict a U-Boat in a film, is questionable. As an aside to this, HMS *Stock Force* the Q Ship that was the inspiration for the film, was identified by divers in 2013.

Two of the three allied boats sunk in English Territorial Waters during the Second World War (*Swordfish* and *Umpire*) are protected. The third, *Unity*, launched in 1938 and serving from Blyth was lost in a collision in 1940, is an East coast wreck, described as intact though damaged, and is a dive site.

None of the six allied boats sunk post-war are protected. One, the *Minerve*, would have been a significant wreck, being the only Free French example in English Territorial Waters, however it is largely dispersed with only debris remaining. The *P555* (built c. 1918-1922) is a significant wreck, being the only example of an American Lend-Lease submarine in English Territorial Waters. It was sunk as a target in 1947, is in good condition and is a dive site. Three of the four remaining vessels (two S class and two U class) were deliberately sunk as targets (*Sidon*, *Upstart* and *Untiring*). *Safari*, *Untiring* and *Upstart* had significant war records. The *Safari* has links with Dereham, and the *Upstart* with Pontefract, both having been adopted by those towns during 'warship weeks'. The *Untiring* and the *Upstart* also served with the Greek Navy. *Sidon* is locally important due to having suffered a fatal accident in 1955, and is a dive site. Three of the boats *Safari*, *Sidon* and *Upstart* are noted as being largely intact but having been partially salvaged or being under threat of salvage. The *Untiring* is described as intact and in good condition.

5.5 GERMAN VESSELS

It should be noted that questions still remain about the identities, date, class and location of a number of these submarines. The results must therefore be treated with caution. Particularly problematic wrecks are noted in the text below.

5.5.1 *First World War*

Three pre-war U-boats lost in English Territorial Waters during the First World War have been identified (*U8*, *U11* and *U37*). By merit of their early date and rarity (small numbers built in class), these are all significant wrecks. *U8* stands out as being securely identified, intact, in good condition and a dive site. *U48* (1916) was the only other U class boat lost in English Territorial Waters in the war (and the same considerations apply). This wreck is however buried in sand and has only occasionally been exposed, the last time being in 1973.

The majority of German First World War wrecks are UB and UC class boats. There are only three possible rare UBI Class boats in English Territorial Waters, of which *UB4* is a debris field. Both *UB12* and *UB17* are poorly identified or doubtful. There are six UBII Class boats and 11 UBIII Class boats. Two of the latter, *UB65* and *UB81* are already protected and both are late war southern examples (of which there are two other examples). The other boats fall into two main groups, seven (three UB's and four UC's) are boats which served with Flanders Flotilla and which were wrecked in the Dover Patrol campaign. A further Flanders Flotilla UBIII boat was wrecked off Kent. Five (two UB's and three UC's) fall into a more loosely-defined group of boats wrecked on the (mainly North) East coast late in the war. There are, additionally, two further boats, *UB29* (UBII Class) and *UB113* (UBIII Class) where identities and or wreck-sites are doubtful, the latter boat having two different EH monument numbers, each apparently associated with a wreck. The condition of the wrecks is variable, though many are described as intact but damaged, and many are dive sites.

The UC Class boats follow similar patterns. There are three possible rare UCI Class boats, one (*UC2*), is an early East coast boat that has been reduced to a debris field. One, *UC6*, a Flanders Flotilla boat wrecked in the Dover Patrol campaign, is described as intact but damaged, and the third *UC11*, is the result of a 1977 Echosounder survey. Both of the latter need further identification work.

The 16 possible UCII wrecks in English Territorial Waters comprise seven boats which served with Flanders Flotilla and which were wrecked in the Dover Patrol campaign, and five which fit the more loosely-defined group of boats wrecked on the (mainly North) East coast late in the war. Three boats appear to have been wrecked late in the war (1917-18) off either the South or East coasts. The latter '*UC62*' is particularly poorly identified and in fact is described in the record as 'not *UC62*'. A single UCII class boat of mid-war date (*UC19*) lies in the Southwest but again needs identification work.

Two of the UC Class boats have been reduced to debris, two are part-buried, eight are noted as intact (though some of these are damaged), and five are noted as dive sites. The attributes and identities amongst this class of wrecks are particularly poor.

5.5.2 *Inter-war*

A range (U, UB and UC Classes) of German wartime boats were lost in the inter-war period, almost all as a result of the scrapping programme. Boats were allocated to/acquired by yards, sold on, tied up on mud flats, and towed away for destruction. What is left is a small remnant, accidentally preserved, of the vast numbers of such boats disposed of after the end of the First World War. Once again there are some patterns to be observed.

The most significant boat is the privately owned *U90*, one of only six in its class (*U87* Class), and with a war service record. The wreck is fairly intact, and a dive site. The other dive site in this category (*UB60*) needs its identification confirming, as does *UB117*. *UB21* has been reduced to a debris field.

The largest group is of six boats that were tied up in Falmouth Bay to await use as targets, but, which broke their moorings and were blown ashore in February 1921. Five of the six are UBIII's and the sixth is a rare UCIII. The boats were heavily salvaged *in situ*, and what little remains has been described as confused debris in the gullies just below the low-water mark. There are, however some larger fragments, and the wrecks are noted as shore-dives. A further boat (*UB118*) might have been going to be added to this group, but broke its tow near Falmouth in November 1920. It is in better condition, although it too has been partly salvaged. There may be some group value in these boats despite the condition and problems identifying specific parts of specific vessels.

Another, smaller, group is located in the Medway, Kent. It comprises the remains of three submarines (remnants from a larger group) which were laid-up on the mud for scrapping. One is a hulk with substantial surviving remains within East Hoo Creek, Stoke Saltings and the other two, which lie in Slede Creek, Stoke Salting, may survive less well (they appear from the aerial photographs to have been cut down to the lower hull). Despite the remote location the hulk is visited (MSEP, 2011), and an assessment of a range of aerial photographs starting in 1940, indicate that there are many other vessels hulked in that same area as the submarines (including a number of barges alongside the submarine in East Hoo Creek), some of which may represent further fragments of U-Boat, though none of the other hulks are obviously submarine-related.

A heavily salvaged and badly broken up wreck lying off Eastbourne (East Sussex) is the *UB130*. Three more boats were broken up on beaches in East Sussex and are on the list as it is just possible that debris remains under the sand.

5.5.3 **Second World War**

Some 22 German submarines lost during the Second World War, have been identified in English Territorial Waters; some, as usual, with more confidence than others. Three of these boats were significant boats of Inter-war build dates; *U13* and *U16* (the only two examples of the UII Group B, and 'probable identities') and *U40*, the only example of a Class IX Group A boat (eight in class) in English Territorial Waters. All three boats saw war service, *U13* having undertaken nine patrols. All three are largely intact (the latter two with some damage or salvage), and *U13* is noted as a dive site.

The remaining boats are all either Type VIIC boats (14) or Type VIIC/41 examples (five), described as the most numerous, and the most successful, submarine design of all time (Möller, 2004, 73), in service between 1940 and 1945. These wrecks are all late war examples. Two of the latter, *U1018* and *U1063* are protected under the PMRA. One of the examples of the Type VIIC (*U480*) stands out in that it has an Alberich coating. Many of the boats are intact, though damaged and at least seven are noted as dive sites. Four are noted as needing further identification work.

In terms of distribution, there is a large group in the Southwest (Cornwall), comprising *U247*, *U325*, *U399*, *U400*, *U650*, *U681*, *U1018*, *U1021*, *U1199*, *U1208* and *U1209*. This group has a protected 'representative' boat – *U1018*. A second, smaller, group of five U-boats (*U275*, *U322*, *U480*, *U1191* and *U1195*), can be more loosely categorised as 'South Coast' (incorporating East Sussex, the Isle of Wight, Dorset, and the Scilly Isles). One of the five (*U1191*, based in St Nazaire with the 7th Flotilla, lost in June 1944) may be of more historic interest than some of the others, as it may have been involved with attempts to disrupt supplies to France. Another U-boat, the protected *U1063*, is isolated off Devon. Two

further are wrecks of this period are notable for their isolated positions much further North than the majority: *U2024* off Cumbria and *U1274* off Northumberland.

6 RECOMMENDATIONS

6.1 PROTECTION

Consideration for protection should be given to significant wrecks, in reasonable condition, where identity is secure. Consideration might also be given to protecting an example from within each identified 'group'. The following list summarises the results of the current research and the preceding sections. The examples which might be considered are:

- *A3* is a very early boat however other two A class vessels are protected
- *B2* is a strong candidate. Technology: improved performance over A class due to second pair of hydroplanes (Note: some went to the Mediterranean)
- *C11* one of the last class of petrol engined boats
- *D5* ID needs confirmation and condition poor – but, first independent British design, larger and significant technological advances
- *H11* Strong candidate. Example of US made boat & one of most successful classes, served in 8 navies, over 70 built
- *H52* is a later example of a H class vessel
- *Unity* is a class name boat, 1 of the first three of what became the backbone of WW2 RN submarine fleet
- *P555* is a lend-lease vessel and as such is rare, it also had a long operational history
- *Safari*, *Untiring*, *Upstart* all have good WW2 service histories
- *U8* is a rare, early vessel
- *UB12*, *UB17*, *UC6*, one or all may be considered as examples of small, rare, purpose-built early UCI and UBI types, but all need IDs confirming
- Representative example(s) from wreck group UBII – *UB30*, UBIII – *UB75*, UCII – *UC70* may be considered on the basis of group value
- Representative example(s) from wreck group UBII – *UB55*, UBIII – *UB109*, UCII – *UC46*) may be considered on the basis of group value
- *U90* is privately owned, but is a rare later cruiser
- The Medway boat is an icon of the gateway to England, although access is limited
- *U40* is a early rare WW2 loss
- *U13* is a early rare WW2 loss
- *U16*, though only if *U13* identity is not confirmed and *U16* ID is in reasonable condition
- *U480* Alberich - coating makes this significant
- *U1191*, *U1195* and *U1274*? May be considered if more examples of the iconic WW2 Type VIIc's are needed. 1191 may be considered due to its D-day connection

6.2 SURVEY

Given the lack of certainty over so many of the wrecks, consideration should be given to targeting resources to allow surveys to confirm presence, type or identity of submarines.

Co-operation with the diving community may also be considered, targeting wrecks where the identity is less than certain. This could be an extension of the Nautical Archaeology Society's Adopt a Wreck scheme (part of the wider Dive with a Purpose initiative introduced in 2000).

6.3 INFORMATION BOARDS

Given the on-going public interest and wish to involve the non-diving public, there are several locations where information boards about local submarine wrecks or episodes of submarine breaking on beaches could be useful. This could also allow co-operation with local museums that hold artefacts and or local history collections with relevant archival material.

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8 ANNEX 1: INDIVIDUAL WRECK-SPECIFIC ASSESSMENTS

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8.1 Allied Vessels

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CA 40: Holland No 5		Holland class	
MONUMENT NUMBER:	1397999	COUNTY:	EAST SUSSEX
NMR NUMBER:	TV 79 SE 14	DISTRICT:	ROTHER
LAST UPDATED:	2008	PARISH:	N/A
Depth	27m	AREA:	SE END ROYAL SOVEREIGN BANK
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699240	LOCATION:	TV 77567 91369
1902-1903			
	08/08/1912 Lost under tow.		
PreWWI			
	One of 5 built. 2 possible surviving wrecks and 1 museum boat. Note that 25-6 built in total worldwide		Cumbria Archive Service BDB 16/L/1824 Photograph of Holland 5 being lowered into the water by crane at Devonshire Dock, Barrow, 1902.
First commissioned RN submarine, beginning of association with Barrow (building) and Portsmouth (training & operating).	Upright intact & reasonably good condition. Conning tower & propeller intact.		Seabed of sand & gravel. Torpedo tube hatch stolen sometime 2008-2010.
Vickers & Maxim, Barrow	Holland I (museum boat)		Protection of Wrecks Act 2004 No3249, 2004/2
<p>YouTube Diving The Wreck Of The Holland V Submarine (Tad Taberer) Controlled diving environment. NAS will be continuing to dive on it 2013 Well known among diving community nationally</p> <p>Refs. 1, 2, 3, 5, 6 (vol 2, 43).</p>			
<p>1904 Fort Blockhouse taken over by submarine service, Holland class used as harbour defence and for research into anti-submarine training programmes One (Holland 1) recovered & on display in RN Submarine Museum, Gosport Hajen, a pirated Holland copy, a museum boat in Sweden O1 main hatch survives in Holland. ALREADY PROTECTED</p>			

CA 37: HMS A1		A class Group 1	
MONUMENT NUMBER:	911782	COUNTY:	ISLE OF WIGHT
NMR NUMBER:	SZ 79 SE 3	DISTRICT:	ISLE OF WIGHT
LAST UPDATED:	N/A	PARISH:	N/A
Depth	12m	AREA:	OFF NE COAST OF THE ISLE OF WIGHT
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1697980	LOCATION:	SZ 76101 94275
1902-1903	18/03/1904. Rammed --/08/1911. Used as a target, sank accidentally on trials while running on autopilot.	11 lost , recovered and buried at Haslar Royal Naval Cemetery	
PreWWI	4 in group 1, 13 in class. 1 of 3 possible surviving wrecks	Cumbria Archive Service BDB 16/L/1636 Correspondence re submarines (1903-1913) Including costs and charges re building of HMS A1.	
Portsmouth, harbour defence	Upright fully intact. Some damage to hull.	Seabed of mud & sand. Survey in 2006 noted that several years of systematic recovery of artefacts including fixtures fittings and torpedo hatches	
Vickers, Barrow	A3, A7	Protection of Wrecks Act 1998 No 2708 No 2393, 2004	
<p>Privately owned (Martin Woodward) who has fixtures and fittings removed for safe keeping in his museum in Benbridge</p> <p>Memorial to the officers and men at Clayhall Royal Naval Cemetery, Haslar, with additions to men of A3, A5 and A8</p> <p>Refs: 1,2, 4, 5, 6 (vol 2, 128) Wessex Archaeology, 2006 HMS/m A1 Bracklesham Bay Designated Site Assessment Archaeological Report Unpublished Client Report 53111.03jj</p>			
<p>Directly derived from and 40' longer than preceding Holland class.</p> <p>First loss of RN sub, raised 1904, put back in service.</p> <p>ALREADY PROTECTED</p>			

CA 20: HMS A3		A class Group1	
MONUMENT NUMBER:	904626	COUNTY:	DORSET
NMR NUMBER:	SY 86 NE 2	DISTRICT:	PURBECK
LAST UPDATED:	2007	PARISH:	N/A
Depth	38m	AREA:	5 MILES SOUTH OF LULWORTH COVE
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1700020	LOCATION:	SY 86701 69398
1902-1904	02/02/1912. Sank in collision 17/05/1912. Sunk as target	14 lost, bodies recovered	
PreWWI	4 in group 1, 13 in class. 1 of 3 wrecks	Cumbria Archive Service BDB 16/L/1636 Correspondence re submarines (1903-1913) Including costs and charges re building of HMS A3. Cumbria Archive Service BDB 16/L/1341 Album of submarine photographs (1887-1932) including: HMS A3.	
Portsmouth training role	Upright & reasonably intact. Brass conning tower hatch & porthole window removed.	Mostly gravel & rock seabed.	
Vickers, Barrow	A1, A7		
<p>Divemagazine.co.uk Weymouth's Submarines www.guildford-bsac.com Deeper stuff in Weymouth Hatch in museum in Weymouth</p> <p>A3 crew added to the A1 Memorial at Clayhall Royal Naval Cemetery, Haslar.</p> <p>Refs: 1, 2, 5, 6 (vol 2, 160).</p>			
SIGNIFICANT EARLY BOAT, BUT A1 & A7 ALREADY PROTECTED.			

CA A7: HMS A7		A class Group 2	
MONUMENT NUMBER:	919768	COUNTY:	CORNWALL
NMR NUMBER:	SX 34 NE 1	DISTRICT:	CORNWALL
LAST UPDATED:	2006	PARISH:	N/A
Depth	33m	AREA:	OFF RAME HEAD
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700640	LOCATION:	SX 36343 47943
1903-1905			
	16/01/1914. Sank during training	11	
PreWWI			
	9 in group 2, 13 in class. 1 of 3 wrecks	Photo on wiki commons http://en.m.wikipedia.org/wiki/File:HMS_A7.j pg	
1913-4 1st Flotilla Devonport			
	On the bottom of Whitsands Bay. Upright & largely intact, in the mud, down to what would be her surface marks. Her periscope is up, and her conning tower and nearly all her fittings are still in place.	Some bits removed in 1999 now local police prosecute. Within a present day submarine exercise area.	
Vickers, Barrow			
	A1, A3	PMRA Order 2002 No 1761 PMRA Order 2006 No 2616	
<p>She is instantly recognisable from her photographs, and as you hover above her to stop the mud swirling up and obscuring her, you can on a good day see the whole length laid out.</p> <p>http://www.youtube.com/watch?v=WiPsGJFE18U missing the loss of submarine A7 has footage? & photos of burial service, 6th March 1914, plus footage of wreck. http://www.cyber-heritage.co.uk/pete/wreck.htm diver report Refs: 1,5,6 (vol 2, 263)</p>			
ALREADY PROTECTED			

CA 22: HMS B2		B class	
MONUMENT NUMBER:	901840	COUNTY:	KENT
NMR NUMBER:	TR 34 NE 107	DISTRICT:	DOVER
LAST UPDATED:	2007	PARISH:	N/A
Depth	29m	AREA:	4 MILES NE OF DOVER
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001697140	LOCATION:	TR 39804 45643
1905			
	04/10/1912. Rammed	15 lost, 1 saved	
PreWWI			
	11 in class. Only surviving wreck	Collision with SS Amerika	
1905-6 Devonport training, coastal defence 1912 based at Dover			
	Very clean wreck. Conning tower & hatch present. Control room sanded up. A lot of scattered debris away from the wreck	Mixed bed of sand & chalk	
Vickers, Barrow			
	None		
<p>Canterburydivers.org.uk/wrecks "has had her bow buried into the seabed, however the whole of the sub is currently exposed"</p> <p>Memorial to Lieut. P.B. O'Brien, St Ann's Church, Portsmouth</p> <p>Refs: 1,2, 5,6 (vol 1, 273-5)</p>			
SIGNIFICANT EARLY BOAT BUT NOT DISSIMILAR TO A1 & A7 (ALREADY PROTECTED)			

CA 23: HMS C11		C class Group 1	
MONUMENT NUMBER:	907529	COUNTY:	NORFOLK
NMR NUMBER:	TG 44 NW 2	DISTRICT:	NORTH NORFOLK
LAST UPDATED:	2003	PARISH:	N/A
Depth	22m	AREA:	4.5 MILES NW OF HAISBOROUGH LIGHT
		STREET:	N/A
UKHO	1001692920	MARITIME LOCATION:	Coastal Waters
UKHO	1001706490	LOCATION:	TG 40149 49703
1906-1907			
	14/07/1909. Collision		13 lost, 3 saved
PreWWI			
	18 in group, 38 in class. 1 of 7 possible surviving wrecks		With SS Eddystone
1909 with HMS Bonaventure Grimsby			
	Partially buried, very broken up & standing no more than 2m high.		Seabed of sand and shingle
Vickers, Barrow			
	C29		
YouTube Dive on the British Submarine HMS C11 (Andy Jackson)			
Refs: 1,2,6 (vol 1, 156)			
WOULD BE SIGNIFICANT EARLY BOAT BUT POOR CONDITION. SEE ALSO, C29.			

CA 24: HMS C29		C class Group 2	
MONUMENT NUMBER:	984042	COUNTY:	EAST RIDING OF YORKSHIRE
NMR NUMBER:	TA 41 SW 72	DISTRICT:	EAST RIDING OF YORKSHIRE
LAST UPDATED:	2000	PARISH:	N/A
Depth	36m	AREA:	ENE OF SPURN HEAD
		STREET:	N/A
		MARITIME LOCATION:	SPURN HEAD HUMBERSIDE
UKHO		LOCATION:	Not confirmed
1908-1909			
	29/08/1915. Mined	16, no survivors	
PreWWI WWI			
	20 in group, 38 in class. 1 of 7 possible surviving wrecks	Ran into a defensive mine field in North Sea while being used on decoy duties (Gray, 1971/2001,185).	
1913-14 7th Flotilla Chatham to Leith			
1915 part of trawler-submarine pairing out of Harwich	Well broken up? ? Largely intact, conning tower to one side, casing corroded – description not confirmed to be this submarine, location required	Sand	
Vickers, Barrow			
	C11 (C34, Scotland)		
Refs: 1,2,6 (vol 1, 137-9)			
SIGNIFICANT EARLY BOAT AND WAR LOSS IF ID CORRECT. NEEDS CHECK. FURTHER WORK REQUIRED. NB, C34 SCOTTISH WATERS			

CA 38: HMS D5		D class	
MONUMENT NUMBER:	1490366	COUNTY:	NORFOLK
NMR NUMBER:	TG 61 SW 76	DISTRICT:	GREAT YARMOUTH
LAST UPDATED:	2009	PARISH:	N/A
Depth	25m	AREA:	2 MILES SOUTH OF THE CROSS SAND BUOY
		STREET:	N/A
		MARITIME LOCATION:	MIDDLE CROSS SAND NORFOLK
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1910-1912		03/11/1914. Mined	21 lost, 5 survivors
Period		Rarity	Documentation
PreWWI WWI		8 in class. 1 of 5 possible surviving wrecks	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1913-14 8th Flotilla Portsmouth 1914 Harwich, lost in attempt to intercept part of German Fleet returning from bombardment of Yarmouth		Possible wreck – on admiralty charts as a ‘foul’ at site where reported to have sunk - if there will be well broken up.	
Manufacturer		Other examples	Status/Designation
Vickers, Barrow		D6 (Ireland)	
Amenity value			
<p>Refs: 3,6 (vol 1, 168)</p>			
Summary score/statement			
<p>Needs to be dived to establish if it is the wreck of the D5 (Young & Armstrong 2006, 168) NOT POSITIVELY I'D</p> <p>SIGNIFICANT WRECK (ONE OF ONLY 3 WW1 WAR LOSSES IN ETW) IF ID CORRECT. D6 OFF IRELAND.</p>			

CA 26: HMS E6		E class Group 1	
MONUMENT NUMBER:	1384889	COUNTY:	NORFOLK
NMR NUMBER:	TG 36 SE 40	DISTRICT:	NORTH NORFOLK
LAST UPDATED:	2003	PARISH:	N/A
Depth	18m	AREA:	12 MILES SSE FROM THE SUNK LIGHT VESSEL
		STREET:	N/A
		MARITIME LOCATION: NORFOLK COASTAL WATERS	
UKHO	1001706140	LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1911-1913		26/12/1915. Mined	38 lost
Period		Rarity	Documentation
PreWWI WWI		10 in group, 57 in class. 25 possible surviving wrecks	Battle Honour Heligoland 1914
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1913-14 8th Flotilla Portsmouth 1914-15 8th Flotilla Harwich August 1914 Battle of Heligoland Bight		Wreck, believed to be E6 located. Divers report large hole where conning tower should be. Bows blown apart. This report needs to be confirmed, and location required.	Partially buried under sand (Young & Armstrong, 2006, 189)
Manufacturer		Other examples	Status/Designation
Vickers, Barrow		E43 (not intact, inter-war loss), E39 (Wales) E49 (Scotland)	
Amenity value			
Refs: 1, 2, 6 (vol 1, 189)			
Summary score/statement			
Not positively id'd			
SIGNIFICANT WRECK IF ID CORRECT. (E CLASS ICONIC WW1 WORKHORSE SUBMARINE). ONE OF ONLY 3 WW1 WAR LOSSES IN ETW.			

CA 25: HMS E43		E class Group 3	
MONUMENT NUMBER:	907699	COUNTY:	CORNWALL
NMR NUMBER:	SW 65 SE 27	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth		AREA:	WEST OF ST AGNES HEAD
		STREET:	N/A
		MARITIME LOCATION:	ST AGNES HEAD NORTH CORNWALL
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	
1914-1916		25/11/1921. Ran ashore under tow having been sold in January of that year.	0
Period		Rarity	
WWI		35 in group, 57 in class. 25 possible surviving wrecks	
Interwar			
		Documentation	
			1917 accident off Harwich with E36. Royal Museums Greenwich: Swan, Hunter & Wigham Richardson, Ltd. Shipbuilders & Engineers, Wallsend Shipyard, Wallsend on Tyne photograph album Ref: ALB1098. Page 19 – H.M. Submarines, E43 and E44 – E49 behind them [Direct at bow view of two submarines under completion, E43 having already got her hydroplanes – E43 (11/11/1915). Page 20 – H.M. Submarine E43 (1915), direct at E43's stern – Aft hydroplanes and twin screw propeller clearly visible].
Group Value/Campaign		Survival/Condition	
1916-1918 9th Flotilla Harwich		The wreck is now completely broken up and almost entirely buried in sand, but large quantities of non-ferrous metals have been salvaged over the years (Past Scape).	
Manufacturer		Status/Designation	
Swan Hunter		E6, E39 (Wales), E49 (Scotland)	
Amenity value			
Ref: 1			
Summary score/statement			
BEACH DEBRIS ONLY.			

CA 28: HMS G3		G class	
MONUMENT NUMBER:	909126	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	TA 17 NE 2	DISTRICT:	SCARBOROUGH
LAST UPDATED:	N/A	PARISH:	N/A
Depth	0m	AREA:	N/A
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1691640	LOCATION:	TA 16435 75102
Build dates		Loss date/Cause	Crew loss
1914-1916		9/12/1921 Ran aground coming adrift from tow.	
Period		Rarity	Documentation
WWI Interwar		14 in class. 5 possible surviving wrecks	Sold for breaking up Nov 1921
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1916-18 11th Flotilla Blyth 1919-21 Material reserve Portsmouth		Salvaged at site. c. 60 ft of base of hull, 2 diesel engines and drive gear still there.	
Manufacturer		Other examples	Status/Designation
HM DYd Chatham		G11	
Amenity value			
www.fileybay.com/lee/norgate June 2003 two views of submarine at low tide and map of bay			
ref: 1			
Summary score/statement			
BEACH DEBRIS ONLY			

CA 27: HMS G11		G class	
MONUMENT NUMBER:	943553	COUNTY:	NORTHUMBERLAND
NMR NUMBER:	NU 21 NE 8	DISTRICT:	NORTHUMBERLAND
LAST UPDATED:	N/A	PARISH:	N/A
Depth	10m	AREA:	NEAR HOWICK
		STREET:	N/A
Canmore ID	938842	MARITIME LOCATION:	Coastal Waters
UKHO	1703360	LOCATION:	NU 26352 17429
Build dates		Loss date/Cause	Crew loss
1915-1916		22 or 23/11/1918 Ran aground It was secured by large steel ropes to be towed to Blyth after it ran aground	2 lost*, 29 saved *RN Sub Museum memorial has three.
Period		Rarity	Documentation
WWI Interwar		14 in class. 5 possible surviving wrecks	Cumbria Archive Service BDB 16/L/1341 Album of submarine photographs (1887-1932) including: HMS G11.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1916-18 10th Flotilla Tees		Extensive salvage work during 1919 and then again in 1938, at the outbreak of World War II. Little left of G11.	What remains of the wreck lies in a submerged gully that runs seaward from the shore at the low water line and out for about 80-metres.
Manufacturer		Other examples	Status/Designation
Vickers, Barrow		G3	
Amenity value			
Shore dive You can step into the water at low tide and find parts of the wreck dispersed amongst the rocks and weed. There is a solid brass escape hatch visible, albeit well concreted into the nearby rocks, submarine air tanks, rusting air-ducts and bent steel hull plates, part of the keel and the remains of the engines that lie at the deepest point, being around 5m on a low spring tide 'I do know someone who went there at 5am and blasted a huge chunk of brass off it which is now apparently the rather artistic base for a glass topped coffee table. They used slightly too much explosive and the chunk (which weighed in at 17stone) was blasted around 50 feet in the air' ref: http://www.yorkshire-divers.com Refs: 1,2,6 (vol 1,65)			
Summary score/statement			
BEACH DEBRIS ONLY			

CA 27: HMS H11		H class group 1	
MONUMENT NUMBER:	1433619	COUNTY:	NORTHUMBERLAND
NMR NUMBER:	NU 05 SE 23	DISTRICT:	NORTHUMBERLAND
LAST UPDATED:	2006	PARISH:	N/A
Depth	55m	AREA:	6 MILES FROM BERWICK UPON TWEED
		STREET:	N/A
Canmore ID	101617	MARITIME LOCATION:	OFF BERWICK NORTHUMBERLAND
UKHO		LOCATION:	NU 0732 5241
Build dates		Loss date/Cause	Crew loss
1915		21/12/1921. Lost on tow	0
Period	Rarity	Documentation	
WWI Interwar	20 in group, 44 in class. 9 possible surviving wrecks	Sold for breaking 1921	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1918 14 th Flotilla Blyth	Upright and in exceptionally good condition. Key identifying features include the bows, unique external torpedo door, folding hydroplanes, hatch configuration and stern. Periscopes intact. Conning tower has indeed been sheathed in brass or bronze sheeting. Remains of an aerial can still be seen aft of the tower	Heavily netted. There is a major spilt in the top of the pressure hull near the bow, allowing for access into the submarine.	
Manufacturer	Other examples	Status/Designation	
Fore River Shipbuilding Co., Quincy MA, USA	H52, H5 (Wales); Possible wreck H47, (Wales)		
Amenity value			
www.divernet.com McCartney described H11, as 'quite a rare wreck'. Ref: Where is H11?, http://www.scotsac.com/html/scottish-diver/2007/SD_0708/SD%20July_Aug%2007%20where%20is%20H11.pdf ; Diver, April 2007 Ref: 1			
Summary score/statement			
SIGNIFICANT WRECK (WARTIME USE, POST-WAR LOSS) – WORTH CONSIDERING FOR PROTECTION			

CA 39: HMS H52		H class Group 2	
MONUMENT NUMBER:	919757	COUNTY:	CORNWALL
NMR NUMBER:	SX 33 SE 5	DISTRICT:	CORNWALL
LAST UPDATED:	2012	PARISH:	N/A
Depth	45m	AREA:	WEST OF THE EDDYSTONE
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700590	LOCATION:	SX 3689 3462
Build dates		Loss date/Cause	Crew loss
1918-1919		03/01/1928 Deliberate	0
Period		Rarity	Documentation
Interwar		24 in group, 44 in class. 9 possible surviving wrecks	Sold for breaking 11/1927
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1919-1926 Fort Blockhouse trainer		Intact & upright, but 45 degree list & casing rather battered. Bows badly damaged. Some salvage work done as propellers missing. No mention of conning tower.	Seabed of sand, shell, gravel. Deteriorating rapidly.
Manufacturer		Other examples	Status/Designation
HM Dockyard Pembroke		H11, H5 (Wales); Possible wreck H47, (Wales)	
Amenity value			
Deliberately disguised as WW1 uboat & sunk (for film, The Q-Ships)			
Refs 1, 5, 6 (vol 2, 259-60)			
Summary score/statement			
INTACT BUT LACKING HISTORICAL SIGNIFICANCE.			

CA 30: HMS L1		L class Group 1	
MONUMENT NUMBER:	1085401	COUNTY:	CORNWALL
NMR NUMBER:	SW 33 SW 37	DISTRICT:	CORNWALL
LAST UPDATED:	1999	PARISH:	N/A
Depth	0m	AREA:	1 MILE SOUTH OF CAPE CORNWALL
		STREET:	N/A
		MARITIME LOCATION:	CAPE CORNWALL SOUTH CORNWALL
UKHO		LOCATION:	SW 3487 3184
Build dates		Loss date/Cause	Crew loss
1916-1917		29/3/1930 Ran ashore on tow from Chatham to breakers at Newport	0
Period		Rarity	Documentation
WWI Interwar		8 in group, 39 in class. 5/6 possible surviving wrecks. 3 inch AA gun on a disappearing mounting on L1 and L2 only.	Ex E56. Originally going to be E57
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1918 Berehaven 1918 Portsmouth 1919-22 4th Flotilla China Station 1923-28 Reserve, Hong Kong 1928-30 Reserve, Chatham		Poor. Stripped out prior to scrapping, Torpedo tubes and conning tower scrapped where she lay. Steel ribs, plates, valves, pipes and hand wheels can still be seen amid the gullies and shelving rocks	Broken up by tides
Manufacturer		Other examples	Status/Designation
Vickers, Barrow		L24	
Amenity value			
<p>Large piece half buried in sand can be seen at spring low tide. Warning sign for sharp metal but does not say what it is. www.submerged.co.uk has a fine photograph of vessel stranded on rocks at Penanwell.</p> <p>Ref: 1, 6 (vol 3, 36-7)</p>			
Summary score/statement			
BEACH DEBRIS ONLY.			

CA 31: HMS L24		L class group 2 (minelayer)	
MONUMENT NUMBER:	904582	COUNTY:	DORSET
NMR NUMBER:	SY 55 SE 2	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	2008	PARISH:	N/A
Depth	47m	AREA:	11 MILES SW OF THE BILL OF PORTLAND
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699690	LOCATION:	SY 55186 53047
Build dates		Loss date/Cause	
1918-1920		10/01/1924. In collision with HMS Resolution during fleet exercise. Weather too poor to locate & salvage	Crew loss 43 lost, no survivors
Period		Rarity	
Interwar		6 in minelayer group, 39 in class. 5/6 possible surviving wrecks	Documentation Postcard of the funeral service of L24 http://www.isleofportlandpictures.org.uk Photo: http://www.roll-of-honour.com/Ships/HMSubmarineL24.html Newspapers & contemporary documentation etc see www.southwest mafia
Group Value/Campaign		Survival/Condition	
1920-1 Portsmouth submarine school		Upright & intact	Fragility/Vulnerability Deep scour at bow & stern
Manufacturer		Other examples	
Vickers-Armstrong, Barrow		L1	Status/Designation PMRA Order 2008 No 950
Amenity value			
Memorial St Ann's Church, Portsmouth www.visitweymouth.co.uk Deep wreck diving sites in Weymouth and Portland Refs: 1, 2, 5, 6 (vol 2, 178)			
Summary score/statement			
Only L class minelayer off Britain. ALREADY PROTECTED			

CA 126: HMS M1		M class	
MONUMENT NUMBER:	1393674	COUNTY:	DEVON
NMR NUMBER:	SX 81 SE 1	DISTRICT:	SOUTH HAMS
LAST UPDATED:	2008	PARISH:	N/A
Depth	73m	AREA:	OFF START POINT
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	SX 8500 1296
Build dates		Loss date/Cause	Crew loss
1916-1918		12/11/1925. Rammed on exercise in an accidental collision with merchantman SS Vidar.	69 lost
Period		Rarity	Documentation
WWI Interwar		4 in class. 2 wrecks	EX K18 Cumbria Archive Service BDB 16/L/1341 Album of submarine photographs (1887-1932) including: HMS M1. Dock Museum photo: bow view shortly after launch.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1918 11th Flotilla Blyth 1918-20 Mediterranean 1921-4 between Portsmouth and Devonport		Upright but leaning slightly to port. Gun lying off port beam.	On sand, deteriorating & heavily netted.
Manufacturer		Other examples	Status/Designation
Vickers, Barrow		M2	PMRA
Amenity value			
www.msac.org.uk The search for the M1 and HMS Affray. 1999 dive report divernetxtra.com M1&M2 Memorial St Ann's Church, Portsmouth; memorial to Gordon Harding , Endon Bank, Staffordshire Refs: 1, 2, 5, 6, (vol 2, 253)			
Summary score/statement			
Commander supervising building of M1 Max Horton, later Admiral Sir Max Horton CinC Western Approaches 1942-45 ALREADY PROTECTED			

CA 32: HMS M2		M class	
MONUMENT NUMBER:	904645	COUNTY:	DORSET
NMR NUMBER:	SY 57 NE 1	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	2010	PARISH:	N/A
Depth	30m	AREA:	WEST BAY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698700	LOCATION:	SY 59978 75371
Build dates		Loss date/Cause	
1916-1920		26/01/1932 lost, through	60 lost
1928 converted		accidental sinking during exercise	
Period		Rarity	
Interwar		4 in class. 2 wrecks	
			Ex K19. Cumbria Archive Service BDB 16/L/1341 Album of submarine photographs (1887-1932) including: HMS M2. Dock Museum: photo of starboard diesel engine. A salvage attempt soon after the disaster failed. Diary of RN Diver Albert Smale who participated in salvage attempt (Daily Mail, 5th June 2013). The Caird library: MLS/2 Reports dated 19 Feb 1932, on search for "S/M M2", 26 Jan - 4 Feb 1932 Miles, Sir Geoffrey John Audley, Admiral.
Group Value/Campaign		Survival/Condition	
1920-1927 Portsmouth reserve		Intact and upright. The propeller has gone, but virtually all the rest of the vessel is still there. Plainly visible is the jib of the winch over the hangar door which was used to lift the aircraft back on to the launching ramp after launching on the sea. Her hangar doors are wide open and it is possible to look into the interior.	
1932 Portland			On shingle gravel & sand. Hatches have been sealed with steel & concrete.
Manufacturer		Other examples	
Vickers, Barrow. HM Dockyard Chatham for conversion		M1	PMRA
Amenity value			
<p>YouTube Diving HMS M2 Submarine.wmv (DodgeWallaceRacing) www.diversdown-uae.com submarine week (2011)</p> <p>Divernetextra.com M1&M2 "since her rediscovery...has been a port of call for thousands of divers...at a friendly depth of 32m, M2 lies upright and intact"</p> <p>Warhistoryonline.com First-ever memorial to 60 crew – families of crew to pay tribute, trip</p>			

organised by British Sub-Aqua Club in Portsmouth May 26th 2012
Can only be dived at slack water as currants can become quite strong here
[http://www.ukdiving.co.uk /](http://www.ukdiving.co.uk/)
<http://www.westbaydiving.co.uk>
Refs: 1, 2, 5, 6 (vol 2, 198)

Summary score/statement

ALREADY PROTECTED

CA 43: Minerve		Minerve class	
MONUMENT NUMBER:	1234327	COUNTY:	DORSET
NMR NUMBER:	SY 67 SE 107	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	1999	PARISH:	N/A
Depth	5m	AREA:	0.5 MILES NORTH OF THE WEST SIDE OF PORTLAND BILL
		STREET:	N/A
		MARITIME LOCATION:	WEST BAY DORSET
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1931-1934		19/09/1945 Casualty, under tow to breaker's	2 by allied mistake 10/10/1943
Period	Rarity	Documentation	
Interwar WWII	6 in class. 4 possible surviving wrecks	Free French	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1941-3 based Rosyth, Dundee and Lerwick	Badly broken	On bed of gravel & pebbles	
Manufacturer	Other examples	Status/Designation	
Arsenal de Cherbourg	None?		
Amenity value			
Refs: 1, 6 (vol 2, 211)			
Summary score/statement			
Only Free French submarine wreck			
DEBRIS ONLY			

CA 44: P555		American S class	
MONUMENT NUMBER:	1521066	COUNTY:	DORSET
NMR NUMBER:	SY 66 NW 3	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	2010	PARISH:	N/A
Depth	36m	AREA:	4 MILES WEST OF THE BILL OF PORTLAND
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699910	LOCATION:	SY 6046 6859
Build dates		Loss date/Cause	Crew loss
1918-1922		25/08/1947. Sunk as ASDIC target.	
Period		Rarity	Documentation
Interwar		25 in group, 51 in class	SS129/S24 to the RN 10/08/1942 (one of five). WW1 Electric Boat Design submarine equivalent of the flush deck destroyers
WWII			
Post-war			
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1924-38 mainly Pacific		Upright, intact except for deck gun & propellers. Wooden decking has gone.	On sand & shingle
1941-2 Panama area for US			
1942 Sierra Leone			
1942-4 7th Flotilla Rothesay trainer and frontline			
Manufacturer		Other examples	Status/Designation
Fore River Shipbuilding Co., Quincy MA, USA		None?	
Amenity value			
<p>Training boat so lots of different commanders. Divemagazine.co.uk Weymouth's Submarines "awesome dive...large submarine" http://www.ukdiving.co.uk www.diversdown-uae.com submarine week (2011) http://www.marinearchaeology.org/ includes underwater video from 20 years ago</p> <p>Refs: 1, 5, 6 (vol 2, 179-80)</p>			
Summary score/statement			
<p>RELATIVELY EARLY BOAT. ONLY US LEND-LEASE (WW2) SUBMARINE IN ETW, AND LONG HISTORY. SHOULD BE CONSIDERED FOR PROTECTION?</p>			

CA 45: HMS Safari		S class Group 3	
MONUMENT NUMBER:	1520971	COUNTY:	DORSET
NMR NUMBER:	SY 95 NE 3	DISTRICT:	PURBECK
LAST UPDATED:	2010	PARISH:	N/A
Depth	36m	AREA:	8.5 MILES SSE OF SAINT ALBAN'S HEAD
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699590	LOCATION:	SY 9697 5812
Build dates		Loss date/Cause	
1940-1942		08/01/1946 Foundered, (battery explosion?), on way from Gosport to scrap yard in Newport	
Period		Rarity	
WWII Post-war		50 in group, 62 in class. 23 possible surviving wrecks	
Group Value/Campaign		Survival/Condition	
1942-3 10 th Flotilla Malta 1944-5 7 th Flotilla Rothesay as trainer Mainly in Mediterranean. Very successful, shot a tank with torpedo		Intact with hatches open. Most fittings removed prior to scrapping. Conning tower removed 1990.	
Manufacturer		Other examples	
Cammell Laird, Birkenhead		Sidon, Swordfish Sealion (Scotland)	
Amenity value		Fragility/Vulnerability	
Three books written, by CO, telegraphist and ERA. Dereham – a footpath named in 2012 to commemorate. www.diversdown-uae.com submarine week (2011) Refs: 1, 2, 5, 6 (vol 2, 160-70)		On sand & gravel with small rocks.	
Summary score/statement		Status/Designation	
One of the most famous survivors of the Mediterranean campaign Battle Honours: Sicily 1943, Mediterranean 1940-45. NOT WARTIME LOSS BUT HAS SIGNIFICANT HISTORICAL VALUE			

CA 33: HMS Sidon		S class Group 3	
MONUMENT NUMBER:	1521143	COUNTY:	DORSET
NMR NUMBER:	SY 57 SW 3	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	2012	PARISH:	N/A
Depth	22.5m	AREA:	7 MILES WEST OF BLACKNOR POINT
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700010	LOCATION:	SY 5458 7246
Build dates		Loss date/Cause	Crew loss
1943-1944		14/06/1957 Sunk as Asdic target following an explosion & sinking in Portland Harbour on 16/06/1955.	13, all buried in Portland Cemetery
Period	Rarity	Documentation	
WWII Post-war	50 in group, 62 in class. 23 possible surviving wrecks	IWM: KAY1927 Film SALVAGE OF HMS SIDON SUBMARINE. PORTLAND". 16mm B&W silent 1500ft. IWM: 17603 Interview accident to HMS Sidon involving collision with uncharted object off Scotland http://www.roll-of-honour.com photograph	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1944 3rd Flotilla Holy Loch (1 patrol) 1945 to Far East (no patrols) 1955 2nd Flotilla Portland	Upright & intact. Complete apart from the lack of propellers which were removed before the sinking. Name plate removed.	32-7m on sand & shingle Web -post Feb 23/2007 "The SIDON has since been sold for scrap so if you haven't dived it yet you'd better get down here now, assuming you can find it with no name on it"	
Manufacturer	Other examples	Status/Designation	
Cammell Laird, Birkenhead	Safari, Swordfish Sealion (Scotland)		
Amenity value			
Portland, HMS Sidon war memorial Divemagazine.co.uk Weymouth's Submarines "well preserved" Scuba-diving-adviser.co.uk Sidon Submarine "the sub lies perfectly intact...slack time is vital for this dive and it is very short" 'an excellent dive' www.diversdown-uae.com submarine week (2011) http://www.ukdiving.co.uk/http://www.westbaydiving.co.uk Refs: 1:3,5,6 (vol 2, 183-191)			
Summary score/statement			
LOCALLY ASSOCIATED WITH DISASTER, BUT LATE EXAMPLE OF CLASS.			

CA 34: HMS Swordfish		S Class group 1	
MONUMENT NUMBER:	767220	COUNTY:	ISLE OF WIGHT
NMR NUMBER:	SZ 45 NE 6	DISTRICT:	ISLE OF WIGHT
LAST UPDATED:	N/A	PARISH:	N/A
Depth	40m	AREA:	10 NAUTICAL MILES SW OF ST CATHERINE'S POINT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001710400	LOCATION:	SZ 4619 5640
Build dates		Loss date/Cause	Crew loss
1930-1932		07/11/1940 Mined	41 lost. No survivors & no bodies recovered
Period	Rarity	Documentation	
Interwar WWII	4 in group, 62 in class. 23 possible surviving wrecks	Originally presumed lost off Brest (Ushant) but wreck found in 1983 by Martin Woodward. IWM 26543 interview; Aspects of period as stoker aboard submarines... Swordfish in GB coastal waters, 1934-1939: The Dock Museum, photo of Swordfish direct current motor.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Pre-war based at Portsmouth & Portland 1939 3 rd Flotilla Harwich 1940 6 th Flotilla Blyth Lost on 9 th patrol from Blyth	Found in two parts, stern upright, bow over to port). Position not disclosed.	On shingle, sand & gravel	
Manufacturer	Other examples	Status/Designation	
HM Dockyard Chatham	Safari, Sidon, Sealion (Scotland)	PMRA	
Amenity value			
YouTube HMS Swordfish Submarine WW2 Wreck Isle of Wight (jerriarchie) Refs: 1, 5, 6 (vol 2, 150)			
Summary score/statement			
ALREADY PROTECTED			

CA 41: HMS Umpire		U class Group 1	
MONUMENT NUMBER:	907582	COUNTY:	NORFOLK
NMR NUMBER:	TG 06 NE 4	DISTRICT:	NORTH NORFOLK
LAST UPDATED:	2012	PARISH:	N/A
Depth	15m	AREA:	NORTH SEA
		MARITIME LOCATION:	Coastal Waters
UKHO	1001693230	LOCATION:	TG 07200 67618
Build dates		Loss date/Cause	Crew loss
1940-1941		19/07/1941 Collision; rammed by Anti sub convoy escort trawler	22 casualties 16 survivors
Period	Rarity	Documentation	
WWII	12 in group, 71 in class. 23 possible surviving wrecks	Ex P31. IWM 9153 Interview: British officer commanded submarines... Umpire in GB coastal waters and North Sea, 1940-1941...lack of investigation after loss of his submarine Umpire. Also Cat no 12317 Interview. Book: <i>Wingfield at War</i> by MRG Wingfield (2012).	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Brand new, on way to begin trials at Holy Loch, en route from Sheerness	Wreck lies on starboard side Now quite broken & opened up by commercial salvage teams- motors, periscopes, control room implements, bow torpedo tubes gone. 3in gun present part buried away from hull. Live torpedoes present.	On seabed of gravel, silty sand, mud & shells. Commercially salvaged & in bits	
Manufacturer	Other examples	Status/Designation	
HM DYd Chatham	Unity, Untiring, Upstart Vandal (Scotland)	PMRA	
Amenity value			
Divernet.com Wreck tour:55 HMS Umpire Full description with annotated diagram of wreck site "wreck has been blown open by commercial salvage...main objective of the salvors here would have been the copper from the electric motors...the wreck has been opened out completely" "opened up submarine provides plenty to think about" Refs: 1, 2, 6, (vol 1, 152-3)			
Summary score/statement			
CO Lt MRG Wingfield survived to command Sturgeon and Taurus (Malta and Far East, 11 patrols) ALREADY PROTECTED			

CA 35: HMS Unity		U class prototypes	
MONUMENT NUMBER:	1001477	COUNTY:	NORTHUMBERLAND
NMR NUMBER:	NZ 49 SW 2	DISTRICT:	NORTHUMBERLAND
LAST UPDATED:	2003	PARISH:	N/A
Depth	50m	AREA:	6.5 MILES OFF NEWBIGGIN BY THE SEA
		STREET:	N/A
Canmore ID	322833	MARITIME LOCATION:	Coastal Waters
UKHO	1001688980	LOCATION:	NZ 42677 93378
Build dates		Loss date/Cause	Crew loss
1937-1938		29/04/1940. Collision in thick fog.	4 lost, 2 still within
Period		Rarity	Documentation
Interwar WW2		3 in group, 71 in class. 23 possible surviving wrecks	Sunk by SS Alte Jarl Norwegian – part of a convoy . The Dock Museum Barrow, photo NO. 2401, “Launch into Walney Channel”. 15 IWM items including 9578 Interview, British engine room artificer served aboard submarine HMS Unity in GB coastal waters and North Sea, 1939-1940 including sinking
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1939 5th Flotilla 1939-40 6th Flotilla from Portland to Blyth, outbound on 10th war patrol		Upright & reasonably intact, broken open but fairly complete, propellers & conning tower attached	On sand, mud & shell.
Manufacturer		Other examples	Status/Designation
Vickers Armstrong Barrow		Umpire, Untiring, Upstart Vandal (Scotland)	
Amenity value			
Canterburydivers.org.uk/wrecks “This is a fantastic wreck being upright and intact...teams with sealife” Bramley, Hants, church has WWII memorial which includes H J Miller, G.C. of the Unity Refs: 1, 2, 6, (vol 1, 76)			
Summary score/statement			
Warhistoryonline.com Obituary Captain George Hunt died August 16 th 2012 was signals and navigation officer on HMS Unity, later CO of submarines Proteus, Ultor, Taku and Ambush. Unity the 8 th RN submarine to be lost in WW2. WAR LOSS, GOOD CONDITION, CONSIDER PROTECTING?			

CA 36: HMS Untiring		U class Group 2	
MONUMENT NUMBER:	1520823	COUNTY:	CITY OF PLYMOUTH
NMR NUMBER:	SX 53 NE 3	DISTRICT:	CITY OF PLYMOUTH
LAST UPDATED:	2011	PARISH:	N/A
Depth	50m	AREA:	SOME 5 MILES SSE OF STOKE POINT
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700540	LOCATION:	SX 5652 3682
Build dates		Loss date/Cause	Crew loss
1941-1943		25 or 29/07/1957 Sunk as ASDIC target	-
Period	Rarity	Documentation	
WWII Post-war	50 in group, 71 in class. 23 possible surviving wrecks	To Greek navy 1946-52 as Xifias II (Y-10). Six IWM entries including Book: <i>Submariner</i> (1992) by John Coote who was associated with the Untiring and Totem.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1943-1944 10 th Flotilla 14 patrols 1945-52 Royal Hellenic Navy 1953-4 Trainer	Reported to be intact but sonar shows length of 40m. Upright, slight list to starboard. Very good condition & little sign of collapse. Propellers & conning tower still attached.	On firm bed of sand, gravel & silt.	
Manufacturer	Other examples	Status/Designation	
Vickers-Armstrong, Newcastle	Umpire, Unity, Upstart Vandal (Scotland)		
Amenity value			
Reachable from Salcombe & Plymouth			
Refs: 5,6, (vol 2, 245-8) Error in Conways			
Summary score/statement			
Battle Honour: Atlantic 1939-45, Mediterranean 1940-45			
HAD A WAR HISTORY, NOT WAR LOSS. GOOD CONDITION (BETTER THAN UPSTART).			

CA 42: HMS Upstart		U class Group 2	
MONUMENT NUMBER:	1522425	COUNTY:	ISLE OF WIGHT
NMR NUMBER:	SZ 36 NW 5	DISTRICT:	ISLE OF WIGHT
LAST UPDATED:	2010	PARISH:	N/A
Depth	31m	AREA:	9.25 MILES SW OF ATHERFIELD POINT COASTGUARD STATION
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	10016999 70	LOCATION:	SZ 3216 6763
Build dates		Loss date/Cause	Crew loss
1942-1943		9 or 29/07/1959 Sunk as a ASDIC target	-
Period	Rarity	Documentation	
WWII Post-war	50 in group, 71 in class. 23 possible surviving wrecks	One of 25 submarines adopted during warship weeks - by people of Pontefract. (ref: http://www.godfreydykes.info/WARSHIP%20ADOPTIONS%20IN%20WW2.htm) To Greek navy 1945-52 as Amphitriti IWM, 13392 Interview: commanded Upstart in Atlantic and Mediterranean, 1943-1944.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1943-4 10 th Flotilla Malta 1945 Blyth training boat 1945-1952 Royal Hellenic Navy 1952-1955 Blockhouse training boat	Located intact & complete in 1975. Commercial salvage subsequently removed conning tower. Still reasonably intact.	On gravel & shingle	
Manufacturer	Other examples	Status/Designation	
Vickers-Armstrong, Barrow	Unity, Umpire, Untiring Vandal (Scotland)		
Amenity value			
Photo on wiki commons: http://commons.wikimedia.org/wiki/File:HMS_Upstart.jpg Refs: 5,6 (vol 2, 150-2) NB error in Conways			
Summary score/statement			
Veteran of 10 th Flotilla Mediterranean campaign Battle Honour: Atlantic 1939-45, Mediterranean 1940-45 HAD A WAR HISTORY, NOT WAR LOSS. PART SALVAGED BUT REASONABLY INTACT.			

8.2 U Boats

Principal references used in compilation of these sheets.

(1) In service dates, sinking dates from Möller, 2004

CD = canterburydivers.org.uk www.uboat.net, www.wrecksite.eu

Grant = Grant R.M., 2003 *The U-boat Hunters: Code Breakers, Divers and the Defeat of the U-boats, 1914-1918* Periscope Publications

(5) Presence and condition *Lost Patrols* McCartney I., 2003, *Lost Patrols, submarine wrecks of the English Channel* Periscope Publishing

(6,) vols 1-3 Presence and condition *Silent Warriors*

Young R., & Armstrong P., 2006, *Silent Warriors: submarine wrecks of the British Isles 1 England's East Coast to Kent* Tempus Publishing Ltd

Young R., & Armstrong P., 2009, *Silent Warriors: submarine wrecks of the British Isles 2 South Coast Beachy Head to Isles of Scilly* History Press

Young R., & Armstrong P., 2009, *Silent Warriors: submarine wrecks of the British Isles 3 Wales and the West* History Press

CA 49: U8		WW1 Uboat class U5	
MONUMENT NUMBER:	901747	COUNTY:	KENT
NMR NUMBER:	TR 21 NE 2	DISTRICT:	SHEPWAY
LAST UPDATED:	2012	PARISH:	N/A
Depth	32m	AREA:	1.75 MILES WEST OF THE SOUTHERNMOST TIP OF THE VARNE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698330	LOCATION:	TR 28897 19992
Build dates		Loss date/Cause	Crew loss
1909-1911		04/03/1915. Netted, gunfire, scuttled	29 survivors
Period		Rarity	Documentation
Pre-war WWI		4 in U5 class, 14 in Korting heavy-oil type	Gunfire from HMS Gurkha and Maori
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1 patrol, 5 ships sunk Dover patrol casualty 01/08/14 – 04/03/15 1 Flottille		Intact & upright casing damaged. Prominent conning tower, propellers salvaged	On seabed of sand & shell
Manufacturer		Other examples	Status/Designation
Germaniawerft, Kiel			
Amenity value			
<p>Canterburydivers.org.uk/wrecks “site is very silty” divers cause low visibility, “very intact” Items recovered Droit 015/07 2007, also ref against UB33 as positions close Possible gun recovery given to Newhaven Local and Maritime Museum from U8 or UC65 Popular dive Refs: 1, CD, 5, 6 (vol 1, 313), www.uboat.net</p>			
Summary score/statement			
<p>Good ID from exhaust columns on deck for petrol engines Based Heligoland took part in first two patrols of war on 2nd Pre-war and 6th first of WWI PRE-WW1, EARLY WW1 LOSS, OK CONDITIOON, CONSIDER PROTECTING</p>			

CA 01: U11		WW1 Uboat Class U9	
MONUMENT NUMBER:	901814	COUNTY:	KENT
NMR NUMBER:	TR 43 NW 44	DISTRICT:	DOVER
LAST UPDATED:	2012	PARISH:	N/A
Depth	45m	AREA:	4.75 MILES SE OF SOUTH FORELAND
		MARITIME LOCATION:	Coastal Waters
UKHO	1001697160	LOCATION:	TR 44689 39900
Build dates		Loss date/Cause	Crew loss
1909-1910		09/12/1914. Mined	26 no survivors
Period		Rarity	Documentation
Pre-war WWI		4 in U9 class, 14 in Korting heavy oil type	Previously reported as mined off the Belgian coast.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
2 patrols, no ships sunk Dover patrol casualty		Various sightings between 1961 and 2007, but vessel not identified. Wrecksite.eu says the wreck was found in 1992 and salvaged extensively by unauthorised divers.	Negligible or no scour
Manufacturer		Other examples	Status/Designation
Kaiserliche Werft, Danzig			
Amenity value			
Refs: 1, www.uboaat.net , www.wrecksite.eu			
Summary score/statement			
Mined off Belgian coast historic assumption, so wreck needs positive ID			
IF U11 & INSIDE ETW WOULD BE IMPORTANT BUT NEEDS ID & CONDITION SURVEY			

CA 61: U13		WW2 UBoat Class II group B	
MONUMENT NUMBER:	1542615	COUNTY:	SUFFOLK
NMR NUMBER:	TM 79 SW 102	DISTRICT:	WAVENEY
LAST UPDATED:	2011	PARISH:	N/A
Depth	26.3m	AREA:	9.5 MILES ESE OF LOWESTOFT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001693770	LOCATION:	TM 73557 91754
Build dates		Loss date/Cause	Crew loss
1935		31/05/1940. D/C	26 survivors no casualties
Period		Rarity	Documentation
Interwar WWII		20 in group, 50 in class	D/c by HMS Weston. British divers salvaged including enigma rotors & an operating manual (R Young)
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1 Flottile (Weddigen) Kiel 9 patrols Early WWII, North sea, east coast		Upright, intact. Conning tower still in place. 45 degree tilt to starboard	Seabed of sand & gravel. External casing disintegrating revealing pressure hull.
Manufacturer		Other examples	Status/Designation
Deutsche Werke, Kiel		U16	
Amenity value			
Yorkshiredivers.com Refs: (1, says sunk NW of Newcastle upon Tyne), 6, (vol 1, 174), www.uboa.net			
Summary score/statement			
Note www.wrecksite.eu uses ref for wrong U13 (Grant WWI) Probable ID SIGNIFICANT WW2 BOAT (ONE OF ONLY 2 EG'S OF TYPE IIB)			

CA 62: U16		WW2 UBoat Class II group B	
MONUMENT NUMBER:	813847	COUNTY:	KENT
NMR NUMBER:	TR 44 SW 10	DISTRICT:	DOVER
LAST UPDATED:	2012	PARISH:	N/A
Depth	26m	AREA:	3 MILES EAST OF THE SOUTH FORELAND
		MARITIME LOCATION:	Coastal Waters
UKHO	1001697100	LOCATION:	TR 42857 43620
Build dates		Loss date/Cause	Crew loss
1935-1936		25/10/1939. D/C	28 dead all hands lost 19 recovered by RN or washed ashore buried in France Netherlands or Cannock Chase
Period		Rarity	Documentation
Interwar WWII		20 in group, 50 in class	D/C By HMS Puffin & HMS Cayton Wyke trying to get through Dover Barrage. RN divers located it.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Early WWII. English Channel 3 Flottille (Lohs) Kiel 3 patrols		Intact, reasonable condition, damage to under-hull at stern (depth charge) & hole forward of conning tower.	Seabed sand & stones.
Manufacturer		Other examples	Status/Designation
Deutsche Werke, Kiel		U13	
Amenity value			
Yorkshiredivers.com Refs: 1, 5, 6, (vol 1, 272)			
Summary score/statement			
<p>Echoes of WWI campaign</p> <p>There is a wreck. Some doubt as to identity as some bodies had U14 apparatus.</p> <p>Local divers recovered a British rifle from inside hull</p> <p>SIGNIFICANT WW2 BOAT (ONE OF ONLY 2 EG'S OF TYPE IIB)</p>			

CA 47: U37		WWI UBoat U31 class	
MONUMENT NUMBER:	904860	COUNTY:	KENT
NMR NUMBER:	TR 75 NW 5	DISTRICT:	DOVER
LAST UPDATED:	N/A	PARISH:	N/A
Depth	38m	AREA:	2.5 MILES WEST OF THE SANDETTIE BANK
		MARITIME LOCATION:	Coastal Waters
UKHO	2003048780	LOCATION:	TR 70190 55959
Build dates		Loss date/Cause	Crew loss
1913-1914		30/04/1915. Mined	32
Period	Rarity	Documentation	
Pre-War WWI	11 in class, 26 in early diesel types		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
II Half Flottille Heligoland 1 patrol Dover patrol casualty	Intact, some plates removed		
Manufacturer	Other examples	Status/Designation	
Germaniawerft, Kiel			
Amenity value			
<p>Refs: 1, 5, 6 (vol 1, 257, says well outside TW 17.34 nm ENE of Deal on N side of Sandettie Bank), Grant 1964/2002 www.wrecksite.eu claims it was positively identified by divers in 2007.</p>			
Summary score/statement			
<p>U35 (in same class) was most successful of all time, reputedly sank 223 merchantmen. 17.34nmENE of Deal?? See also victims 1552282 and 1552293 This wreck previously considered to be UC68 so ID needs work IF IT IS THIS VESSEL, IT IS AN IMPORTANT BOAT</p>			

CA 69: U40		WWII UBoat Class IX group A	
MONUMENT NUMBER:	911913	COUNTY:	EAST SUSSEX
NMR NUMBER:	TV 59 SE 3	DISTRICT:	EASTBOURNE
LAST UPDATED:	N/A	PARISH:	N/A
Depth	31m	AREA:	OFF BEACHY HEAD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699270	LOCATION:	TV 59055 90640
Build dates		Loss date/Cause	Crew loss
1938-1939		13/10/1939. Mined	45 lost, 3 survivors
Period	Rarity	Documentation	
Interwar WWII	8 in group, 204 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
6 Flottile (Hundius) Wilhelmshaven 2 patrols	Intact. Recently salvaged. Upright, lists to starboard. Generally in excellent condition except for bow, propellers still in place.	Newhaven Salvage Company in 1980s	
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen			
Amenity value			
Refs: 1 ,5, 6 (vol 1, 278), www.uboat.net , www.sussexdiving.co.uk			
Summary score/statement			
<p>ONLY ONE OF TYPE IN SURVEY AREA. Both 5 & 6 show it outside TW limit at 18.22 NM E of Dover Harbour.</p> <p>IMPORTANT EARLY WW2 BOAT</p>			

CA 48: U48		WWI UBoat U43 class	
MONUMENT NUMBER:	904880	COUNTY:	KENT
NMR NUMBER:	TR 46 SE 53	DISTRICT:	DOVER
LAST UPDATED:	2011	PARISH:	N/A
Depth	2m	AREA:	WESTERN SIDE OF NORTH SAND HEAD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001697500	LOCATION:	TR 45908 60352
Build dates		Loss date/Cause	Crew loss
1915-1916		24/11/1917. Grounded	17 or 19, 22 survived
Period	Rarity	Documentation	
WWI	8 in class, 131 in medium sized Uboat types	Goodwin Sands, destroyed by gunfire. She was discovered at dawn by British patrol craft HM drifters (Majesty, Paramount and Present Help).	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
III Flottile Wilhelmshaven Dover patrol casualty	Conning tower missing, sinking in sand. Propeller reported still attached & live shells scattered in the sand.	Occasionally exposed by sand. 2m depth last seen 1973	
Manufacturer	Other examples	Status/Designation	
Kaiserliche Werft, Danzig			
Amenity value			
Refs: 1, 6 (1, 257) www.uboaat.net			
Summary score/statement			
IMPORTANT WW1 BOAT, BUT NOT ROUTINELY AVAILABLE AND CURRENT CONDITION UNKNOWN.			

CA 50 & CA 137: U90		WWI UBoat U87 class	
MONUMENT NUMBER:	895338	COUNTY:	ISLE OF WIGHT
NMR NUMBER:	SZ 66 NE 3	DISTRICT:	ISLE OF WIGHT
LAST UPDATED:	1999	PARISH:	N/A
Depth	30m	AREA:	12 MILES SE X E, 0.5 MILES E FROM ST CATHERINE'S
UKHO	1001708130		
UKHO	1001699930	MARITIME LOCATION:	Coastal Waters
UKHO	1001708190	LOCATION:	SZ 6950 6968 Not confirmed
Build dates		Loss date/Cause	Crew loss
1915-1917		? Foundered on route to breakers	0
Period		Rarity	Documentation
WWI Interwar		6 in class, 131 in medium sized U boat types	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
III Flottille Wilhelmshaven/Heligoland 7 patrols, 25 ships sunk		Fairly intact, leaning to starboard wooden decking can be seen, holes in outer casing, bow section missing. Two large intact deck guns, conning tower & 1 periscope, rudders & propellers present	On bed of hard sand & rock
Manufacturer		Other examples	Status/Designation
Kaiserliche Werft, Danzig			Privately owned
Amenity value			
<p>YouTube Diving the U90 Submarine Wreck (p1lse)</p> <p>One periscope in Bembridge Museum</p> <p>Möller Says 20/11/1918 scrapped at Bo'ness (Scotland). Maybe never reached scrappers?. Listed as being in Pembroke in 1919 so some doubt as to the ID??? 5 ,6 (vol 2, 141) www.uboa.net</p> <p>Privately owned Martin Woodward</p>			
Summary score/statement			
<p>Cruises up to month in duration. Sank American Liner/Troopship President Lincoln, empty at time. OC Jetz North Sea, around 100,000 tons accrued, wanted for war crimes</p> <p>LATER WW1 CRUISER, ONLY ONE IN ETW REASONABLE CONDITION</p>			

CA 103: U118		WWI UE type II	
MONUMENT NUMBER:	903632	COUNTY:	EAST SUSSEX
NMR NUMBER:	TQ 80 NW 69	DISTRICT:	HASTINGS
LAST UPDATED:	2003	PARISH:	HASTINGS
Depth	0m	AREA:	HASTINGS BEACH
		MARITIME LOCATION:	HASTINGS EAST SUSSEX
UKHO		LOCATION:	TQ 8241 0887
Build dates		Loss date/Cause	Crew loss
1918		15/04/1919. Washed ashore en route to breakers	0, 2 coastguard lost
Period	Rarity	Documentation	
WWI Interwar	10 in class of improved large minelayers	Wealth of contemporary records, photos, including IWM Photograph: German submarine U118 mine layer, having mined Halifax, being attacked from the air, 12 Jun 1943. (Aerial photograph.) Foreign Office Political Intelligence Dept (PID)	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Minelaying cruiser	Scrapped, minimal debris may survive buried in beach.		
Manufacturer	Other examples	Status/Designation	
A G Vulcan, Hamburg			
Amenity value			
<p>Attempts to break her up by a French destroyer. Broken up on beach. Famous local attraction at time, 2 coastguards died after working as watchmen on wreck.</p> <p>1 (says scrapped at Brest,) www.uboa.net , www.wrecksite.eu/wreck.aspx?138132#119659 Photos of U 118 ashore at Hastings are common. Often, however, the boat in these pictures is incorrectly called UB 118</p>			
Summary score/statement			
<p>It is possible parts of keel may be under the beach & the gun was dug up in 1921 (Carl Racey on eu wrecksite)</p> <p>Only one of class in survey area</p> <p>GONE</p>			

CA 63: U246		WWII UBoat Type VIIC	
MONUMENT NUMBER:	918713	COUNTY:	CORNWALL
NMR NUMBER:	SW 51 SW 20	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
		AREA:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001701570	LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1942-1943		05/04/1945. Missing	48 no survivors
Period	Rarity	Documentation	
WWII	568 built		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottille Bergen 2 patrols	?	?	
Manufacturer	Other examples	Status/Designation	
Germaniawerft, Kiel			
Amenity value			
1, www.uboat.net			
Summary score/statement			
Also recorded off Isle of Man? 1960 sonar, UKHO fishermen's fastenings only (1977) Wreck not confirmed and ID not confirmed. NOT VIABLE RECORD			

CA 64: U247		WWII UBoat Type VIIC	
MONUMENT NUMBER:	919799	COUNTY:	CORNWALL
NMR NUMBER:	SW 20 NW 1	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	68m	AREA:	3 MILES OFF WOLF ROCK
		MARITIME LOCATION:	Coastal Waters
UKHO	1001701070	LOCATION:	SW 24861 06967
Build dates		Loss date/Cause	Crew loss
1942-1943		01/09/1944. D/C	52 no survivors
Period	Rarity	Documentation	
WWII	568 built	D/C by depth charges from the Canadian frigates HMCS Saint John and HMCS Swansea	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 1 Flottile Brest 2 patrols		Reasonably intact, war damage outer casing & conning tower badly damaged.	On sand & shingle.
Manufacturer		Other examples	Status/Designation
Germaniawerft, Kiel		LATE WAR SW ENGLAND GROUP	
Amenity value			
Refs: 1, 5, 6 (vol 2, 333) www.uboot.net			
Summary score/statement			
<p>Good ID RCN attack</p> <p>LATE WW2 SW ENGLAND GROUP</p>			

CA 65: U275		WWII UBoat Type VIIC	
MONUMENT NUMBER:	911874	COUNTY:	EAST SUSSEX
NMR NUMBER:	TV 48 SE 1	DISTRICT:	LEWES
LAST UPDATED:	N/A	PARISH:	N/A
Depth	50m	AREA:	OFF BEACHY HEAD.
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698880	LOCATION:	TV 45301 80443
Build dates		Loss date/Cause	Crew loss
1942		10/03/1945. Mined	48 lost, no survivors
Period	Rarity	Documentation	
WWII	568 built	August 1945 located by HMS Headingham Castle during trials of experimental gear.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottile Bergen 9 patrols	Upright & intact but badly damaged (D/C). Large holes in fore deck casing.	On sand, mud & gravel	
Manufacturer	Other examples	Status/Designation	
Vegeacker Werft			
Amenity value			
1, 5, 6 (vol 2, 48), www.uboaat.net			
Summary score/statement			
ID needs confirmation			
LATE WAR, SOUTH COAST			

CA 13 & CA 66: U322		WWII UBoat Type VIIC	
MONUMENT NUMBER:	1572081	COUNTY:	DORSET
NMR NUMBER:	SY 76 NW 15	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	2013	PARISH:	N/A
Depth	48m	AREA:	OFF THE BILL OF PORTLAND
		MARITIME LOCATION:	SHAMBLES DORSET
		LOCATION:	SY 69175 57086
Build dates	Loss date/Cause	Crew loss	
1943-1944	29/12/1944. D/C	52 lost no survivors	
Period	Rarity	Documentation	
WWII	568 built	D/C by HMCS Calgary. Posted as missing, from 3 rd Jan 1945. Various attributions.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottille Bergen 1 active patrol Victim of U-boat, Black Hawk lies close by.	Stern section broken off, casing broken	Seabed of gravel & shingle. Trawler or salvage damage	
Manufacturer	Other examples	Status/Designation	
Flender Werke AG, Lubeck			
Amenity value			
<p>YouTube Dive 52M Uboat Lyme Bay (Keith Hawkins) A periscope lens and sighting device has been reported to the Receiver of Wreck as possibly coming from this vessel in position 50 24.77N 002 26.11W, and named as U772. (Droit A/007) RWA 2001, ref from 904592. (Ref: 1, says sunk all hands, 25/11/1944, west of Shetland Isles), 6 (vol 2, 170-4), (Niestlé says boat is likely to have taken the Shetland-Faroe gap route from Norway).</p>			
Summary score/statement			
<p>Latest ID by Dr A Niestlé after diving survey, is based on four pressure-proof rubber boat containers on fore deck, not carried by U772 (the other ID contender, see 900926).</p> <p>LATE WAR SOUTH COAST</p>			

CA 16 & CA 67: U325		WWII UBoat Type VIIC/41	
MONUMENT NUMBER:	919783	COUNTY:	CORNWALL
NMR NUMBER:	XB 69 SE 5	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	84m	AREA:	9 NAUTICAL MILES SOUTH OF THE LIZARD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699030	LOCATION:	SW 82043 89452
Build dates		Loss date/Cause	Crew loss
1943-1944		--/04/1945. ?	52 no survivors
Period		Rarity	Documentation
WWII		91 built	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottille Bergen 3 patrols		Generally intact, some battle damage	
Manufacturer		Other examples	Status/Designation
Flender Werke AG, Lubeck		LATE WAR SW ENGLAND GROUP	
Amenity value			
Deep dive			
Refs: 1, 6 (vol 3, 25), www.uboaat.net			
Summary score/statement			
<p><i>Niestlé, 2010</i> suggests this is <u>not</u> the one near the U400 & 1021. Sunk between 30/04 and 09/051945 on the British minefield 'Artizan B3, part 1' in position 49 48.283N / 05 12.383W off Lizard Point (<i>Axel Niestlé, 2010</i>).</p> <p>ID needs confirming LATE WAR SW ENGLAND GROUP</p>			

CA 68: U399		WWII UBoat Type VIIC	
MONUMENT NUMBER:	918654	COUNTY:	CORNWALL
NMR NUMBER:	SW 50 NE 11	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	56m	AREA:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001701340	LOCATION:	SW 57989 09951
Build dates		Loss date/Cause	Crew loss
1942-1944		26/03/1945. Sunk, Hedgehogs	46 lost, 1 survivor
Period	Rarity	Documentation	
WWII	568 built	By British frigate HMS Duckworth	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottile Bergen 1 patrol	Reported upright & intact, casing badly damaged propellers half buried. Conning tower present.	On sand & shingle.	
Manufacturer	Other examples	Status/Designation	
Howaldtswerke, Kiel	LATE WAR SW ENGLAND GROUP		
Amenity value			
Refs: 1,5, ((vol 2, 315), www.uboa.net)			
Summary score/statement			
No recent survey information – description from R Young, <i>Silent Warriors vol 2</i> . Probable ID needs confirmation			
LATE WAR SW ENGLAND GROUP			

CA 70: U400		WWII UBoat Type VIIC	
MONUMENT NUMBER:	1570063	COUNTY:	CORNWALL
NMR NUMBER:	SW 67 SW 8	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	50m	AREA:	12.3 NAUTICAL MILES NW OF NEWQUAY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700020	LOCATION:	SW 60382 74812
Build dates		Loss date/Cause	Crew loss
1942-1944		17/12/1944. Mined	50 lost
Period		Rarity	Documentation
WWII		568 built	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottille Bergen 1 patrol		Generally good, some mine damage to forward, bow section broken off	
Manufacturer		Other examples	Status/Designation
Howaldtswerke, Kiel		LATE WAR SW ENGLAND GROUP	
Amenity value			
1 www.uboa.net , Divernet.com, Niestlé, 2010			
Summary score/statement			
Divernet.com id'd it in Newquay on the British minefield 'HW A3' in position 50°33,16'n / 05°11.37'w off the Cornish coast. Niestlé, 2010 site E			
LATE WAR SW ENGLAND GROUP			

CA U480		WWII UBoat Type VIIC	
MONUMENT NUMBER:	859162	COUNTY:	ISLES OF SCILLY
NMR NUMBER:	SW 00 SW 1	DISTRICT:	ISLES OF SCILLY
LAST UPDATED:	2004	PARISH:	N/A
Depth	58m	AREA:	7.25 MILES SE OF DEEP POINT, ISLES OF SCILLY
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1942-1943		24/02/1945. Mined or D/C??	48 no survivors
Period		Rarity	Documentation
WWII		568 built	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottile Bergen 3 patrols		Relatively intact. First described as almost upright & intact except for damage to cladding. A section of stern reported as lying near to & forward of the conning tower & large fissure visible on pressure hull – site now thought to be U1208	On sand & gravel. Tidal streams brisk, boat reputed to change orientation. – site now thought to be U1208
Manufacturer		Other examples	Status/Designation
Deutsch Werke, Kiel			
Amenity value			
1 ,5, 6 (vol 2, 156), www.uboaat.net YouTube U-480 Type VIIC U-Boat with Alberich Coating (BorisCCRCam) Range finder in Blue Boar Inn, Poole Divernet.com/unfinished business report of dive to place memorial tablet by Australian divers (nephews of crew member) “the pressure hull seemed intact...Other damage is just decay...I was surprised how thin the Alberich coating was” Divernet.com/Bucket-list wreck challenge “too great a dive to resist”			
Summary score/statement			
Coated with “Alberich” anti-sonar rubber (Droit A/006) Early schornkel fit. D/C attack probably on U1208, not U480 which was probably already sunk on minefield LATE WAR, SOUTH COAST – NOTE: WRECK NOT FOUND – REQUIRES SURVEY			

No CA Number: U650		WWII UBoat Type VIIC
MONUMENT NUMBER:	COUNTY:	CORNWALL
NMR NUMBER:	DISTRICT:	
LAST UPDATED:	PARISH:	N/A
Depth	79m	AREA: South of Mounts Bay
	MARITIME LOCATION:	Coastal Waters
	LOCATION:	49 51.061N 05 29.971W Not confirmed
Build dates	Loss date/Cause	Crew loss
1942	--/01/1945. D/C	47 no survivors
Period	Rarity	Documentation
WWII	568 built	Sunk by a Hedgehog from an unidentified Allied vessel in Jan 1945
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottile Bergen 7 patrols	Generally intact, but heavily corroded	
Manufacturer	Other examples	Status/Designation
Blohm & Voss, Hamburg	LATE WAR SW ENGLAND GROUP	
Amenity value		
<i>Niestlé, 2010</i> www.uboaat.net		
Summary score/statement		
<p>Ex 7 Flottile Battle of Atlantic veteran In 1976 a U-boat wreck was discovered by the Risdon Beazley salvage company. This was confirmed in 1997 by a scuba diver. On 17 July 2008 Odyssey surveyed the wreck 2008 Odyssey survey</p> <p>ONLY KNOWN FROM AN ODYSSEY REPORT, SITE NOT IN THE NMR OR THE UKHO RECORDS – POSITION NEEDS TO BE CONFIRMED RELATIVE TO 12nm LIMIT</p> <p>NOT ENTERED INTO DATABASE</p> <p>LATE WAR SW ENGLAND GROUP</p>		

CA 72: U672		WWII UBoat Type VIIC	
MONUMENT NUMBER:	900924	COUNTY:	DORSET
NMR NUMBER:	SY 66 NE 75	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	1999	PARISH:	N/A
Depth	60m	AREA:	OFF THE BILL OF PORTLAND
		MARITIME LOCATION:	BILL OF PORTLAND DORSET
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1941-1943		18/07/1944. D/C and scuttled	52 survivors, no casualties
Period		Rarity	Documentation
WWII		568 built	By British frigate HMS Balfour
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Post D-Day supply disruption 6 Flottille based Bergen 3 patrols		?	?
Manufacturer		Other examples	Status/Designation
Howaldtswerke Hamburg (uboat.net)			
Amenity value			
1,5,6 (vol 2, 221), www.uboat.net			
Summary score/statement			
N of Guernsey?? Not located??			
RECORD WRECK ACCOUNTS NOT REMAINS. NOT VIABLE RECORD			

CA 73: U681		WWII UBoat Type VIIC	
MONUMENT NUMBER:	859156	COUNTY:	ISLES OF SCILLY
NMR NUMBER:	SV 60 NE 1	DISTRICT:	ISLES OF SCILLY
LAST UPDATED:	2004	PARISH:	N/A
Depth	86m	AREA:	4 MILES N OF MINCARLO, ISLES OF SCILLY
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	SV 6669 0715
Build dates		Loss date/Cause	Crew loss
1942-1943		11/03/1944. D/C from A/C	11 lost, 38 survivors
Period	Rarity	Documentation	
WWII	568 built	By a USN Liberator aircraft of 103 Squadron.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottille Bergen 1 patrol	Intact, stern broken up	On sand & gravel	
Manufacturer	Other examples	Status/Designation	
Howaldtswerke Hamburg (uboat.net)	LATE WAR SW ENGLAND GROUP		
Amenity value			
1, 5, 6 (vol 2, 341), www.uboat.net			
Summary score/statement			
LATE WAR SW ENGLAND GROUP			

CA 74: U683		WWII UBoat Type VIIC	
MONUMENT NUMBER:	919791	COUNTY:	CORNWALL
NMR NUMBER:	SW 20 SW 1	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
		AREA:	SW OF LANDS END
		MARITIME LOCATION:	Coastal Waters
UKHO	1001709510	LOCATION:	SW 22184 03514
Build dates		Loss date/Cause	Crew loss
1942-1944		20/02/1945. ?D/C?	49 lost, no survivors
Period	Rarity	Documentation	
WWII	568 built		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottille Bergen 1 patrol	?	?	
Manufacturer	Other examples	Status/Designation	
Howaldtswerke Hamburg (uboat.net)			
Amenity value			
1, www.uboat.net			
Summary score/statement			
<p>D/C attack as recorded may have been against wreck of U247</p> <p>Listed as missing in the North Atlantic after 20/02/1945 south-west of Ireland or in the English Channel. Previously recorded fate - probably sunk 12/03/1945 in the English Channel near Land's End, in position 49.52N, 05.52W, by depth charges from the British frigate HMS Loch Ruthven and the British sloop HMS Wild Goose. (Postwar assessment)</p> <p>RECORD WRECK ACCOUNTS NOT REMAINS? NOT VIABLE RECORD</p>			

CA 51: U1018		WWII UBoat Type VIIC/41	
MONUMENT NUMBER:	918662	COUNTY:	CORNWALL
NMR NUMBER:	SW 61 SW 9	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	53m	AREA:	5.25 MILES SW OF THE LIZARD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001701340	LOCATION:	SW 60684 10386
Build dates		Loss date/Cause	Crew loss
1943-1944		27/02/1945. D/C	51 lost, 2 survivors
Period	Rarity	Documentation	
WWII	91 built	D/C by HMS Loch Fada	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottile Bergen 1 patrol		Upright, but casing broken open in many places	Seabed of sand & shingle.
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR SW ENGLAND GROUP	2012 No. 1110 PMRA
Amenity value			
1, 5, 6 (vol 2, 319) www.uboaat.net			
Summary score/statement			
See also victim Norwegian cargo vessel (SW 50 NE 14) LATE WAR SW ENGLAND GROUP			

CA 17, CA 18 & CA 52: U1021		WWII UBoat Type VIIC/41	
MONUMENT NUMBER:	1570055	COUNTY:	CORNWALL
NMR NUMBER:	SW 86 SW 179	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	50m	AREA:	OFF NEWQUAY
UKHO	1001708310	MARITIME LOCATION:	NEWQUAY BAY NORTH CORNWALL
UKHO	1001699920	LOCATION:	SW 73789 77689
Build dates		Loss date/Cause	Crew loss
1943-1944		14/03/1945++. Mined	43 lost
Period		Rarity	Documentation
WWII		91 built	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottile Bergen 1 patrol		Surprisingly good, limited mine damage	List to port. much of deck fittings on portside seabed. Broken apart at forward torpedo room.
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR SW ENGLAND GROUP	
Amenity value			
<p>YouTube Diving U-1021 (scuba380)</p> <p>Divernet.com /Bucket-list wreck challenge “the prettiest submarine wreck I have dived in UK waters”</p> <p>Divernet.com Wrecktour: 113 The U1021 full description with annotated diagram of wreck site</p> <p>Niestlé Odyssey paper 2010 site D 1 www.uboat.net Divernet.com</p>			
Summary score/statement			
<p>Sunk probably on 14 March 1945 on the British minefield HY A1 in position 50.39.48N / 05.05.04W off the Cornish coast. (Dr. Axel Niestlé, 2010).</p> <p>LATE WAR SW ENGLAND GROUP</p>			

CA 53: U1024		WWII UBoat Type VIIC	
MONUMENT NUMBER:	1002048	COUNTY:	CUMBRIA
NMR NUMBER:	SD 04 NE 1	DISTRICT:	BARROW-IN-FURNESS
LAST UPDATED:	N/A	PARISH:	N/A
		AREA:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001691020	LOCATION:	SD 05319 47524
Build dates		Loss date/Cause	Crew loss
1943-1944		13/04/1945. D/C then sank after capture	9 lost, 37 survivors
Period		Rarity	Documentation
WWII		568 built	By frigates HMS Loch Glendhu and HMS Loch More. The frigates attempted to tow her to port but the boat sank while underway on 13/04/1945
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottille Bergen 1 patrol		On starboard side, some break up. The torpedo tubes are clearly visible and one still has a torpedo in it. (UK diving)	On silt
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg			
Amenity value			
http://www.ukdiving.co.uk/wrecks/wreck.php?id=131 1 www.uboaat.net 6, (vol 3, 110)			
Summary score/statement			
Further work required re location & condition. R Young not convinced. LATE WAR, ISOLATED EXAMPLE			

CA 54: U1063		WWII UBoat Type VIIC/41	
MONUMENT NUMBER:	832140	COUNTY:	DEVON
NMR NUMBER:	SX 62 NW 1	DISTRICT:	SOUTH HAMS
LAST UPDATED:	N/A	PARISH:	N/A
Depth	58m	AREA:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700440	LOCATION:	SX 64984 29366
Build dates		Loss date/Cause	Crew loss
1943-1944		15/04/1945. D/C	29 lost, 17 survivors
Period		Rarity	Documentation
WWII		91 built	By the British frigate HMS Loch Killin
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottile Bergen 1 patrol		Intact, part of conning tower collapsed, bow broken open large hole through forward torpedo room. 45 degree list to starboard. Periscope & schnorkel in place	Seabed of sand pebbles & shell.
Manufacturer		Other examples	Status/Designation
Germaniawerft, Kiel			PMRA 1 st June 2012 Schedule
Amenity value			
1 ,5, 6 (vol 2, 240), www.uboat.net			
Summary score/statement			
LATE WAR, SOUTH COAST			

CA 56: U1191		WWII UBoat Type VIIC	
MONUMENT NUMBER:	900922	COUNTY:	DORSET
NMR NUMBER:	SY 66 NE 74	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	1999	PARISH:	N/A
Depth	60m	AREA:	OFFSHORE BILL OF PORTLAND
		MARITIME LOCATION:	BILL OF PORTLAND DORSET
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1942-1943		12/06/1944++. A/C?	50, no survivors
Period	Rarity	Documentation	
WWII	568 built	Either by an aircraft or HMS Affleck and HMS Balfour	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
D-Day supply disruption 7 Flottille St Nazaire, based Stavanger 1 patrol	Upright & completely intact with AA platform in place & conning tower hatches open. some D/C damage to outer casing	Seabed of sand & shingle. Propellers just visible but mostly buried.	
Manufacturer	Other examples	Status/Designation	
Schichau, Danzig			
Amenity value			
Identified by I McCartney 1999			
1, 5, 6 (vol 2, 218) www.uboat.net			
Summary score/statement			
Claimed by Wellington Bomber of 304 (Polish squadron) 18 th June, also possibly D/C surface attack 26 th June.			
EARLIEST LATE WAR SOUTH COAST. POTENTIALLY MORE HISTORICALLY SIGNIFICANT (D-DAY) THAN SOME			
POSITION NOT KNOWN - NMR ONLY HAS SITE AT NAMED LOCATION			

CA 57: U1195		WWII UBoat Type VIIC	
MONUMENT NUMBER:	804910	COUNTY:	ISLE OF WIGHT
NMR NUMBER:	SZ 77 SE 4	DISTRICT:	ISLE OF WIGHT
LAST UPDATED:	1999	PARISH:	N/A
Depth	26m	AREA:	12 MILES SOUTHEAST OF SANDOWN
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699920	LOCATION:	SZ 7538 7337
Build dates		Loss date/Cause	Crew loss
1943		07/04/1945. D/C	31 or 32 lost, 18 survivors
Period	Rarity	Documentation	
WWII	568 built	By HMS Watchman	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottile Bergen 1 patrol	Intact, upright damage forward of conning tower. 45 degree list to starboard. Conning tower present. Schnorkel on seabed. One of propellers visible in Nov. 2003	Reasonably firm seabed of course sand & shingle. Outer casing & deck casing corroding in parts, vertical break in hull.	
Manufacturer	Other examples	Status/Designation	
Schichau, Danzig			
Amenity value			
YouTube Submarine Wreck WW2 off the Isle of Wight (jerriarchie) 1, 5, 6 (vol 2, 113), www.uboa.net http://www.ukdiving.co.uk			
Summary score/statement			
Sank troopship Cuba LATE WAR, SOUTH COAST			

CA 58: U1199		WWII UBoat Type VIIC	
MONUMENT NUMBER:	918687	COUNTY:	CORNWALL
NMR NUMBER:	SW 31 SW 7	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	67m	AREA:	16M S OF LAND'S END
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	SW 33465 13156 Not confirmed
Build dates		Loss date/Cause	Crew loss
1943		21/01/1945. D/C	48 lost, 1 survivor
Period	Rarity	Documentation	
WWII	568 built	By HMS Icarus and HMS Mignonette	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottile Bergen 2 patrols	Upright & intact. Outer casing damaged.	Seabed of sand, shingle & pebbles.	
Manufacturer	Other examples	Status/Designation	
Schichau, Danzig	LATE WAR SW ENGLAND GROUP		
Amenity value			
1, 5, 6 (vol 2, 325) www.uboaat.net			
Summary score/statement			
1 st patrol schnorkel test, 7 ½ weeks, 50 days submerged. Wreck needs positive ID POSITION ONLY APPROXIMATE – REQUIRES SURVEY LATE WAR SW ENGLAND GROUP			

CA 71: U1208		WWII UBoat Type VIIC	
MONUMENT NUMBER:		COUNTY:	Isles of Scilly
NMR NUMBER:		DISTRICT:	
LAST UPDATED:	N/A	PARISH:	N/A
Depth	81m	AREA:	
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	49 degrees 51.783N 006 degrees 06.750W
Build dates		Loss date/Cause	Crew loss
1944		27/02/1945. D/C	49, no survivors
Period	Rarity	Documentation	
WWII	568 built	By HMS Duckworth and HMS Rowley	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Late war coastal campaign 11 Flottile Bergen 1 patrol	Intact, badly battle damaged, "can opener" attack		
Manufacturer	Other examples	Status/Designation	
Schichau, Danzig	LATE WAR SW ENGLAND GROUP		
Amenity value			
6, (vol 2, 337), Niestlé, 2010			
Summary score/statement			
Was previously ID as U246 and a number of others. Odyssey report 2010 site C Check position. LATE WAR SW ENGLAND GROUP			

CA 59 & CA 138: U1209		WWII UBoat Type VIIC	
MONUMENT NUMBER:	919824	COUNTY:	CORNWALL
NMR NUMBER:	SW 31 SW 11	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	68m	AREA:	WOLF ROCK, LAND'S END
		MARITIME LOCATION:	Coastal Waters
UKHO	1001709400	LOCATION:	SW 34033 13712
Build dates		Loss date/Cause	Crew loss
1943-1944		18/12/1944. Ran aground, scuttled	9 lost, 44 survivors
Period		Rarity	Documentation
WWII		568 built	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 11 Flottile Bergen 1 patrol		Reported as upright & intact. Lots of nets. Little else known	Tidal streams brisk
Manufacturer		Other examples	Status/Designation
Schichau, Danzig		LATE WAR SW ENGLAND GROUP	
Amenity value			
5 (24), 6, (vol 2 329)			
Summary score/statement			
<p>Wreck needs positive ID Possibly confused with U1199 (I McCartney) 1996 Gilbert Pound reported locating a uboat here. Location closer to the reported sinking position of U1199 so McCartney sees U1209 as still un-located</p> <p>POSITION FROM UKHO RECORD 22609 – NEEDS TO BE CONFIRMED.</p> <p>LATE WAR SW ENGLAND GROUP</p>			

CA 60: U1274		WWII UBoat Type VIIC/41	
MONUMENT NUMBER:	943563	COUNTY:	NORTHUMBERLAND
NMR NUMBER:	NU 33 NE 1	DISTRICT:	NORTHUMBERLAND
LAST UPDATED:	2003	PARISH:	N/A
Depth	63m	AREA:	7 MILES SE OF LONGSTONE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001689570	LOCATION:	NU 37267 35439
Build dates		Loss date/Cause	Crew loss
1943-1944		16/04/1945. D/C	44 no survivors
Period		Rarity	Documentation
WWII		91 built	HMS Viceroy
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Late war coastal campaign 5 Flottile Kiel Lost on training patrol		Upright, intact, stern damaged. Hatches sealed, twin propellers & conning tower present.	On a clean, well swept sand & stone seabed. Trawl net on conning tower
Manufacturer		Other examples	Status/Designation
Vegeacker Werft			
Amenity value			
1, 6 (vol 1, 52) www.uboat.net			
Summary score/statement			
See also victim Tanker Athelduke			
LATE WAR, ONLY NE EXAMPLE			

CA 06 & CA 124 UB122 & UB123		
MONUMENT NUMBER:	900735	COUNTY: MEDWAY
NMR NUMBER:	TQ 87 SW 30	DISTRICT: MEDWAY
LAST UPDATED:	2011	PARISH: GILLINGHAM
		AREA: STOKE SALTINGS
		MARITIME LOCATION: Coastal Waters
		LOCATION: TQ 83054 73456
Build dates	Loss date/Cause	Crew loss
Period	Rarity	Documentation
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability
Manufacturer	Other examples	Status/Designation
	See Turkish example, UB46	
Amenity value		
Summary score/statement		
<p>The remains of a First World War German U-boat to the west of Humble Bee creek in Stoke Saltings. This is one of a number of surrendered German U-boats that sank on their way to be broken up in 1921. There is a suggestion that this U-boat may be U 122, U 123 (both 82m in length) or UB 122 (56m in length) all of which suffered the same fate en-route to the breakers in 1921. The wreck in the Medway measures circa 50m and does not appear to be significantly truncated so, if these suggested designations are correct, this may be the remains of UB 122. This wreck can be seen on aerial photographs taken in 1946 and is still visible in 2011. It was mapped from aerial photographs as part of the English Heritage: Hoo Peninsula Landscape Project.</p> <p>The remains of a First World War German U-boat can be seen on aerial photographs taken in 1946 to the west of Humble Bee creek at TQ 8305 7346. This wreck was mapped from aerial photographs as part of the English Heritage: Hoo Peninsula Landscape Project. (2-5) Seen to be located on Stoke Saltings, north of Bee Ness Jetty. (7)</p> <p>IN SPITE OF ID PROBLEM,THESE ARE 2 RELATIVELY WELL PRESERVED, WW1 WRECKS THAT ARE (MORE OR LESS) CLOSE TO THE SHORE</p>		

CA 82: UB12		UB class, group 1	
MONUMENT NUMBER:	904896	COUNTY:	KENT
NMR NUMBER:	TR 46 NW 69	DISTRICT:	THANET
LAST UPDATED:	2006	PARISH:	N/A
		AREA:	EAST OF THE BRAKE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001697710	LOCATION:	TR 43864 65361
Build dates		Loss date/Cause	Crew loss
1914-1915		19/08/1918.	19
Period	Rarity	Documentation	
WWI	17 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flandern Flottille 98 patrols, 23 ships sunk	1986 UKHO		
Manufacturer	Other examples	Status/Designation	
A G Weser, Bremen			
Amenity value			
Refs: 1, 6 (vol 1, 234) www.uboaat.net			
Summary score/statement			
ID needs confirmation, UB12 now thought to be off Flanders, recent ID (Young, vol 1, 234). ONLY 3 RECORDS OF UB 1 IN ETW. RECORD NEEDS CONFIRMATION. IF REAL & INTACT, IMPORTANT BOAT			

CA 02: UB21		UB class, group 2	
MONUMENT NUMBER:	805579	COUNTY:	CITY OF PORTSMOUTH
NMR NUMBER:	SZ 69 SE 108	DISTRICT:	CITY OF PORTSMOUTH
LAST UPDATED:	1999	PARISH:	N/A
Depth	2-5m	AREA:	3 MILES SOUTH OF EASTNEY POINT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699200	LOCATION:	SZ 6878 9362
Build dates		Loss date/Cause	Crew loss
1915		1920. Ran aground Eastney Point, partly salvaged. Re-floated and foundered again in Solent	0
Period	Rarity	Documentation	
WWI Interwar	30 in group, 136 in class	Photos of UB21 in Ramsgate Harbour 16/12/1918 (thanetonline) with interior shot	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1916-1917 I Flottile Brunsbuttel 1917-1918 II Flottile Heligoland 26 patrols, many off Yorkshire coast	In two parts, partially salvaged, then demolished as navigation hazard. Very broken and dispersed.	Sunk into silts	
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg			
Amenity value			
Refs: 1,5,6 (vol 2, 106) www.uboa.net http://www.ukdiving.co.uk Battery parts Droit A/2118 ; Brass items Droit A/3865 Receiver of Wreck Amnesty Jan-April 2001			
Summary score/statement			
CO E Hashagen 8 patrols 130,000 tons accrued North Sea			
DEBRIS ONLY			

CA 86: UB29		UB class, group 2	
MONUMENT NUMBER:	831686	COUNTY:	KENT
NMR NUMBER:	TR 54 NE 3	DISTRICT:	DOVER
LAST UPDATED:	2011	PARISH:	N/A
Depth	35m	AREA:	BETWEEN THE GOODWIN SANDS AND SANDETTIE SHOAL
		MARITIME LOCATION:	Coastal Waters
UKHO	2003044180	LOCATION:	TR 59447 47464
Build dates		Loss date/Cause	Crew loss
1915-1916		13/12/1916. D/C	22
Period		Rarity	Documentation
WWI		30 in group, 136 in class	By HMS Landrail
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 17 patrols, 29 ships sunk		Very small wreck, no distinct shape – UKHO last record 2006	
Manufacturer		Other examples	Status/Designation
AG Weser, Bremen		FF, DP	
Amenity value			
Refs: 1, 5 (p 161, says no wreck found), 6 (vol 1, 262-7), www.uboaat.net			
Summary score/statement			
<p>ID not confirmed - (Lost Patrols p 161 says UB 29 NO wreck found). ID'd off Belgian coast? In 2006 a wreck found off the Belgian coast that could be UB 29 or UB32.</p> <p>Torpedoed, but did not sink, steamer Sussex which had Americans on board. Sank Light Cruiser HMS Penelope 24/04/1916</p> <p>CO Pustkuchen Flanders around 100,000 tons accrued</p> <p>ID IN DOUBT.</p>			

CA 87: UB30		UB class, group 2	
MONUMENT NUMBER:	909226	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	NZ 91 NW 4	DISTRICT:	SCARBOROUGH
LAST UPDATED:	N/A	PARISH:	N/A
Depth	45m	AREA:	3 MILES NORTH OF WHITBY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001690100	LOCATION:	NZ 91017 16881
Build dates		Loss date/Cause	Crew loss
1915-1916		13/08/1918. D/C	26 no survivors
Period	Rarity	Documentation	
WWI	30 in group, 136 in class	By trawlers, John Gillman, John Brookner, Viola, Florio and HM Yacht Miranda II. Dived on 17/08/1918 for intelligence	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1916-1917 Baltic 1917-1918 Flandern Flottille 19 patrols, 18 ships sunk	Damaged but largely intact. Leans 45 degrees to port. Hatches open and the boat is full of silt Small conning tower & propellers were present.	On a dirty seabed of sand & mud. Nets draped over the hull (some since removed). One of torpedo tubes still has torpedo in it.	
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg	LATE WAR NE COAST GROUP		
Amenity value			
Refs: 1, 6 (vol 1, 96) www.uboaat.net YouTube Dive on the German U-Boat UB30 (Andy Jackson) Diver lost on wreck in 1994			
Summary score/statement			
Torpedoed Norwegian cargo vessel (SZ 46 NE 6) LATE WAR NE COAST GROUP			

CA 88: UB31		UB class, group 2	
MONUMENT NUMBER:	901777	COUNTY:	KENT
NMR NUMBER:	TR 23 SW 10	DISTRICT:	SHEPWAY
LAST UPDATED:	2012	PARISH:	N/A
Depth	24m	AREA:	2 MILES SSW OF FOLKESTONE
UKHO	1001706850	MARITIME LOCATION:	Coastal Waters
UKHO	1001698270	LOCATION:	TR 22327 30936
Build dates		Loss date/Cause	Crew loss
1915		02/05/1918. D/C? Mined?	26 no survivors
Period	Rarity	Documentation	
WWI	30 in group, 136 in class	Drifters Lord Leitrim and Ocean Roamer, and dirigible Z-29 (Grant 1964/2002, 88). Probably dived on in August 1918	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1916-1917 Baltic 1917-1918 Flandern Flottille 25 patrols, 26 ships sunk Dover patrol casualty	Intact 1986-1997 Intact & lying on port side. Large hole in fore section but conning tower in place.	Seabed of and mud & shell.	
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg	FF / DP		
Amenity value			
Refs: 1, 5, 6 (vol 1, 301) www.uboot.net			
Summary score/statement			
Forced by Airship SSZ-29 and drifters into Minefield? FF / DP			

CA 90: UB33		UB class, group 2	
MONUMENT NUMBER:	1477356	COUNTY:	KENT
NMR NUMBER:	TR 32 SW 2	DISTRICT:	DOVER
LAST UPDATED:	N/A	PARISH:	N/A
Depth	27m	AREA:	0.75 MILE NE OF THE SOUTH VARNE BUOY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001709120	LOCATION:	TR 3134 2047
Build dates		Loss date/Cause	Crew loss
1915-1916		11/04/1918. Mined	28 no survivors
Period	Rarity	Documentation	
WWI	30 in group, 136 in class	Dived on 06/05/1918 and 21/06/1918, recovered codes, signals and CO's body.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1916-1917 Baltic 1917-1918 Flandern Flottille 17 patrols, 13 ships sunk Dover patrol casualty	Damaged, conning tower separate, partly buried. Very broken up aft. Large part of lower casing badly crushed. (Young vol, 1, 325).	Seabed of sand mud & shingle. Brisk tidal streams.	
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg	FF/ DP		
Amenity value			
Refs: 1,5,6 (vol 1,325), www.uboat.net Yorkshire-divers.com "sudays report UB33 and Carmen" with footage			
Summary score/statement			
FF / DP			

CA 89: UB38		UB class, group 2	
MONUMENT NUMBER:	1536010	COUNTY:	KENT
NMR NUMBER:	TR 32 SE 3	DISTRICT:	DOVER
LAST UPDATED:	2011	PARISH:	N/A
Depth	36m (was 28m)	AREA:	xxxxx OF THE VARNE
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TR 37673 23898
Build dates		Loss date/Cause	Crew loss
1916		08/02/1918 Mined	27 no survivors
Period	Rarity	Documentation	
WWI	30 in group, 136 in class	Ran into a minefield while attempting to escape destroyers / drifter Gowan II (Grant, 1964/2002) July 1918 dive by RN	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1916-1918 Flandern Flottille 21 patrols, 47 ships sunk Dover patrol casualty	Reasonably intact, stern blown off		
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg	FF /DP		
Amenity value			
<p>Refs : 1, 5, 6 (1, 319), www.uboaat.net YouTube Diving the German WW 1 submarine the UB38 (divingdebs) NB shot pre-move from shipping lane Canterburydivers.org.uk/wrecks report from pre-move, now stated to have large amount of netting around it and should only be dived on with extreme caution Relocated July 2008, see Maritime Journal 03/07/2008 and Titan Salvage press release of 22/07/2008. Full report Trinity House 30th July 2008 by Captain Duncan Glass</p>			
Summary score/statement			
<p>Still intact after move. See also English schooner 892093 and French cargo vessel 1464090 CO Wassner (also UC69) North Sea around 100,000 tons accrued, wanted for war crimes FF / DP</p>			

CA 15 & CA 91: UB41		UB class, group 2	
MONUMENT NUMBER:	1570506	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	OV 10 NW 15	DISTRICT:	SCARBOROUGH
LAST UPDATED:	2012	PARISH:	N/A
Depth	54m	AREA:	8 NAUTICAL MILES ENE OF NORTH CHEEK OF ROBIN HOOD'S BAY
UKHO	1001705280	MARITIME LOCATION:	Coastal Waters
UKHO	1001691650	LOCATION:	OV 10475 08986
Build dates		Loss date/Cause	Crew loss
1916		05/10/1917. Mined	24
Period		Rarity	Documentation
WWI		30 in group, 136 in class	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1916-1917 II Flottille Heligoland		In two parts, explosion damage to port, otherwise reasonable condition. Main section is on its starboard side, bow tubes off to starboard side. Conning tower, deck gun, periscope & propellers present.	Seabed of sand, stones, gravel & shell. Trawling debris and lobster pots. No Deck-gun?
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR NE GROUP	
Amenity value			
Refs: 1,6 (vol 1, 106) www.uboat.net YouTube Dive on the German U-Boat UB41 (Andy Jackson)			
Summary score/statement			
LATE WAR, NE GROUP			

CA 92: UB55		UB class, group 3	
MONUMENT NUMBER:	901772	COUNTY:	KENT
NMR NUMBER:	TR 33 SW 21	DISTRICT:	DOVER
LAST UPDATED:	2006	PARISH:	N/A
Depth	30m	AREA:	NEAR VARNE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698520	LOCATION:	TR 33605 30011
Build dates		Loss date/Cause	Crew loss
1916-1917		22/04/1918. Mined	23 lost, 6 survivors
Period	Rarity	Documentation	
WWI	89 in group, 136 in class	Dived on 14/08/1918, ID from scraps of paper	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1917-1918 Flandern Flottille 7 patrols, 21 ships sunk Dover patrol casualty	Reasonable condition Upright, slight list to port – quite reasonable condition. Conning tower at least one propeller & periscope present, damage to hull casing & bow. Deck gun missing.	Seabed sand shell shingle. Recent damage to stern	
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen	FF /DP		
Amenity value			
Refs: 1, 5, 6 (vol 1, 308) www.uboa.net Canterburydivers.org.uk/wrecks “very proud on a firm seabed....an impressive site” Fork and part of pocket watch recovered Droit 108/05 2005			
Summary score/statement			
Grant says UB 55 was last submarine to leave Zeebrugge before the British Raid (Grant, 1964/2002 85) FF / DP			

CA 136: UB56		UB class, group 3	
MONUMENT NUMBER:	901760	COUNTY:	KENT
NMR NUMBER:	TR 32 NE 5	DISTRICT:	DOVER
LAST UPDATED:	2009	PARISH:	N/A
Depth	28m	AREA:	NORTH OF COLBART NORTH BUOY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698620	LOCATION:	TR 37854 25037
Build dates		Loss date/Cause	Crew loss
1916-1917		19/12/1917. Mined	37 no survivors
Period	Rarity	Documentation	
WWI	89 in group, 136 in class	Probably dived on 12/08/1918	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flanders Flottile 4 patrols, 4 ships sunk Dover patrol casualty	Reasonably intact, partly buried, stern missing. Conning tower leaning over. Both propellers missing & large hole forward of conning tower.	On seabed of shingle, silty sand	
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen	FF / DP		
Amenity value			
Refs: 1, 5, 6 (vol 1, 328-9), www.uboot.net Propeller displayed at Herne Bay Angling Club (Young, vol 1 328-9).			
Summary score/statement			
FF / DP			

CA 94: UB58		UB class, group 3	
MONUMENT NUMBER:	901756	COUNTY:	KENT
NMR NUMBER:	TR 22 SE 1	DISTRICT:	SHEPWAY
LAST UPDATED:	2009	PARISH:	N/A
Depth	22m	AREA:	6 MILES SOUTH OF FOLKESTONE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698290	LOCATION:	TR 25001 23719
Build dates		Loss date/Cause	Crew loss
1916-1917		10/03/1918. Mined	35 no survivors
Period	Rarity	Documentation	
WWI	89 in group, 136 in class	Some of her logs floated to the surface and were recovered by the Royal Navy.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flanders Flottille 6 patrols, 8 ships sunk Dover patrol casualty	Reasonable condition except bow section. Damage to outer hull & round conning tower & stern torpedo tubes (Young, vol 1, 322)	On sand & shingle. Reasonable con Strong tidal streams Inside silted up.	
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen	FF / DP		
Amenity value			
Refs: 1, 5, 6 (vol 1, 322), www.uboa.net Located in recent years. Canterburydivers.org.uk/wrecks "Bow completely blown off" "very enjoyable and interesting sub dive", article has diagram of wreck			
Summary score/statement			
Problem in that EH has overlies or entangled with cargo vessel, check with Canterbury diver account? Werner Furbringer commander see also UB110 Check the GIS - why is EH description and location different? See also entry for UB108 and 1399360 FF / DP			

Not in Database: UB60		UB class, group 3	
MONUMENT NUMBER:	N/A	COUNTY:	Cornwall
NMR NUMBER:	N/A	DISTRICT:	
LAST UPDATED:		PARISH:	
Depth	?60m	AREA:	
UKHO		MARITIME LOCATION:	Coastal Waters
		LOCATION:	50 08.011N 03 47.734E
Build dates		Loss date/Cause	Crew loss
1916-1917		12/06/1919. Foundered en route to breakers	0
Period		Rarity	Documentation
WWI Interwar		89 in group, 136 in class	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Training boat			?23m down
Manufacturer		Other examples	Status/Designation
AG Vulcan Hamburg			
Amenity value			
Near wreck of UC51? Refs: 5 (ref 1/19), 6 vol 2 239-40			
Summary score/statement			
ID not positive in 2007, Found in 2000 Salcombe divers off Start Point (Lost Patrols & Young) NOT IN NMR OR UKHO AND NO COROBORATING DATA FOR POSITION. REQUIRES CONFIRMATION NEEDS ID CHECK. TRAINING BOAT ONLY. NON- WAR LOSS.			

CA 95: UB65		UB class, group 3	
MONUMENT NUMBER:	1402209	COUNTY:	CORNWALL
NMR NUMBER:	SW 97 NW 343	DISTRICT:	CORNWALL
LAST UPDATED:	2006	PARISH:	N/A
Depth	54m	AREA:	6 MILES NORTH OF PADSTOW
		MARITIME LOCATION:	PADSTOW BAY NORTH CORNWALL
UKHO	1001699080	LOCATION:	SW 9178 7969
Build dates		Loss date/Cause	Crew loss
1917		10/07/1918. Accidental, foundered	34
Period	Rarity	Documentation	
WWI	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1917 V Flottille Bremerhaven 1918 II Flottille Heligoland 6 patrols	Intact, good. The wreck lies upright. The bow section around the torpedo tubes is broken, damage caused by a munitions explosion, not a torpedo. All torpedo tubes are intact and undamaged. All hatches are open and you can see the controls down the conning tower.	Deteriorating	
Manufacturer	Other examples	Status/Designation	
AG Vulcan, Hamburg		PMRA No. 2616 Order 2006	
Amenity value			
Refs: www.uboa.net , www.wrecksite.eu YouTube Dave diving the UB65 (contaylor999) Wreck detectives programme of 08/08/2004			
Summary score/statement			
ID from propellers McCartney & Niestle . ? Attack by US submarine L2 Portugese cargo vessel wreck ALREADY PROTECTED			

CA 96: UB72		UB class, group 3	
MONUMENT NUMBER:	1145952	COUNTY:	DORSET
NMR NUMBER:	SY 27 NE 4	DISTRICT:	WEST DORSET
LAST UPDATED:	1999	PARISH:	N/A
Depth	66m	AREA:	LYME BAY
		STREET:	N/A
		MARITIME LOCATION:	LYME BAY DORSET
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1917		12/05/1918. D/C	32, 3 survivors
Period	Rarity	Documentation	
WWI	89 in group, 136 in class	By HM submarine D4 on receipt of signal interception.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1917-18 V Flottille 1918 II Flottille 5 patrols, 7 ships sunk	Intact, collapsed, damaged	Tidal streams brisk	
Manufacturer	Other examples	Status/Designation	
AG Vulcan, Hamburg			
Amenity value			
A brass wheel has been reported to the Receiver of Wreck, possibly off the UB72, position 50 06.57N 002 50.66W.(Droit A/001) Refs: 1, 5, 6 (vol 2, 216), www.uboa.net , Info from the RN Submarine Museum , Gosport collated by Hague, C., 1999. (http://www.gwpda.org/naval/ub72.htm)			
Summary score/statement			
<p>NMR HAS TIS VESSEL AT NAMED LOCATION, HOWEVER SITE MAY HAVE BEEN DIVED. POSITIONAL INFORMATION REQUIRED</p> <p>ISOLATED EXAMPLE.</p>			

Ca 97: UB74		UB class, group 3	
MONUMENT NUMBER:	904629	COUNTY:	DORSET
NMR NUMBER:	SY 67 SW 2	DISTRICT:	WEYMOUTH AND PORTLAND
LAST UPDATED:	N/A	PARISH:	N/A
Depth	32m	AREA:	4 MILES NORTH 60 MILES WEST OF PORTLAND BILL.
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699910	LOCATION:	SY 60946 70606
Build dates		Loss date/Cause	Crew loss
1917		26/05/1918. D/C	35 no survivors
Period		Rarity	Documentation
WWI		89 in group, 136 in class	By HM steam yacht Lorna. Dived on for intelligence in 1918 The Royal Navy have also used her as an ASDIC target.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
1918 V Flottille 1918 Flanders Flottille 4 patrols, 7 ships sunk		Broken up, conning tower at distance from main wreck, heavily salvaged.	On gravel. Always a current.
Manufacturer		Other examples	Status/Designation
AG Vulcan, Hamburg			
Amenity value			
Refs : 1, 5, 6 (vol 2, 183) www.uboa.net YouTube UB 74 Fearless (Keith Hawkins) Yorkshire-divers.com post of 14/10/2011 outer casing gone but can see details such as compressed air tanks Divemagazine.co.uk Weymouth's submarines "interesting cross-section views" Ukdiving.co.uk, Westbaydiving.co.uk www.diversdown-uae.com submarine week (2011)			
Summary score/statement			
Brass objects, steel name plate, propeller fragment Droits A/3853, A/4457 Receiver of Wrecks Amnesty Jan-April 2001 ISOLATED EXAMPLE			

CA 98: UB75		UB class, group 3	
MONUMENT NUMBER:	1570561	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	OV 10 NW 16	DISTRICT:	SCARBOROUGH
LAST UPDATED:	N/A	PARISH:	N/A
Depth	56m	AREA:	9 NAUTICAL MILES EAST OF NORTH CHEEK, ROBIN HOOD'S BAY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001691700	LOCATION:	OV 12675 07746
Build dates		Loss date/Cause	Crew loss
1917		10/12/1917. ?Mined?	34 no survivors
Period		Rarity	Documentation
WWI		89 in group, 136 in class	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
V Flotilla 2 patrols, 6 ships sunk		Stern missing, damaged. Found 2003 Leans to port, deck gun present. Stern & bows not there, conning tower is present.	On sands stones mud & gravel Trawl nets, unexploded shells & torpedoes
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR NE GROUP	
Amenity value			
Refs: 1 (Möller states English Channel), 6 (vol 1, 110-11), www.uboot.net Youtube "Dive on the German U-boat UB75" Andy Jackson			
Summary score/statement			
See also Coaster record 907944			
LATE WAR, NE GROUP			

CA 105: UB78		UB class, group 3	
MONUMENT NUMBER:	1388897	COUNTY:	KENT
NMR NUMBER:	TR 22 NE 101	DISTRICT:	SHEPWAY
LAST UPDATED:	2007	PARISH:	N/A
Depth	23m	AREA:	4.7M SE OF FOLKESTONE
		MARITIME LOCATION:	OFF FOLKESTONE KENT
		LOCATION:	TR 2950 2932
Build dates		Loss date/Cause	Crew loss
1917		19/04/1918. Mined	35 no survivors
Period	Rarity	Documentation	
WWI	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1918 V Flottille 1918 Flandern Flottille 5 patrols, 2 ships sunk	Intact & upright but deteriorating badly, gash on conning tower & items including propellers removed	Seabed of sand, shell & shingle Casing deteriorating	
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg?	FF/ DP		
Amenity value			
<p>Refs: 6 (vol 1, 301-3), www.uboaat.net Canterburydivers.org.uk/wrecks "the stern has been blown off", article has photos of propeller with close-up of stamp detail, also has diagram of wreck</p>			
Summary score/statement			
FF / DP			

CA 99: UB81		UB class, group 3	
MONUMENT NUMBER:	804831	COUNTY:	ISLE OF WIGHT
NMR NUMBER:	SZ 76 NW 8	DISTRICT:	ISLE OF WIGHT
LAST UPDATED:	2006	PARISH:	N/A
Depth	27m	AREA:	BETWEEN OWERS LIGHT VESSEL AND DUNNOSE HEAD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001699750	LOCATION:	SZ 7306 6610
Build dates		Loss date/Cause	Crew loss
1917		02/12/1917. Mined	29 lost, 6 survivors
Period		Rarity	Documentation
WWI		89 in group, 136 in class	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flandern Flottille 2 patrols, 1 ship sunk		In 2 sections, partially salvaged in 1970s. Conning tower blown off but present.	Collapsed, deteriorating fast
Manufacturer		Other examples	Status/Designation
AG Weser, Bremen			PMRA 2008 Statutory Instrument 950, revoking S I 2616 of 2006
Amenity value			
<p>Refs : 1, 5, 6 (vol 2, 120), YouTube Scuba dive on UB-81 (SouthseaSubAquaClub) Items in Bembridge shipwreck museum, include conning tower klaxon China plate, deck fittings and shell cases, Droit A/005, A/780 and A/3547, RWA 2001 Nautical Archaeological Society web page for UB 81 submarine 1970s attempt by Spithead Marine Salvage to buy wreck from Admiralty http://www.ukdiving.co.uk</p>			
Summary score/statement			
<p>CO Salzwedel (also of UC21) Flanders 12 patrols 150,000 tons accrued. Related monument sinking of Armed Cargo Vessel Molesey.</p> <p>ALREADY PROTECTED</p>			

CA 100: UB86		UB class, group 3	
MONUMENT NUMBER:	919745	COUNTY:	CORNWALL
NMR NUMBER:	SW 83 SW 57	DISTRICT:	CORNWALL
LAST UPDATED:	2011	PARISH:	N/A
		AREA:	WESTERN SIDE OF PENDENNIS POINT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700070?	LOCATION:	SW 8212 3162
Build dates		Loss date/Cause	Crew loss
1917		03/02/1921. Blown ashore	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
V Flotille and III Flotille 5 patrols, sank 7 ships 1 of 6 Falmouth Bay			
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen	FALMOUTH BAY		
Amenity value			
<p>Refs: 5 (5/52)</p> <p>Group mentioned as easy shore in dive divernet.com warships down south and in dogsbreathdivers.com The Subs.</p> <p>Brass items recovered, Droit A/242-7, A/1575 RWA 2001</p> <p>atlanticscuba.co.uk Pendennis silver steps, identifies (from contemporary photo) UB86 and UB97 as visible very close to the shore, with UB86 closest.</p>			
Summary score/statement			
<p>1 of 6 Falmouth Bay</p> <p>UB86 one of seven in North Sea diverted on 23/10/1918 to take part in final planned German High Seas Fleet attack. Order of 24/10/1918 led to Naval mutinies.</p> <p>FALMOUTH BAY</p>			

CA 101: UB97		UB class, group 3	
MONUMENT NUMBER:	919746	COUNTY:	CORNWALL
NMR NUMBER:	SW 83 SW 58	DISTRICT:	CORNWALL
LAST UPDATED:	2011	PARISH:	N/A
		AREA:	WESTERN SIDE OF PENDENNIS POINT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700070?	LOCATION:	SW 82024 31701
Build dates		Loss date/Cause	Crew loss
1918		1921. Blown ashore	0
Period		Rarity	Documentation
WWI Interwar		89 in group, 136 in class	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Still working-up at end of war			
Manufacturer		Other examples	Status/Designation
AG Vulcan, Hamburg		FALMOUTH BAY	
Amenity value			
See UB86			
Summary score/statement			
1 of 6 Falmouth Bay			
FALMOUTH BAY			

CA 76: UB106		UB class, group 3	
MONUMENT NUMBER:	919743	COUNTY:	CORNWALL
NMR NUMBER:	SW 83 SW 55	DISTRICT:	CORNWALL
LAST UPDATED:	2011	PARISH:	N/A
		AREA:	WESTERN SIDE OF PENDENNIS POINT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700250	LOCATION:	SW 82069 31649
Build dates		Loss date/Cause	Crew loss
1917-18		03/02/1921. Blown ashore	Lost entire crew in accident in Baltic 15/03/1918. Raised and recovered.
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class		
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Ordered to Flandern Flottile			
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		FALMOUTH BAY	
Amenity value			
See UB86			
Summary score/statement			
1 of 6 Falmouth Bay			
FALMOUTH BAY			

CA 77: UB107		UB class, group 3	
MONUMENT NUMBER:	907963	COUNTY:	EAST RIDING OF YORKSHIRE
NMR NUMBER:	TA 27 SE 7	DISTRICT:	EAST RIDING OF YORKSHIRE
LAST UPDATED:	2007	PARISH:	N/A
Depth	26m	AREA:	1 MILE NNE OF FLAMBOROUGH HEAD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001691630	LOCATION:	TA 25537 72743
Build dates		Loss date/Cause	Crew loss
1917-1918		04/08/1918. ?	38 no survivors
Period		Rarity	Documentation
WWI		89 in group, 136 in class	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottile 4 patrols, 11 ships sunk		In 2 parts, mixed with another wreck	On hard seabed of sand, stone & rock Breaking up very quickly & most interesting artefacts removed ?by divers , 6 (vol 1, 117).
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR, NE COAST	
Amenity value			
Refs: 1, 6 (vol 1, 117) www.uboaat.net Periscope in local dive club? REF? Youtube "UB-107" James Hartley			
Summary score/statement			
See also Danish collier (TA 44 SE 2), British cargo vessel (TA 44 SW 2), Swedish cargo vessel (TA 44 NE 1). Physically associated with mixed up / embedded in with the wreck of the steamship Malvina which it didn't sink. LATE WAR, NE COAST			

CA 130: UB108		UB class, group 3	
MONUMENT NUMBER:	901764	COUNTY:	KENT
NMR NUMBER:	TR 32 NW 17	DISTRICT:	SHEPWAY
LAST UPDATED:	N/A	PARISH:	N/A
Depth		AREA:	N/A
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TR 32322 27725
Build dates	Loss date/Cause	Crew loss	
1917-1918	02/07/1918. Mined	36 lost, no survivors0	
Period	Rarity	Documentation	
WWI	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
I Flottille Flanders 3 patrols, 2 ships sunk			
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg			
Amenity value			
Refs: www.uboa.net			
Summary score/statement			
<p>Now thought to have been mined off Belgian coast. EH recorded wreck may be of UB58 UKHO refs: 29-SEP-1978 Located in 51 00 05N, 001 18 42E Depth 17m in general depth 24.6m, no scour heightt 7.5m, length 50m, lying 060/240 deg. 29-NOV-1985 in 51 00 04N, 001 18 42E - Depth 18.5 in general depth 23.5m, no scour. Lying 040/220 deg, 41.3m long. Chart as wreck 17m.</p>			
NOT VIABLE RECORD			

CA 78: UB109		UB class, group 3	
MONUMENT NUMBER:	901790	COUNTY:	KENT
NMR NUMBER:	TR 23 SE 35	DISTRICT:	DOVER
LAST UPDATED:	2009	PARISH:	N/A
Depth	29m	AREA:	2 MILES SE OF FOLKESTONE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698590	LOCATION:	TR 26808 34162
Build dates		Loss date/Cause	Crew loss
1917		29/08/1918. Mined	28 lost, 8 survivors
Period	Rarity	Documentation	
WWI	89 in group, 136 in class	Dived on, on day of sinking, RN divers got the charts out within 2 hrs water hot from battery acid, charts recovered	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flanders Flottile 3 patrols, 7 ships sunk Dover patrol casualty	Broken open, in 2 parts stern blown off both props salvaged conning tower & periscope still there. 2 diff sub nos on the propellers (now removed) & deck gun also present	Heavily silted & lots of nets & rope (6, 1, 293)	
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg	FF /DP		
Amenity value			
Refs: 1, 5, 6 (vol 1, 293) www.uboa.net YouTube UB109 (WhiteWolfDiving) Canterburydivers.org.uk/wrecks "the stern is blown off... both props have been salvaged" ID from propellers (UB-109 and UB-104)			
Summary score/statement			
See also 10 ships listed as associated by EH CO Ramien Flanders under 100,000 tons accrued FF / DP			

CA 79: UB112		UB class, group 3	
MONUMENT NUMBER:	919744	COUNTY:	CORNWALL
NMR NUMBER:	SW 83 SW 56	DISTRICT:	CORNWALL
LAST UPDATED:	2011	PARISH:	N/A
		AREA:	FALMOUTH BAY, WEST OF PENDENNIS POINT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700250	LOCATION:	SW 81712 31664
Build dates		Loss date/Cause	Crew loss
1917-1918		03/02/1921. Blown ashore	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flandern Flottille Sank 11 ships			
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg	FALMOUTH BAY		
Amenity value			
Refs : 1, www.uboot.net See UB86			
Summary score/statement			
1 of 6 Falmouth Bay Related monuments (Victims of boat) include, Prunelle, Heros, The Stewarts Court, Gjertrud, Nanna, Bamse, Polejames & Atlantis FALMOUTH BAY			

CA 80 & CA 125: UB113		UB class, group 3	
MONUMENT NUMBER:	832073 & 832201	COUNTY:	CORNWALL
NMR NUMBER:	SX 03 NW 5	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	33 fathoms	AREA:	N/A
UKHO	1001700280	MARITIME LOCATION:	Coastal Waters
UKHO	1001700600	LOCATION:	SX 02173 35781
Build dates		Loss date/Cause	Crew loss
1917-1918		14/09/1918? ??	39 dead (all hands lost).
Period	Rarity	Documentation	
WWI	89 in group, 136 in class	Left Zeebrugge for western Channel via north route and was never heard from	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flandern Flottille 2 patrols, 3 ships sunk Dover patrol casualty	Submarine located 1977		
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg			
Amenity value			
Ref: www.uboaat.net			
Summary score/statement			
Wreck not positively identified. ID as UB113 probably wrong, confused with UB 118 loss 1920 NEEDS MORE WORK – ID PROBLEM			

CA 81: UB115		UB class, group 3	
MONUMENT NUMBER:	943542	COUNTY:	NORTHUMBERLAND
NMR NUMBER:	NZ 39 SE 2	DISTRICT:	NORTHUMBERLAND
LAST UPDATED:	2011	PARISH:	N/A
Depth	49m	AREA:	5.5 MILES EAST OF CRESSWELL
		MARITIME LOCATION:	Coastal Waters
UKHO	1001688970	LOCATION:	NZ 39472 94158
Build dates		Loss date/Cause	Crew loss
1917-1918		29/09/1918. D/C	39 no survivors
Period		Rarity	Documentation
WWI		89 in group, 136 in class	Found by Airship R29 and then D/C by HMS Ouse and Star,
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottile 2 patrols, 1 ship sunk		In two sections, on fly ash from local power station	Seabed of fine-sand & broken shell. Damaged recently by trawling?
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR, NE COAST	
Amenity value			
Refs: 1, 6 (vol 1, 68), www.uboaat.net			
Summary score/statement			
Initial attack by Airship R-29, then destroyers and trawlers			
LATE WAR, NE COAST			

CA 102: UB117		UB class, group 3	
MONUMENT NUMBER:	912637	COUNTY:	SUFFOLK
NMR NUMBER:	TM 23 SW 35	DISTRICT:	BABERGH
LAST UPDATED:	N/A	PARISH:	N/A
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001702490	LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1917-1918		Surrendered 26/11/1918 Broken up Felixstowe 1919-20?	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class	1920 record of location	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1918 Flandern Flottille 1918 II Flottille 3 patrols, 5 ships sunk			
Manufacturer	Other examples	Status/Designation	
Blohm & Voss, Hamburg			
Amenity value			
1 (says surrendered 26/11/1918 Scrapped 1919-20 at Felixstowe), www.uboaat.net			
Summary score/statement			
Moored and sank with UB101 and UB105, which were raised, UB117 apparently left Look at AP's? NEEDS MORE WORK.			

CA 103: UB118		UB class, group 3	
MONUMENT NUMBER:	919754	COUNTY:	CORNWALL
NMR NUMBER:	SX 03 SE 3	DISTRICT:	CORNWALL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	60m	AREA:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700290	LOCATION:	SX 05906 32990
Build dates		Loss date/Cause	Crew loss
1917-1918		21/11/1920. Sank under tow,	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class	She is very likely the U-boat that sank while under tow on November 21, 1920 near Falmouth. Lost control on tow, sunk by gun fire from sloop HMS Kennet as a danger to navigation.	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
III Flottille 5 patrols, 4 ships sunk	Intact, partly salvaged. Considerable damage to outer casing especially upper sections (6, 2, 269).	Seabed mud, sand, gravel & broken shell.	
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen			
Amenity value			
Refs: 1, 5, 6 (vol 2, 269), www.uboaat.net			
Summary score/statement			
Was to be part of Falmouth group, but lost on tow from Devonport			
INTERWAR, PART SALVAGED			

CA 104: UB121		UB class, group 3	
MONUMENT NUMBER:	903630	COUNTY:	EAST SUSSEX
NMR NUMBER:	TV 59 NW 46	DISTRICT:	EASTBOURNE
LAST UPDATED:	1999	PARISH:	N/A
Depth	5m	AREA:	BELOW BAILYS HILL
		MARITIME LOCATION:	SEVEN SISTERS EAST SUSSEX
		LOCATION:	TV 5283 9679
Build dates		Loss date/Cause	Crew loss
1917-1918		To be broken up Toulon 1921,	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
III Flottille 3 patrols, no sinkings	Salvaged on beach 1928-1959		
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen			
Amenity value			
<p>Refs: 1, www.uboaat.net</p> <p>Some wreckage visible at low tide (Tonbridge Wells Sub Aqua Club - www.twsac.org) Close- up photograph of boat on beach (Spring low tide, 2011)</p>			
Summary score/statement			
<p>ID and existence of this as an existing wreck not proven. Photos on beach next to SS Ousla also attributed to UB21 see Silent Warriors (Ref 6) vol 2 106, ournewhaven.org (Alec Paddy). But note that details of gun and conning tower not identical to photos of UB21 at Ramsgate in 1918. Uboat on this beach said to be variously refloated (UB21) and sank in Solent by 1921 OR it continued to be scrapped on beach up till 1959 UB121 one of seven in North Sea diverted on 23/10/1918 to take part in final planned German High Seas Fleet attack. Order of 24/10/1918 led to Naval mutinies.</p> <p>DEBRIS</p>			

CA 83: UB128		UB class, group 3	
MONUMENT NUMBER:	919748	COUNTY:	CORNWALL
NMR NUMBER:	SW 83 SW 60	DISTRICT:	CORNWALL
LAST UPDATED:	2011	PARISH:	N/A
		AREA:	FALMOUTH BAY, WEST OF PENDENNIS POINT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700440	LOCATION:	SW 81799 31845
Build dates		Loss date/Cause	Crew loss
		03/02/1921. Blown ashore	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Based in Mediterranean 2 patrols, 1 ship sunk			
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen	FALMOUTH BAY		
Amenity value			
Refs: 1, 5, www.uboard.net See UB 86 Atlanticscuba.net identifies UB128 as boat on Castle Beach while other 5 on Pendennis Point			
Summary score/statement			
1 of 6 Falmouth Bay Commanded by Wilhelm Canaris, later head of Abwehr in WWII and executed in 1945 for his part in plot against Hitler. FALMOUTH BAY			

CA 84: UB130		UB class, group 3	
MONUMENT NUMBER:	911902	COUNTY:	EAST SUSSEX
NMR NUMBER:	TV 58 NE 63	DISTRICT:	EASTBOURNE
LAST UPDATED:	1999	PARISH:	N/A
Depth	25m	AREA:	3.5 MILES FROM BEACHY HEAD LIGHT
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TV 59312 88639
Build dates		Loss date/Cause	Crew loss
1917-1918		1921 Foundered on way to breakers	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
I Flottille Brunsbuttel 1 patrol No ships sunk	Collapsed, in 3 sections	Heavily salvaged in 1980s	
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen			
Amenity value			
Refs: 1, 5, 6 (vol 2, 44), www.uboaat.net , www.twsac.org Propeller Isle of Wight Garden Gun raised by TWSAC and displayed in Newhaven Museum Bronze bearing Droit A/1587			
Summary score/statement			
ID problem as UB130 supposedly destroyed in test Toulon 1921 LATE WAR, POOR CONDITION			

CA 85: UB131		UB class, group 3	
MONUMENT NUMBER:	903633	COUNTY:	EAST SUSSEX
NMR NUMBER:	TQ 80 NW 70	DISTRICT:	HASTINGS
LAST UPDATED:	1999	PARISH:	N/A
Depth	0m	AREA:	NEAR BULVERHYTHE
		MARITIME LOCATION:	HASTINGS EAST SUSSEX
		LOCATION:	TQ 8241 0887
Build dates		Loss date/Cause	Crew loss
1917-1918		09/01/1921. Ran aground	0
Period	Rarity	Documentation	
WWI Interwar	89 in group, 136 in class		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
	Broken up on beach		
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen			
Amenity value			
Refs: 1, www.uboat.net			
Summary score/statement			
U-Boat toilet recovered off Brighton Droit A/398			
DEBRIS			

CA 106: UC2		UC class group 1	
MONUMENT NUMBER:	912939	COUNTY:	SUFFOLK
NMR NUMBER:	TM 58 NE 11	DISTRICT:	WAVENEY
LAST UPDATED:	2011	PARISH:	N/A
Depth	22m	AREA:	3 MILES SE OF LOWESTOFT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001706290	LOCATION:	TM 59932 89712
Build dates		Loss date/Cause	Crew loss
1915		02/07/1915. Damaged by own mine & then rammed, possible mine damage.	15 no survivors
Period		Rarity	Documentation
WWI		15 in group, 95 in class.	By SS Cottingham. Parts raised.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 2 patrols		Partially recovered, then destroyed with explosives (Grant, 1969, 13; Grant 2003). Only fragments remain. UKHO site	A few broken battered plates and a small section of the boat which is mostly buried.
Manufacturer		Other examples	Status/Designation
AG Vulcan, Hamburg		UC6, UC11?	
Amenity value			
1, 6 (vol 1, 174-7), www.uboa.net , Grant, 1969, 13, Grant 2003			
Summary score/statement			
Dived on at time for information. Used in design of E class minelayers DEBRIS			

CA 116: UC6		UC class group 1	
MONUMENT NUMBER:	901536	COUNTY:	KENT
NMR NUMBER:	TR 49 NE 112	DISTRICT:	THANET
LAST UPDATED:	2012	PARISH:	N/A
Depth	22m	AREA:	KENTISH KNOCK
		MARITIME LOCATION:	KENTISH KNOCK THAMES ESTUARY
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1915		27/09/1917	16 no survivors
Period	Rarity	Documentation	
WWI	15 in group, 95 in class.		
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flanders Flottille 89 patrols, 55 ships sunk Dover patrol casualty	Bow missing forward of first mine tube, stern inc. rudder & propellers partially buried in sand-wave, conning tower displaced, bow missing Mines still in tubes. (On a seabed of silty sand.	
Manufacturer	Other examples	Status/Designation	
AG Vulcan, Hamburg	UC2, ?UC11 FF /DP		
Amenity value			
Refs: 1, 6 (vol 1, 243), www.uboaat.net			
Summary score/statement			
<p>Undertook 89 patrols of 1-2 days length. At least 54 vessels sunk by mines laid. Not Officially ID'd but 'almost certainly' UC6. ID possibly confused with that of UC21? FF/DP</p> <p>NMR ONLY HAVE THIS AT A NAMED LOCATION, HOWEVER SITE HAS APPARENTLY BEEN DIVED. POSITION NEEDS TO BE CONFIRMED.</p> <p>NEEDS WORK ON ID. IF CORRECT IS IMPORTANT EARLY BOAT.</p>			

CA 123: UC11		UC class group 1	
MONUMENT NUMBER:	908160	COUNTY:	ESSEX
NMR NUMBER:	TM 52 NW 12	DISTRICT:	TENDRING
LAST UPDATED:	2003	PARISH:	N/A
Depth	21m	AREA:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	1001694700	LOCATION:	TM 50495 28701
Build dates	Loss date/Cause	Crew loss	
1915	26/06/1918. Own mine	18 lost, 1 survivor	
Period	Rarity	Documentation	
WWI	15 in group, 95 in class.	Dived on day following sinking for intelligence	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flanders Flottille	Echosounder only (11/01/1977)		
Manufacturer	Other examples	Status/Designation	
AG Weser, Bremen			
Amenity value			
6, (vol 1, 200-6), Grant 1969, (Möller, 2004 states sunk on 24/07/1917), www.uboot.net			
Summary score/statement			
CO Konteradmiral Ulrich Rasmus (1887-1943) Watch officer U9 1911-2, U14 1912-3, CO UC11 building 1915-16, active up to 05/06/1916. ABR record			
NEEDS SURVEY WORK / POSITIVE ID			

CA 107: UC21		UC class group 2	
MONUMENT NUMBER:	904788	COUNTY:	KENT
NMR NUMBER:	TR 48 SE 8	DISTRICT:	THANET
LAST UPDATED:	2012	PARISH:	N/A
Depth	22m	AREA:	8.5 NAUTICAL MILES NE OF THE NORTH FORELAND
UKHO	1001707770	MARITIME LOCATION:	Coastal Waters
UKHO	1001697020	LOCATION:	TR 48393 84149
Build dates		Loss date/Cause	Crew loss
1916		1917. Mined	27 no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 11 patrols, 98 ships sunk Dover patrol casualty		Semi-buried (UKHO, 1995) FF / DP	
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg			
Amenity value			
Refs: 1 (says going to Bay of Biscay from Zeebrugge), www.uboot.net			
Summary score/statement			
<p>Not fully identified.</p> <p>Related monuments Fernebo (Swedish) Ole Bull (Norwegian) HMS Dhoon trawler</p> <p>Confusion with UC6 901536?</p> <p>OC Salzwedel (also UB81) Flanders 12 patrols 150,000 tons accrued</p> <p>SUBMARINE AT THIS LOCATION UNLIKELY TO BE UC21 – POSITION AND ID NEED TO BE RESOLVED</p> <p>FF /DP ID NEEDS CHECK</p>			

CA 108: UC26		UC class group 2	
MONUMENT NUMBER:	883715	COUNTY:	KENT
NMR NUMBER:	TR 34 SE 85	DISTRICT:	DOVER
LAST UPDATED:	2012	PARISH:	N/A
Depth	35m	AREA:	12 MILES SE OF SOUTH FORELAND
		MARITIME LOCATION:	SOUTH FORELAND KENT
		LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1916		09/05/1917. Rammed & D/C	24 lost, 2 saved
Period	Rarity	Documentation	
WWI	64 in group, 95 in class.	By HMS Milne	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Flanders Flottille 9 patrols, 39 ships sunk	Broken, corroded, conning tower broken off. Propellers still in place.	On seabed of rock, stone & sand.	
Manufacturer	Other examples	Status/Designation	
AG Vulcan, Hamburg	FF / DP		
Amenity value			
Refs 1, 5, 6 (vol 1, 282-9), www.uboaat.net			
Summary score/statement			
Id'd 2003			
NMR ONLY HAVE THIS AT A NAMED LOCATION, HOWEVER SITE HAS APPARENTLY BEEN DIVED. POSITION NEEDS TO BE CONFIRMED. FF / DP			

CA 109: UC32		UC class group 2			
MONUMENT NUMBER:	908712	COUNTY:	SUNDERLAND		
NMR NUMBER:	NZ 45 NW 53	DISTRICT:	SUNDERLAND		
LAST UPDATED:	2012	PARISH:	N/A		
Depth	11m	AREA:	0.4 MILE NE OF ROKER PIER LIGHTHOUSE		
		MARITIME LOCATION:	Coastal Waters		
UKHO	1001690490	LOCATION:	NZ 42153 58914		
Build dates		Loss date/Cause		Crew loss	
1916		23/02/1917 Own mines		22 lost, 3 saved	
Period		Rarity		Documentation	
WWI		64 in group, 95 in class.		Dived on between Feb-April 1917	
Group Value/Campaign		Survival/Condition		Fragility/Vulnerability	
Brunsbuttell, Heligoland 3 patrols		Was intact, now only 3 sections remain Local divers lifted her props and periscope about 14-years ago. Lots of rows of massive lead batteries to be seen. Two bronze propellers were removed ten years ago, along with her periscope etc. A torpedo tube is still intact, complete with an unexploded torpedo inside. Unexploded mines can also be seen in the sand		Salvaged since 1980s. Live munitions "dispersed" by RN	
Manufacturer		Other examples		Status/Designation	
AG Vulcan, Hamburg		LATE WAR, NE COAST			
Amenity value					
<p>Propellers recovered Droit A/886 and 887 RWA 2001 You can dive this wreck but sometimes the police warn you off. It lies only about 0.25 miles from Roker Pier</p> <p>Refs: 1 (Möller says scrapped), (6,vol 1, 73-81)). www.uboa.net, http://www.ukdiving.co.uk 6</p>					
Summary score/statement					
LATE WAR, NE COAST					

CA 110: UC39		UC class group 2	
MONUMENT NUMBER:	907921	COUNTY:	EAST RIDING OF YORKSHIRE
NMR NUMBER:	TA 34 NE 3	DISTRICT:	EAST RIDING OF YORKSHIRE
LAST UPDATED:	N/A	PARISH:	N/A
Depth	25m	AREA:	8.5 MILES EAST OF HORNSEA
		MARITIME LOCATION:	Coastal Waters
UKHO	1001690990	LOCATION:	TA 36474 49706
Build dates		Loss date/Cause	Crew loss
1916		08/02/1917. D/C and gunfire	7
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	By HMS Thrasher Dived on in June 1918, wreck from 1917 still losing oil and air. Blown apart for salvage
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 1 patrol, 3 ships sunk		Poor Recent report says it has now been blown apart by explosives, making it partly buried & very difficult to find	On seabed of sand, gravels, pebbles & broken shell
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR, NE COAST	
Amenity value			
Bridlington Harbour Commissioners' Museum has one propeller Droit A/3355 Various small items Droit A/1039, 1702, 1961, 2015, 2603, 4290, 042/08 RWA 2001 and 2008 See also possible victims 909225, 909211, 909198 Refs: 1,6 (vol 1,137), www.uboot.net			
Summary score/statement			
Related monuments Ida (Norwegian) Saint Ninian (British) Corsican Prince (British) London (Scottish) Hurstwood (English) LATE WAR, NE COAST			

CA 111: UC46		UC class group 2	
MONUMENT NUMBER:	901819	COUNTY:	KENT
NMR NUMBER:	TR 44 SE 8	DISTRICT:	DOVER
LAST UPDATED:	2012	PARISH:	N/A
Depth	30m	AREA:	1.75 MILES SE OF SOUTHERN TIP OF SOUTH SAND HEAD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001697140	LOCATION:	TR 45038 41557
Build dates		Loss date/Cause	Crew loss
1916		08/02/1917. Rammed, sunk and D/C	23 no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	By HMS Liberty
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottile 4 patrols, 10 ships sunk Dover patrol casualty		Reasonably intact, corroded intact on port side outer casing badly corroded 88mm gun still in situ (1997)	Sandy seabed
Manufacturer		Other examples	Status/Designation
AG Weser, Bremen		FF / DP	
Amenity value			
Canterburydivers.org.uk/wrecks “very intact and interesting...big old net over this wreck” has diagram National maritime museum object KTP1213 fragment of torpedo recovered from HMS Argyllshire. Refs: 1, 5, 6 (vol1 1, 182), www.uboot.net			
Summary score/statement			
See also victim 907888 possible remains of Norwegian cargo vessel Modig Probable ID FF / DP			

CA 112: UC47		UC class group 2	
MONUMENT NUMBER:	907973	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	TA 47 NE 1	DISTRICT:	RYEDALE
LAST UPDATED:	N/A	PARISH:	N/A
Depth	52m	AREA:	N/A
UKHO	Foul?	MARITIME LOCATION:	Coastal Waters
		LOCATION:	TA 46871 76898
Build dates		Loss date/Cause	Crew loss
1916		18/11/1917. Rammed, D/C.	28 no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	By P57 RN divers entered day after sunk.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flandern Flottille 13 patrols, 57 ships sunk		Bows buried in sand down. Discovered 2001 & difficult to spot, reported bows buried deep in sand. Only conning tower deck gun & mast visible but stern clear with propellers in situ	On an undulating bed of sand peaks /dunes & small pebbles. Propellers and gun removed between 2001 and 2004 as salvage. -maybe by trawler damage. (6, 1, 132-3)
Manufacturer		Other examples	Status/Designation
AG Weser, Bremen		LAE WAR, NE COAST	
Amenity value			
Divernetxtra.com/wrecks/uc47 report on discovery "so head down into the sand that towards the bow only the conning tower, the gun and one of her telescopic radio masts stand up out of the seabed. But the stern is 6m clear" Report from DIVER July 1997 Refs: 1,6 (vol 1, 132-3), www.uboat.net , http://www.ukdiving.co.uk			
Summary score/statement			
See also related victims Scottish cargo vessel, Swedish steamer, British steamer LATE WAR, NE COAST			

CA 113: UC49		UC class group 2	
MONUMENT NUMBER:	832200	COUNTY:	DEVON
NMR NUMBER:	SX 94 NE 1	DISTRICT:	SOUTH HAMS
LAST UPDATED:	2008	PARISH:	N/A
Depth	37m	AREA:	3 MILES SW OF SCABBACOMBE HEAD
		MARITIME LOCATION:	Coastal Waters
UKHO	1001700660	LOCATION:	SX 97102 48761
Build dates		Loss date/Cause	Crew loss
1916		08/08/1918. D/C.	31 lost, no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	By HMS Opossum
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Based at Heligoland later Flandern Flottille 13 patrols, 25 ships sunk		Upright, badly damaged at bows, amidships and conning tower	Tidal streams brisk on sand & shingle.
Manufacturer		Other examples	Status/Designation
Germaniawerft, Kiel			
Amenity value			
Refs: 1, 5, 6 (vol 2, 206), www.uboat.net			
Summary score/statement			
13 war patrols, attacks with mines, torpedoes and gunfire. Sank armed ambulance transport Warilda, 123 lost.			
Possible ID only			
SOUTH COAST, NOT FAR FROM UC 51			

CA4, CA 93 & CA 114: UC50		UC class group 2	
MONUMENT NUMBER:	901730 / 904126	COUNTY:	KENT
NMR NUMBER:	TR 01 SE 13	DISTRICT:	SHEPWAY
LAST UPDATED:	N/A	PARISH:	N/A
Depth	52m	AREA:	OFF RYE BAY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001709170	LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1916		04/02/1918. D/C?	29 no survivors
Period	Rarity	Documentation	
WWI	64 in group, 95 in class.	Previous fate thought to have been sunk by HMS Zubian. Not found by Naval Divers at time	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
1917 I Flottille 1917-1918 Flandern Flottille 9 patrols, 29 ships sunk Dover patrol casualty	Damaged central section		
Manufacturer	Other examples	Status/Designation	
Germaniawerft, Kiel	FF /DP		
Amenity value			
Refs: 1, 5 (144-5), www.uboot.net			
Summary score/statement			
Possible ID Innes McCartney says there is a UC class wreck (Lost Patrols). Possibly was sunk by HMS Zubian.			
OF THE RECORDS FOR THIS U BOAT NONE CONVINCINGLY RELATE TO A WRECK ON THE SEABED. NMR 904126 POSITION USED AND NEEDS TO BE INVESTIGATED BY SURVEY.			
FF / DP			

CA 115: UC51		UC class group 2	
MONUMENT NUMBER:	832137	COUNTY:	DEVON
NMR NUMBER:	SX 72 NE 1	DISTRICT:	SOUTH HAMS
LAST UPDATED:	2007	PARISH:	N/A
Depth	60m	AREA:	4 MILES SSE OF PRAWLE POINT
UKHO	1001700300	MARITIME LOCATION:	Coastal Waters
UKHO	1001706480	LOCATION:	SX 79128 28007
Build dates		Loss date/Cause	Crew loss
1916		17/11/1917. Mined.	29 lost, no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Based at Heligoland later Flandern Flottille 7 patrols, 28 ships sunk		Upright, almost intact, damage to stern (a 12m long section blown off) with debris field behind stern. Mine chutes still full.	Firm seabed of shingle, sand and stone Tidal streams severe. Casing showing signs of deterioration.
Manufacturer		Other examples	Status/Designation
Germaniawerft, Kiel			
Amenity value			
Refs: 1 ,5, 6 (vol 2, 239) www.uboaat.net			
Summary score/statement			
7 war patrols. Attacks with mines, torpedoes, gunfire and explosive charges See also remains of Danish cargo vessel (SX 72 NE 2)			
Possible ID SOUTH COAST, NOT FAR FROM UC 49			

CA 117: UC62		UC class group 2	
MONUMENT NUMBER:	912961	COUNTY:	SUFFOLK
NMR NUMBER:	TM 79 NW 1	DISTRICT:	WAVENEY
LAST UPDATED:	2013	PARISH:	N/A
Depth	28m	AREA:	OFF LOWESTOFT
		MARITIME LOCATION:	Coastal Waters
UKHO	1001693890	LOCATION:	TM 71370 96402
Build dates		Loss date/Cause	Crew loss
1916		14/10/1917. Mined	30 no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 9 patrols, 12 ships sunk			
Manufacturer		Other examples	Status/Designation
AG Weser, Bremen			
Amenity value			
Refs: 1, 5, www.uboaat.net . 6 says not found			
Summary score/statement			
Foul or obstruction, not UC62 (which has been identified by two propellers off Thornton Bank, near Zebrugge) Could be either unknown submarine or variant report for Abeona (1443908) IDENTITY OF UBOAT AT THIS LOCATION NEEDS TO BE CONFIRMED – NOT UC62 NOT VIABLE RECORD			

CA 118: UC64		UC class group 2	
MONUMENT NUMBER:	1489948	COUNTY:	KENT
NMR NUMBER:	TR 32 SE 2	DISTRICT:	DOVER
LAST UPDATED:	2009	PARISH:	N/A
Depth	38m	AREA:	2 MILES EAST OF THE VARNE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001708930	LOCATION:	Not confirmed
Build dates		Loss date/Cause	Crew loss
1916-1917		20/06/1918. Mined, D/C.	30
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	Probably dived on 06/07/1918, interior cleared with explosives. RN Divers positively identified it?
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 15 patrols, 26 ships sunk Dover patrol casualty		Very broken up Partly buried, hull casing badly damaged Large props in place & gun conning tower lies to one side removed with explosives by RN divers. Stern reasonably intact	On a seabed of sand, shell loose sediment & shingle. Tidal streams q. severe ()
Manufacturer		Other examples	Status/Designation
AG Weser, Bremen		FF / DP	
Amenity value			
1, 5, 6 (vol 1, 335), www.uboaat.net , Grant 2003 Canterburydivers.org.uk/wrecks "very broken"			
Summary score/statement			
Sank up to 27 vessels. NMR HAVE THE WRECK AT A NAMED LOCATION INSIDE UK TERRITORIAL WATERS, BUT ID NOT PROVEN, WAS CHARTED BY UKHO INSIDE FRENCH 12-MILE LIMIT. FF / DP			

CA 119: UC70		UC class group 2	
MONUMENT NUMBER:	909220	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	NZ 81 NE 3	DISTRICT:	SCARBOROUGH
LAST UPDATED:	2005	PARISH:	N/A
Depth	27m	AREA:	ABOUT 1.5 MILES NORTH OF SANDSEND
		MARITIME LOCATION:	Coastal Waters
UKHO	1001690110	LOCATION:	NZ 86268 16172
Build dates		Loss date/Cause	Crew loss
1916		28/08/1918. Air attack and D/C.	31 no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	By HMS Ouse. Dived on 14/09/1918 for intelligence
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 10 patrols, 33 ships sunk		Intact, and upright, on port side but many parts of her seams have blown and two hatches are open, plus the conning tower hatch is open. The deck gun and periscope are still in place, with wires and cables festooning the interior. Intact with a slight list to starboard.	In small scour on bed of flat sand & gravel. A propeller removed in 1992 Very silted inside.
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		LATE WAR, NE COAST	
Amenity value			
<p>Refs: 1, 6 (vol 1, 102), www.uboaat.net http://www.ukdiving.co.uk YouTube Diving The UC70, 1st World War Submarine (Tommytworivers) Divernet.com Wreck Tour: 10, the UC-70 full description with annotated diagram "robust inner hull is intact, but the outer hull is broken" Two plates in Scarborough Sub-Aqua Club Eskside.co.uk Dive Whitby The UC70 illustrated description with GPS marks and rider that "feelings run high in Whitby that the wreck should be treated with respect"</p>			
Summary score/statement			
<p>1st CO Werner Furbringer Blackburn Kangaroo followed by HMS Ouse</p> <p>LATE WAR, NE COAST</p>			

CA 124: UC72		UC class group 2	
MONUMENT NUMBER:	908114	COUNTY:	ESSEX
NMR NUMBER:	TM 41 NE 4	DISTRICT:	TENDRING
LAST UPDATED:	N/A	PARISH:	N/A
Depth	15m	AREA:	NEAR SUNK LIGHT VESSEL.
		MARITIME LOCATION:	Coastal Waters
UKHO	1001696180	LOCATION:	TM 46218 18707
Build dates		Loss date/Cause	Crew loss
1916		20/08/1917. ?	31 no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	Attack by Q-ship Acton reported, but u-boat.net suggest it survived this encounter.
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flanders Flottille 8 patrols, 41 ships sunk Dover patrol casualty		1987-1990 sonar contact (UKHO)	
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg			
Amenity value			
Refs: 1, www.uboot.net			
Summary score/statement			
UKHO record only Not identified ID IN DOUBT / No wreck found?			

CA 120: UC75		UC class group 2	
MONUMENT NUMBER:	907925	COUNTY:	EAST RIDING OF YORKSHIRE
NMR NUMBER:	TA 45 SW 1	DISTRICT:	EAST RIDING OF YORKSHIRE
LAST UPDATED:	2012	PARISH:	N/A
Depth	25m	AREA:	12.85 MILES ENE OF HORNSEA
		MARITIME LOCATION:	Coastal Waters
UKHO	1001691390	LOCATION:	TA 41179 51609
Build dates		Loss date/Cause	Crew loss
1916		31/05/1918. Foundered after being rammed, gunfire.	19 lost 14 survived.
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	By HMS Fairy
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Heligoland I Flottille 1917, 1917-1918 Flandern Flottille 13 patrols, 58 ships sunk Group value with HMS Fairy		Largely intact, upright Found 1989. Build-up of sand on starboard side. Deck-gun, torpedo tubes and propellers removed as salvage	On seabed of sand, mud, gravel, small pebbles & broken shell
Manufacturer		Other examples	Status/Designation
AG Vulcan, Hamburg		LATE WAR, NE COAST	
Amenity value			
1, 6 (vol 1, 125), www.uboaat.net http://www.ukdiving.co.uk Droit no A/3354 RWA 2001 part of periscope (Bridlington Harbour Commissioners) Youtube "UC-75 off Bridlington" Tomdlad			
Summary score/statement			
Related monument HMS Fairy (907926) LATE WAR, NE COAST			

CA 3 & CA 121: UC77		UC class group 2	
MONUMENT NUMBER:	901791	COUNTY:	KENT
NMR NUMBER:	TR 23 SW 13	DISTRICT:	SHEPWAY
LAST UPDATED:	2009	PARISH:	N/A
Depth	22m	AREA:	1.25 MILES SE OF FOLKESTONE
		MARITIME LOCATION:	Coastal Waters
UKHO	1001698450	LOCATION:	TR 24818 34632
Build dates		Loss date/Cause	Crew loss
1916		14/07/1918. Mined	30 no survivors
Period		Rarity	Documentation
WWI		64 in group, 95 in class.	Also depth charged by drifters, Kessingland, Golden Grain
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Flandern Flottille 13 patrols, 34 ships sunk Dover patrol casualty		Partially sunk into seabed, mine damage clear (1994 Dive Kent Guide)	
Manufacturer		Other examples	Status/Designation
AG Vulcan, Hamburg		FF /DP	
Amenity value			
Refs: 1 (says cause and exact location unknown). www.uboot.net			
Summary score/statement			
Off Flanders coast, west of Fairy Bank? Possible ID FF / DP			

CA 122: UC92		UC class group 3	
MONUMENT NUMBER:	919749	COUNTY:	CORNWALL
NMR NUMBER:	SW 83 SW 61	DISTRICT:	CORNWALL
LAST UPDATED:	2011	PARISH:	N/A
Depth	0m	AREA:	FALMOUTH BAY
		MARITIME LOCATION:	Coastal Waters
UKHO	1001702210	LOCATION:	SW 81683 31912UKHO
Build dates		Loss date/Cause	Crew loss
1918		1921. Surrendered. Driven ashore in gale.	0
Period		Rarity	Documentation
WWI Interwar		16 in group, 95 in class.	
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
One of six in reparation group.		Mainly salvaged by 1971.	
Manufacturer		Other examples	Status/Designation
Blohm & Voss, Hamburg		FALMOUTH GROUP	
Amenity value			
Group value			
Summary score/statement			
One of six. Group with shore access See UB 86			
FALMOUTH GROUP			

UNKNOWN			
MONUMENT NUMBER:	812822	COUNTY:	KENT
NMR NUMBER:	TR 20 NE 5	DISTRICT:	DOVER
LAST UPDATED:	N/A	PARISH:	N/A
		AREA:	SOUTHERN EDGE OF THE RIDGE OR LE COLBART
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TR 29501 07644
Build dates	Loss date/Cause	Crew loss	
Period	Rarity	Documentation	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Manufacturer	Other examples	Status/Designation	
Amenity value			
Summary score/statement			
<p>First recorded as possible wreck in 1919, was thought to be UC63. Not positively ID'd as submarine</p>			

UNKNOWN			
MONUMENT NUMBER:	813225	COUNTY:	KENT
NMR NUMBER:	TR 22 NE 14	DISTRICT:	SHEPWAY
LAST UPDATED:	2012	PARISH:	N/A
Depth	22m	AREA:	5 MILES SOUTH OF FOLKESTONE
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TR 29771 29343
Build dates		Loss date/Cause	Crew loss
Period	Rarity	Documentation	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
	In one piece with no debris		
Manufacturer	Other examples	Status/Designation	
Amenity value			
Summary score/statement			
Dived on in 1991, ID'd as submarine. Has been considered as UB55 or UC46 but both ID'd elsewhere. ID'd as WWI submarine by location only.			

UNKNOWN			
MONUMENT NUMBER:	879933	COUNTY:	SUFFOLK
NMR NUMBER:	TM 57 SW 3	DISTRICT:	SUFFOLK COASTAL
LAST UPDATED:	N/A	PARISH:	N/A
Depth	16m	AREA:	OFF SOUTHWOLD
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TM 53172 70318
Build dates		Loss date/Cause	
Period		Rarity	
Group Value/Campaign		Survival/Condition	
		Dived on in 1986	
Manufacturer		Other examples	
Amenity value			
Well-covered by nets, dangerous dive			
Summary score/statement			
Known locally as 'The Submarine'. Position close to unknown submarine reported D/C'd by HM Drifter Ocean Rambler in WWI			

UNKNOWN		
MONUMENT NUMBER:	904126	COUNTY: EAST SUSSEX
NMR NUMBER:	TR 01 SE 19	DISTRICT: ROTHER
LAST UPDATED:	N/A	PARISH: N/A
		AREA: N/A
		MARITIME LOCATION: N/A
		LOCATION: TR 06027 12197
Build dates	Loss date/Cause	Crew loss
Period	Rarity	Documentation
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability
Manufacturer	Other examples	Status/Designation
Amenity value		
Summary score/statement		
?Reported by Mr B Fenton, could be UC50? From Sussex MSMR 1042		

UNKNOWN			
MONUMENT NUMBER:	907977	COUNTY:	EAST RIDING OF YORKSHIRE
NMR NUMBER:	TA 38 NW 1	DISTRICT:	EAST RIDING OF YORKSHIRE
LAST UPDATED:	2012	PARISH:	N/A
		AREA:	8.9 NAUTICAL MILES NE OF FLAMBOROUGH HEAD
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TA 32095 85945
Build dates		Loss date/Cause	Crew loss
Period		Rarity	Documentation
Group Value/Campaign		Survival/Condition	Fragility/Vulnerability
Manufacturer		Other examples	Status/Designation
Amenity value			
Summary score/statement			
<p>Last located 1977, had been considered as UC75 and UB41 but both located elsewhere. 1997, not located. Not positively ID'd as submarine or from WWI</p>			

UNKNOWN			
MONUMENT NUMBER:	1399360	COUNTY:	KENT
NMR NUMBER:	TR 32 NW 27	DISTRICT:	DOVER
LAST UPDATED:	2004	PARISH:	N/A
		AREA:	N/A
		MARITIME LOCATION:	N/A
		LOCATION:	TR 3201 2767
Build dates	Loss date/Cause	Crew loss	
Period	Rarity	Documentation	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
	Ram damage in front of conning tower		
Manufacturer	Other examples	Status/Designation	
Amenity value			
Summary score/statement			
Depth gauge recovered of type associated with early model German U-boats (1994 Dive Kent) Regular visitors to site think it is Flanders Flotilla boat.			

UNKNOWN			
MONUMENT NUMBER:	813472	COUNTY:	KENT
NMR NUMBER:	TR 23 SE 24	DISTRICT:	DOVER
LAST UPDATED:	N/A	PARISH:	N/A
		AREA:	N/A
		MARITIME LOCATION:	N/A
		LOCATION:	TR 29645 33484
Build dates		Loss date/Cause	
Period		Rarity	
Group Value/Campaign		Survival/Condition	
		Upright with conning tower broken off Gun in situ in 1984	
Manufacturer		Other examples	
Amenity value			
Deck-gun, compass, propeller, various small items and binnacle cover Droit A/725			
Summary score/statement			
UKHO wreck index 1982 ID'd as submarine			

UNKNOWN			
MONUMENT NUMBER:	908526	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	TA 19 SE 3	DISTRICT:	SCARBOROUGH
LAST UPDATED:	N/A	PARISH:	N/A
		AREA:	N/A
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	TA 15801 91627
Build dates	Loss date/Cause	Crew loss	
Period	Rarity	Documentation	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Manufacturer	Other examples	Status/Designation	
Amenity value			
Summary score/statement			
Wreck of submarine reported by A C Jackson 1993			

UNKNOWN			
MONUMENT NUMBER:	908579	COUNTY:	NORTH YORKSHIRE
NMR NUMBER:	OV 10 NW 4	DISTRICT:	SCARBOROUGH
LAST UPDATED:	2012	PARISH:	N/A
		AREA:	8.19 NAUTICAL MILES EAST OF NORTH CHEEK, ROBIN HOOD'S BAY
		MARITIME LOCATION:	N/A
		LOCATION:	OV 11133 07373
Build dates		Loss date/Cause	Crew loss
Period	Rarity	Documentation	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Manufacturer	Other examples	Status/Designation	
Amenity value			
Summary score/statement			
Fishermen's foul only			

UNKNOWN

MONUMENT NUMBER:	911204	COUNTY:	WEST SUSSEX
NMR NUMBER:	SZ 98 NW 21	DISTRICT:	ARUN
LAST UPDATED:	1999	PARISH:	N/A
		AREA:	N/A
		MARITIME LOCATION:	N/A
		LOCATION:	SZ 93985 85945

Build dates	Loss date/Cause	Crew loss
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Period	Rarity	Documentation
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Group Value/Campaign	Survival/Condition	Fragility/Vulnerability
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Manufacturer	Other examples	Status/Designation
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Amenity value

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Summary score/statement

Hydro wreck 1977 (possible submarine) only

UNKNOWN		
MONUMENT NUMBER:	911465	COUNTY: EAST SUSSEX
NMR NUMBER:	TV 78 SE 5	DISTRICT: EASTBOURNE
LAST UPDATED:	N/A	PARISH: N/A
		AREA: N/A
		MARITIME LOCATION: N/A
		LOCATION: TV 75722 81096
Build dates	Loss date/Cause	Crew loss
Period	Rarity	Documentation
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability
Manufacturer	Other examples	Status/Designation
Amenity value		
Summary score/statement		
Hydro wreck 1992(possible submarine)		

UNKNOWN			
MONUMENT NUMBER:	1527661	COUNTY:	DEVON
NMR NUMBER:	SX 44 NE 34	DISTRICT:	SOUTH HAMS
LAST UPDATED:	2010	PARISH:	N/A
		AREA:	100 METRES SOUTH OF LITTLE MEWSTONE
		MARITIME LOCATION:	Coastal Waters
		LOCATION:	SX 49876 47015
Build dates		Loss date/Cause	
Period		Rarity	
Group Value/Campaign		Survival/Condition	
Manufacturer		Other examples	
Amenity value			
Summary score/statement			
Diver reports of 1984 and 1986 as German submarine about 30m long. NB 30m right for only UBI, UBII and UCI if intact length.			

UNKNOWN			
MONUMENT NUMBER:	900735	COUNTY:	MEDWAY
NMR NUMBER:	TQ 87 SW 30	DISTRICT:	MEDWAY
LAST UPDATED:	N/A	PARISH:	GILLINGHAM
		AREA:	STOKE SALTINGS
		STREET:	N/A
		MARITIME LOCATION:	Coastal Waters
UKHO	12749	LOCATION:	TQ 83054 73456
Build dates	Loss date/Cause	Crew loss	
Period	Rarity	Documentation	
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability	
Two further, more scrapped, examples in nearby Slede Creek	Seen to be located on Stoke Saltings, north of Bee Ness Jetty.		
Manufacturer	Other examples	Status/Designation	
Amenity value			
<p>“Discover your estuary” a pocket guide produced by MSEP, item 6 Humble Bee Creek and the German U-boat. Notes that boat on Alfred Korte island (CO of U122) and suggests that boat either U122, U123 or UB122, but note that these were supposed to have been scuttled in 1921 (see LP p106-110)</p>			
Summary score/statement			
<p>The remains of a First World War German U-boat to the west of Humble Bee creek in Stoke Saltings. This is one of a number of surrendered German U-boats that sank on their way to be broken up in 1921. There is a suggestion that this U-boat may be U 122, U 123 (both 82m in length) or UB 122 (56m in length) all of which suffered the same fate en-route to the breakers in 1921. The wreck in the Medway measures circa 50m and does not appear to be significantly truncated so, if these suggested designations are correct, this may be the remains of UB 122. This wreck can be seen on aerial photographs taken in 1946 and is still visible in 2011. It was mapped from aerial photographs as part of the English Heritage: Hoo Peninsula Landscape Project. A neighbouring wreck is the remains of the SWALE, recorded at 1538287. But note that U112, U126, U141, UB76, UB93, UB144, UB145 & UC60 were also supposedly broken up locally. Kenthistoryforum.co “Submarines in the Medway” 2009-2013. Suggests U112 as “the big one” . Quotes article “WW1 Medway U-boats” from After the Battle No 36 1982.</p>			

UNKNOWN		
MONUMENT NUMBER:	COUNTY:	MEDWAY
NMR NUMBER:	DISTRICT:	MEDWAY
LAST UPDATED: N/A	PARISH:	GILLINGHAM
Depth 0-2m	AREA:	SLEDE CREEK
	STREET:	N/A
	MARITIME LOCATION:	Coastal Waters
UKHO	LOCATION:	
Build dates	Loss date/Cause	Crew loss
Period	Rarity	Documentation
Group Value/Campaign	Survival/Condition	Fragility/Vulnerability
	Scrapped, only keels, base outlines remain	
Manufacturer	Other examples	Status/Designation
Amenity value		
Summary score/statement		
<p>Two scrapped boats close to 900735. Invisionzone.com/forum 2009 "WW1 Uboat" quotes article ""Medway Ghosts" in MOTOR BOATS monthly suggesting that hulks are of UB76 and UB93</p>		

9 ANNEX 2: SUBMARINES ON DISPLAY IN THE UK

Submarine	Date	Class	Built by	Museum/display	Notes -
<i>Holland No. 1</i> Registered, National Historic Ships no 427	1901	Holland	Vickers, Sons & Maxim Ltd, Barrow-in-Furness	RN Submarine Museum, Gosport - indoors	Lost off Eddystone in 1913, while under tow to breaker's yard
<i>X24</i> Registered, National Historic Ships no 1843	1942 - 5	Submersible, X Craft Midget Submarine	Marshall Gainsborough	RN Submarine Museum, Gosport -indoors	War time use Bergen Harbour. The only remaining example of a British X-craft that saw service during the war. Crew of four.
<i>U534</i>	1942	IXC/40	Deutsche Werft AG, Hamburg-Finkenwärder (Yard 352)	Woodside Ferry Terminal, Birkenhead	Commissioned 22/12/1942. No ships sunk or damaged by this boat. Sunk 5/5/ 45 between Denmark and Sweden, by depth charges from a British Liberator aircraft (Sqdn. 86/G). Raised in 1993 and almost scrapped before being taken over by the Warship Preservation Trust. Taken to England in 1996 and put on display at Birkenhead until 2008. She was then cut into five pieces and moved to the Woodside Ferry Terminal. Conning tower is a replica.
<i>Biber 90</i>	First of class delivered May 1944	Biber Class	?AG Wesser, Bremen	Imperial War Museum, London - indoors MAR 558	One of three Bibers launched from the canal at Hellevoetsluis in late December 1944. It was found sinking 49 miles (79 km) NE of Dover on 29 December 1944, its crewman had died apparently from carbon monoxide poisoning. HMS Ready took it in tow and, even when it sank close to Dover harbour entrance, the RN still raised it and subjected it to extensive trials. Other display examples – Holland, Germany, Norway
<i>Biber 105</i>	1944 +	Biber Class	?AG Wesser, Bremen	RN Submarine Museum, Gosport	324 built. Crew of 1. The Biber saw action in almost all coastal shores in Europe, including Norway, Denmark, France, Belgium, the Mediterranean and the Netherlands. They were used for coastal defence. Restored and tested using original motor.
<i>X 8 (Expunger)</i> Registered, National Historic Ships no 448	1944	Submersible, X Craft Midget Submarine	Thomas Broadbent & Sons of Huddersfield	Imperial War Museum, Duxford, indoors MAR 561	On 22 May 1945, she was taken by train to Portsmouth where she was used for training and instruction post-War. Taken out of commission in 1952 and allocated to Portland as a submerged target for training in submarine warfare. Wreck located in 1972, and raised by HMS Kinbrace 1973. Subsequently moved to Duxford on 31/May/1973.
<i>Alliance</i> Pennant no P147 (S67 from 1961) Registered, National Historic Ships no 100	1945 Heavily modernised in 1958-60.	A/Amphion Class	Vickers & Armstrong Ltd, Barrow-in-Furness	RN Submarine Museum, Gosport – dry berth	The only survivor of the successful "A" Class submarines designed for operation primarily in the Far East. Only 16 were built. Withdrawn from active service in March 1973 to become the static training boat at HMS DOLPHIN. In 1978, she was passed to the RN Submarine Museum in Gosport where, since 1981, she has rested as a permanent memorial to the 4334 submariners who lost their lives on service in both world wars, and to the 739 officers and men lost in peacetime submarine disasters. A major restoration program is underway.

Submarine	Date	Class	Built by	Museum/display	Notes -
X7	1943	Submersible, X Craft Midget Submarine	Vickers Armstrong Barrow-in-Furness	Imperial War Museum, Duxford, indoors MAR 560	Remains of. (Bow & battery). Scuttled at Kaafjord, Norway. Laid charges under Tirpitz but spotted, caught in nets and sank. The Germany Navy later raised the stern of X7 for examination and testing, but could not find the rest of the vessel. Located by a British Sub Aqua Club during their search for the X-5 (not found) in 1974. The remains were relocated again in 1976 and raised from 160 feet of water, when they were confirmed as being those of X-7; several original artefacts were found within the vessel (IWM)
X51 <i>Stickleback/Spiggen</i>	1954	Submersible, X Craft Midget Submarine - Postwar	Vickers Armstrong	Imperial War Museum (Duxford) MAR 559 on loan to Historic Dockyard, Chatham	Went to Sweden 1958. Presented to the Imperial War Museum by the Royal Swedish Navy in 1976.
<i>Ocelot S17</i>	1962	Oberon Class	Built at Chatham for the RN	Historic Dockyard, Chatham. Static display.	Last submarine built for the RN at Chatham but 3 more were built for Canada. Paid off 1991.
<i>Courageous</i> S50 (SSN06)	1971	Churchill Class	Vickers Shipbuilding Ltd Barrow-in-Furness	Devonport no 3 Basin Open to tours by appointment & with due notice.	SSN - nuclear powered general purpose attack submarine based at Faslane, undertook many Cold War Patrols. Served in the Falklands. Retired 1992. Selected as the museum ship to represent the SSN fleet of the Royal Navy during the Cold War. The only nuclear submarine on public display in the United Kingdom and one of only two in Europe (the other is the French ballistic missile submarine Redoubtable in Cite de la Mar museum in Cherbourg). The vessel is also a memorial.

10 ANNEX 3: KNOWN/REPORTED SUBMARINE PARTS/ASSOCIATED ARTEFACTS ON DISPLAY IN THE UK

Vessel	Date	Class	Maker	Location	Description
A7	1905	A Class group 2	Vickers, Barrow-in-Furness	RN Submarine Museum, Gosport	Compass Binnacle
E9	1913	E Class group 2	Vickers	National Maritime Museum	Ships bell, EQA0459
E17	1916	E Class group 2	Vickers	RN Submarine Museum, Gosport	Conning tower
E43	1916	E Class group 3	Swan Hunter	Charlestown	Steering Quadrant
K class	1913	-	-	RN Submarine Museum, Gosport	Window
L class	1917	-	-	RN Submarine Museum, Gosport	Control room ladder
Osiris	1928	Odin group 2	Vickers	The Dockyard Museum	BAWMS.09717.1 Firing mechanism (mounted) from HM Osiris www.dockmuseum.org
Stubborn	1942	S Class group 3	Scotts	RN Submarine Museum, Gosport	Helm wheel
Tiptoe	1944	T Class group 2	Vickers	Blyth	Anchor
Truncheon	1944	T Class group 2	Devonport	Imperial War Museum, London	Ship's bell
Totem	1945	T Class group 2	Devonport	RN Submarine Museum, Gosport	Replacement totem pole (prior to 1968). Note, boat was sold to Israel (1965) & re-named Dakar, sunk all hands.
Affray	1944-5	A/Amphion Class	Cammell Laird Birkenhead	RN Submarine Museum, Gosport	Snort mast
Andrew	1944-5	A/Amphion Class	Cammell Laird Birkenhead	RN Submarine Museum, Gosport	4 inch quick fire deck gun – fitted 1964 (last British submarine to carry a deck gun).
Assorted British	N/A	-	-	RN Submarine Museum, Gosport	Bells: Pandora 1930 P38 (1941) Chatham, Statesman (1943), Shakespeare (1942), Trenchant (1943); Jolly Rodger flags: Trenchant, Seraph, Ursula, Statesman: White Ensign: E11
'Resolution Class'	1964-8	Resolution Clas	Vickers, Barrow-in-Furness or Cammell Laird	RN Submarine Museum, Gosport	Propeller
Conqueror	1971	Churchhill Class	Cammell Laird Birkenhead	RN Submarine Museum, Gosport	Sunk the cruiser General Belgrano during Falklands War (1982) Decommissioned in 1990. The periscopes, captain's cabin and main control panel from the submarine's manoeuvring room on display
UB56	1917	UBIII, UB 54-9	A G Weser, Bremen	Herne Bay Angling	One propeller on display (Young & Armstrong 2006)

Vessel	Date	Class	Maker	Location	Description
<i>UB81</i>	1917	UBIII, UB80-7	A G Weser, Bremen	Bembridge Ship Museum IoW	Lamps & horn Young & Armstrong (Y & A 2009, 120
<i>UB130</i>	1918	UBIII, UB118-32	A G Weser, Bremen	Newhaven Maritime Museum	Deck gun raised by Tunbridge Wells SAC 2001 with permission of M&CA & donated to museum
<i>UC39</i>	1916	UCII, UC34- 9	Blohm & Voss, Hamburg	Bridlington Harbour Museum	One propeller on display (Young & Armstrong 2006)
<i>UC39</i>	1916	UCII, UC34- 9	Blohm & Voss, Hamburg	Ship Inn, Sewerby	Steering Wheel (Young & Armstrong 2006, 137)
<i>UC44</i>	1916	UCII, UC40-5	AG Vulcan, Hamburg	Imperial War Museum, London	Incendiary bomb from UC44. MUN240
<i>UC46?</i>	1916	UCII, UC46- 8	A G Weser, Bremen	National Maritime Museum	Fragment of torpedo (base marked KTP1213.1) found in stern of Argyllshire after an attack by German submarine 4th Feb 1917. Probably from UC 46 which attacked this vessel.
<i>U98</i>	1917	War mobilisation boat(U93-98)	Germaniawerft, Kiel	Imperial War Museum	Deck gun
<i>U155?</i>	1917	Modified commercial transport (U151-7)	Prefabricated Germaniawerft, Kiel	National Maritime Museum	Oxygen breather from the submarine Deutschland (U15) (sic), Harwich 1918 REL0418
German	WWII	-	-	Fleet Air Arm Museum	Rotor kite (Focke-Achelis 330), telegraph equipment etc
?	-	-	-	Seaford Museum & Heritage Centre	?

11 ANNEX 4: SUBMARINES (OR SIGNIFICANT PORTIONS THEREOF) – FATES UNCLEAR

Vessel	Date	Class	Maker	Location	Description
?A8 /E52?	1905/1917	A class/E Class	Vickers/Denny	?Dartmouth	Dartmouth Museum claims to have photographic evidence which can prove that a British U-boat (sic) is buried beneath the town's Coronation Park. Read more: http://www.thisiscornwall.co.uk/truth-buried-submarine-legend/story-15198776-detail/story.html#ixzz2bempaPpM NB www.worldwarships.com forum "ww1 U-boats in Dartmouth suggest both A8 and E52 as possible IDs as both were laid up on Coombe Mud (later Coronation Park) for scrapping. A8 went to Philip of Dartmouth in 1920 & E52 went to Brixham Marine in 1921.
E3	1912	E, Group 1	Vickers, Barrow-in-Furness	?Holland	Conning tower, photograph of this on display in a wood-stove retail shop in Alkmaar the Netherlands June 2003 (Maarveld, 2008).
J3	1915	J Class	Pembroke, HM Dockyard	Australia	Diesel engines Anthony Bowles, Sheparton, 2006 has confirmed that the Vickers Diesel engines of at least one of the J submarines is located at Radio Australia Sheparton (sighted 2004) and at the time was still functional. A second engine also located at Radio Australia Sheparton is also believed to originate from a J Sub but was dismantled at the time. Both engines had apparently not been used for many years. http://home.vicnet.net.au Maritime Archaeology of Victoria
E34	1916	E, Group 3	Thornycroft, Woolston	? Holland	Conning tower was salvaged – fate?
E49	1917	E, Group 3	Swan Hunter	Shetland	Compass Binnacle RCAHMS 102956. Material reported under RoW amnesty (2001):A1947 One compass binnacle: from seabed. Ref. NMRS, MS/829/35.
?E50	1917	E, Group 3	John Brown, Clyde	Denmark	Conning tower raised 2011, thought to be going to shipwreck museum
K Class, K15?	1917	K Class	Scotts	Off the Sailing Centre, Whale Island Portsmouth Harbour	'Ribs and machinery block' of submarine photographed 29/06/2013 by Rob Hool, Portsmouth: Identity of Mystery Submarine thread http://www.worldnavalships.com/ Was told it was a K Class submarine. 'I saw a reference several years ago that after K15 sank alongside HMS Canterbury in June 1921 the submarine was raised and dumped on a mud bank in the harbour.... Later in 1924 the hulk of the K15 was sold for scrapping to a ship breaker at Upnor in Kent. Whether the submarine was ever removed by the ship breaker I have yet to determine'. Kemp records the boat as having sunk in Portsmouth Harbour 25/06/1921, and Akerman has it recorded as sold 08/1924.
UC97	1918	UC III	Blohm & Voss	USA	Scuttled in Lake Michigan, Chicago in 1921 by US Navy. Claims in 1992 by A&T Recovery to have located it (pictures show props) interested in raising & preserving but trying to raise funds & get permission. Nothing more recent found.
HMS Poseidon	1929	Parthian Class	Vickers Armstrong, Barrow-in-Furness	?	Salvaged 1972 by China, fate unknown

Vessel	Date	Class	Maker	Location	Description
HMCS <i>Ojibwa</i> (S72)	1965	Oberon class	Chatham	Canada	Originally intended for service with the Royal Navy as HMS Onyx (S72). Transferred before commissioning. Served in the Royal Canadian Navy (RCN) and later the Canadian Forces Maritime Command. Operated primarily with Maritime Forces Atlantic. Decommissioned in 1998. As of 2010, Ojibwa is laid up at CFB Halifax awaiting disposal, with the Elgin Military Museum planning to preserve her as a museum vessel
HMAS <i>Otama</i>	1978	Oberon Class	Scotts, Greenock	Australia	Formerly of the Royal Australian Navy (RAN) – Was towed to Western Port Bay, 2002 where it was hoped it could be a museum boat. Was up for sale in 2008. Current Fate?

12 ANNEX 5: RELEVANT SUBMARINES ON DISPLAY/PRESERVED ELSEWHERE

Vessel	Date	Class	Maker	Location	Description
Fenian Ram	1881	Holland experimental		Paterson Museum, New Jersey, USA	Submarine, early design
<i>U1</i>	1906	Pre-war boat	Germania Shipyard	Deutsches Museum, Munich	Submarine, based on French designs, outdated by the time of the First World war and used for training purposes
<i>U20</i>	1913	Pre-war boat	Kaiserliche Werft, Danzig	The Strandingsmuseum St. George Thorsminde Denmark	Conning tower
<i>E24</i>	1916	E Class	Vickers, Barrow-in-Furness	Wrackmuseum, Duhnen Nr. Cuxhaven	Conning tower raised c. 1973, plus propellers? http://1914-1918.invisionzone.com/forums/index.php?showtopic=82106
<i>J7</i>	1917	Class	Devonport RDY	Sandringham Yacht Club, Sandringham, Port Phillip Bay Australia In the water	Submarine, Sandringham Yacht Club Australia (utube) http://www.youtube.com/watch?v=gkAE-BINerY Paid off into Reserve at Westernport on 12 July 1922. On 1 November 1929 J7 was sold to Morris and Watt Pty Ltd of South Melbourne. She was towed from Flinders Naval Depot, Crib Point, where she had served as a reserve source of electric power, on 4 December 1929. She was dismantled and the hull sunk in 1930 as a breakwater at the Sandringham Yacht Club, where it remains. Visible from surface. http://www.navy.gov.au/hmas-j7
<i>UB78</i>	1917	UBIII (UB75-79)	Blohm & Voss, Hamburg	Maritime Museum Wilhelmshaven	Propeller, raised by Canterbury Divers. Returned to Germany 2013.
<i>Lembit</i>	1936	Kalev class	Vickers Armstrong Ltd	Museum ship in Tallinn, Estonia	Submarine, EML Lembit is one of two Kalev class mine-laying submarines built for the Republic of Estonia and served in Estonian and Soviet Navy. A Vickers design – though similar to WW1 RN E & L classes. (Hool & Nutter 2003, 100)
<i>U995</i>	1941	Type VIIC/41	Blohm & Voss, Hamburg	Laboe, Kiel	Submarine, museum ship & memorial (Williamson, 2006, Appendix 2)
<i>U505</i>	1941	Type IXC	Deutsche Werke, Hamburg	Museum of Science & Industry Chicago.	Submarine, Captured June 1944. Kept at the navy base in Bermuda and intensively studied by U.S. Navy intelligence and engineering officers. Moored derelict at Portsmouth and much of the stripped. It was decided to use her as a target for gunnery and torpedo practice. Public subscription raised money to move her to Chicago. German manufacturers of original parts supplied replacements without charge. Original periscope discovered at the Arctic Submarine Laboratory in Point Loma, California in 2003. The periscope had been removed from U-505 and placed in a water tank used for research. After being recovered, the periscope was given to the museum to be displayed. http://en.wikipedia.org/wiki/German_submarine_U-505 Accessed 27/10/2012

Vessel	Date	Class	Maker	Location	Description
<i>Wilhelm Bauer</i> (formerly U-2540)	1945	Type XXI	Blohm & Voss, Hamburg	Bremerhaven German Maritime Museum	Submarine, Williamson, (2006, Appendix 2). Möller says, scuttled at end of war, raised in 1950s, converted & modified & re-engined - refitted for Bundesmarine in training role as the single 241 class
<i>Seraph</i>	1941	S Class Group 3	Vickers Armstrong	Charleston, South Carolina	Memorial, parts including periscope & forward torpedo loading hatch
<i>Totem</i>	1945	T class Group 2	Devonport	Naval Museum, Haifa	Bridge & forward edge of sail and part of outer casing recovered and on display in Haifa., Memorial for Dakar (was INS Dakar)
Assorted German wartime submarines	-	-	-	Canadian War Museum	Life raft U877, Mine U153, Life ring UC77, Periscope lens & Signalling lamp U117
Seehund		midget		Maritime Museum Wilhelmshaven	Largest of the midget submarines – partially restored (Williamson, 2006, 72)
Seehund		midget		Wilhelmshaven, naval dockyard	Further example (Williamson, 2006, 72).
<i>Otus</i>	1963	Oberon Class	Scotts, Greenock	Moored in the harbour of the town of Sassnitz on the island of Rügen, Germany, to act as a floating naval museum.	Submarine, Otus was decommissioned in the early 1990s and resided at Pound's scrapyard in Portsmouth for several years. She was later purchased by a German entrepreneur
HMCS <i>Onondaga</i> (S73)	1965	Oberon Class	Chatham	Site historique maritime de la Pointe-au-Père in Rimouski	Submarine, served in the Royal Canadian Navy and later the Canadian Forces operated primarily with the Maritime Forces Atlantic until her decommissioning in 2000 as the last Canadian Oberon. The submarine was moved into location during 2008.
HMAS <i>Onslow</i> (SS 60/SSG 60)	1969	Oberon Class	Scotts at Greenock	Australian National Maritime Museum,	Submarine, one of six submarines operated by the Royal Australian Navy (RAN). Decommissioned in 1999, preserved as a museum ship.
HMAS <i>Ovens</i> (S 70)	1969	Oberon Class	Scotts at Greenock	Western Australian Maritime Museum Western Australia	Submarine, formerly of the Royal Australian Navy (RAN) - now preserved as a museum ship.
INS <i>Gal</i> (Israel)	1975		Vickers	Clandestine Immigration & Navy Museum, Haifa	Submarine, note - Anglo-German Vickers built, based on Type 206A
<i>Riachuelo</i> (Brazil)	1977	Brazilian O Class	Vickers, Barrow-in-Furness	Navy Cultural Centre in Rio de Janeiro	Submarine, Riachuelo was one of three Brazilian O class submarines

13 ANNEX 6: KEY ARCHIVAL SOURCES FOR SUBMARINES

13.1 INTRODUCTION

Some of the potentially useful sources for the academic study of British and German submarine fates in UK waters are given below. It is however, well beyond the scope of this project to use the original sources. Given the volume and complexity of the records, it is useful to note that there is a published guide to the Admiralty Records held at the National Archive (Kew) available on-line (Cock and Rodger 2006, 2008), and several authors have most helpfully indicated their key primary sources. It should also be noted however, that the combination of re-assessment of the records and diving in modern times has demonstrated the potential inaccuracy of contemporary positional information and has successfully led to the location of previously lost wrecks and to the positive identification of others (McCartney 2003, Niestlé 2010).

13.2 NATIONAL ARCHIVES (KEW)

The following National Archives record group and class have been indicated by Cock and Rodger (2006, 2008, index) as potentially useful for the study of submarine wrecks. Where supplementary details from other sources have been included they are referenced.

ADM 53 War Diary

ADM 116 Salvage Department

McCartney (2003) suggests that records 116/1632, 1590, 1596, 1630, 1596, 1634, 1510A, 1597, 1598, 1638, 1639 and 1641 are useful for submarines in the Channel.

ADM 116/6082 – ADM 119/2056 – anti submarine mines

ADM 122 Research and Design

ADM 137 Operations and Intelligence

/4098-4122 German Submarines

/4127-55 ditto

/4161-7 ditto

ADM 173 Submarine Ships logs

/1-30705 1914-75 Submarine logs

Wilkinson 2009, provides further information regarding the number and date ranges of the submarine logs. For c. 1915-1934 there are some 13,341 logbooks and between 1935-1938, there are some 2,294 logbooks. He notes another almost 7,000 logbooks for the years 1939-1950.

Year	No. of Logbooks	Year	No. of Logbooks
1939	621	1945	906
1940	445	1946	509
1941	477	1947	434
1942	558	1948	410
1943	721	1949	397
1944	1,004	1950	376

ADM 199/1786 Proceedings of the Anti-Submarine Assessment Committee 1944-45. McCartney (2003) states that there are 144 assessments relating to anti-submarine warfare attacks in the Channel

ADM199/1789 Summaries of U-boat losses in Second World War

ADM 236 Offices of Captains of Submarine flotillas: submarine war patrol reports, Second World War (1939-45) ADM 236/1-54

ADM 275/19-20, & 19/95 Historical monographs, technical history 1919-21

AIR 20/6907 Assessment of U Boat casualties 1939-45

AIR 20/11505 A/S warfare, mines 1943-5

AIR 52/155 1946 Report on A/S warfare

AIR 20/7294 1945-6 The British Bombing Survey Unit, U-boat shelters

AIR 20/419 1940 Bombing of submarine bases

BT 243/439-440, & 443 Admiralty meetings, Search & Rescue at sea

CAB 1/11/31-2 Submarine threat to British ships 1915

CAB 86/1-7 1941-5 Battle of Atlantic & anti U-boat warfare

Wilkinson 2009, suggests that records of Second World War German U-boat radio transmissions that were intercepted, decoded and translated by the Government Code and Cypher School at Bletchley Park, North London prior to submission to the submarine tracking room at the Admiralty are to be found under three files:

DEFE 3/705-744 - Shark decrypts U-boats Atlantic Dec 1942 – war end.

DEFE 3/1-4, 20-34 - Decrypts U-boats 1941

DEFE 3/180-219, 245-299, 340-499, 521-560 – Decrypts U-boats Baltic and Arctic.

DEFE 40/4 1943 U-boat attacks

DEFE 9/22 1945-9 Defence research policy committee, undersea warfare

DEFE 13/606 etc. MOD, private office nuclear submarine project

F31/34 1959-71 Periscopes, surplus RN for fire spotting

HW3/1-186 1914-51 Room 40

HW7/1-4 1914-18 Official Histories WW1, History of German Naval Warfare

- **HW 7/1** - Contribution to the History of German Naval Warfare, 1914-1918: volume one, The Fleet in Action, written by Birch and Clarke, chapters I-X

- **HW 7/2** - Contribution to the History of German Naval Warfare, 1914-1918: chapters XI-XX

- **HW 7/3** - Contribution to the History of German Naval Warfare, 1914-1918: volume two, The Fleet in Being, written by Birch and Clarke

These are the unpublished original texts of the Official History. They have been edited and published by Hans Joachim Koerver as *German Submarine Warfare 1914-1918 in the Eyes of British Intelligence Selected Sources from the British National Archives, Kew 2nd Edn 2012*.

HW7/24-5 1915-17 & 1924 Official Histories WW1, History of German Naval Warfare

FO945/863 1944 Disposal of German Warships

FO945/882 1944 Disposition of German Warships

WO 309/272 & 775 1946 Captured U1277, scuttling of

The following additional examples of possible sources of interest have been identified through use of the National Archives on-line search facility:

ADM 1/8374/93 Papers registered in 1914. Development of British Submarines- Historical survey. (1914)

ADM 1/16396 Admiralty approval for adoption of German schnorkel system in British submarines to be known as "snort" and incorporated in all future designs. ... (1944)

ADM 1/17642 Admiralty, and Ministry of Defence, Navy Department: Correspondence and Papers. SERIES I: 1938-1945 (plus strays 1892-1937). ADMIRALTY (Code 5). ADMIRALTY (5) and FOREIGN COUNTRIES (52): Disposal of surrendered German U-boats: discussions and proposals. (1945)

- ADM 1/18246** FOREIGN COUNTRIES (52): Surrender of U-boats: action on surrender, victualing etc. of (1945)
- ADM 1/18378** FOREIGN COUNTRIES (52): Disposal of certain German U-boats: demolition or retention for Russian Inspection. (1945)
- ADM 1/18537** (Operation Deadlight) operational orders and position of wrecks. Open from 1972. (1946)
- ADM 1/18568** ACTIONS WITH THE ENEMY (Code 3). FOREIGN COUNTRIES (52): Sinking of captured German U-boats (Operation Deadlight) by air attack: operational order. (1945)
- ADM 1/19342** OPERATIONS (Code 35). DEFINITIONS OF TERMS AND EXPRESSIONS (35): Sinking of German U-boats (Operation Deadlight) 21 Dec 1945-8 Jan 1946: report from Naval Officer in Charge Londonderry. (1946)
- ADM 1/21528** British midget submarine raised at Bergen: correspondence from Norwegian naval authorities: approval for retention of submarine by the Norwegians. ...1949-50
- ADM 116/1826** Handing over of German submarines 1918, 1919; UC 98, UC 96, UC 95
- ADM 116/3421** Unrestricted Submarine Warfare
- ADM 137** Operations and Intelligence
- /3060** interrogation of survivors of captured and sunk German submarines; German
 - fleet bases (maps), submarine cruises (maps)
 - /3866** Extracts from German secret instructions for war on commerce
 - /3870** Specifications, administration and personnel of German Submarines
 - /3898** UC48-94 papers concerning details of vessels, interrogation of survivors, photographs
- ADM 186/407** German Navy, Submarines April 1918
- Submarine types,
 - Photos U-boats, Pre-war designs, U boats, U-cruiser, UB and UC boats
 - Plans U57-62 class, U66-70 class, UB18-47 class, UB103-109 class, UC 16-79 class (arrangements of ballast tanks, oil fuel leads, ventilation arrangements), U139-142 (U-cruisers)
- ADM 186/629** Mining operations by German submarines around the British Isles 1915-1918. (1939)
- ADM 219/327** Directorate of Operational Research and predecessors: Reports. Appraisal of anti-U-boat operations by British submarines and some comparison with surface craft for future similar use. (1944)
- ADM 219/572-80** Wartime patrols by British and British controlled submarines: results of Hollerith analyses (1939-1945): Parts 1- 9. Indexed See also ADM 219/617. 1950
- ADM 219/617** Analysis of wartime patrols by British submarines. See also ADM 219/572-580. (1949)
- ADM 228/4** Admiralty: Office of the British Naval Commander in Chief, Germany: Papers. U-boat sections and material: disposal. 1945-46
- ADM 267/114** Department of the Director of Naval Construction, later Director General Ships: Damage Reports and Files. Bomb, Shell and Depth Charge. List of British Submarines lost 1939-1940. (1945)
- FO 371/111465** Salvaging of seven British submarines scuttled in Finnish waters in 1918: authority to salvage given by Ministry of Defence in 1953. (1954)
- MT 9/1230** Awards (Code 6): Admiralty Awards - Enemy submarines, mines, etc. 1915-18

13.3 CUMBRIA ARCHIVE SERVICE

Online searches <http://www.archiveweb.cumbria.gov.uk/> suggest that the Cumbria Archive Service, holds numerous potentially useful documents relating to submarines built by Vickers of Barrow-in-Furness. They include for example:

BDB16/SDO Submarine Drawing Office. **Contents:** A large collection of bundles of submarine plans, mainly of 20th century date.

BDB 16/L/1341 Album of submarine photographs (1887-1932)

Contents: Relating to: Nordenfelt (the submarine and a model of it), Holland no. 2, HMS A3, HMS B4, HMS C24, HMS D1, HMS D4, HMS D6, HMS E5, HMAS AE1, HMS E19, HMS E20, HMS G11, HMS H28, HMS K3, HMS K6, HMS L22, HMS L20, HMS L12, HMS R7, HMS M1, HMS M2, HMS N1, Oxley, Otway, HMS V3, Almirante Simpson, Oswald, Perseus, Pandora, Rover, Thames, Porpoise

BDB 16/L/1636 Correspondence re submarines (1903-1913)

Contents: Including costs and charges re building of HMS A1, HMS A2, HMS A3, HMS A4 and correspondence between Admiralty and Vickers concerning their contract and a threat of its termination by the Admiralty over a possible contract from the Portuguese Government, 1903-1913

BDB 16/L/1610 Agreement between the Electric Boat Company of New Jersey, USA and Vickers (1902-1913) **Contents:** Re building of submarines, 12 December 1902, with supplemental agreements and associated correspondence, 2 January 1903 - 30 October 1913

BDB 16/L/1824 (1902) Photograph of HMS Holland 5 being lowered into the water by crane at Devonshire Dock, Barrow-in-Furness, 1902

13.4 THE NATIONAL MARITIME MUSEUM/THE CAIRD LIBRARY

Wilkinson (2009) says The National Maritime Museum holds copies of 20th century warship service histories. These are photocopies of short papers produced by the Ministry of Defence, Naval Historical Branch and include service records of both surface ships and submarines. The collection is however incomplete and the histories for many vessels have either not been written or have not been passed to the Museum. The original collection of 20th century warship service histories held by the Naval Historical Branch (London) may have additional histories.

Corbett, Sir J. & Henry Newbolt, 1938: *Naval Operations: History of the Great War* based on Official Documents (London).

An online search of the archive catalogue of The Caird library (<http://collections.rmg.co.uk/archive.html>) shows that material relating to submarines held includes, correspondence, notes and plans, reports and printed books. Subjects include Anti-submarine defences, Battle of the Atlantic and records of the Admiralty Compass Observatory. A few examples include:

NPB998-1007 E class submarine (E 9 group) general arrangements and inboard profile plans. October 1917 William Denny & Bros Ltd.

NPB0937- 0944 E class submarine (E 9 group) inboard profile plans, aft section plans, bridge deck plan. October 1916 John Samuel White and Co Ltd.

NPB0891-0897, & 0901 E class submarine (E 1 group) general arrangement, superstructure, flat, shell expansion, inboard profile plans. 1911, 1912 & 1914 Vickers Ltd.

MUR/7 Papers concerning the fate of German U Boats in numerical order from U.1.-U.167, during the war years, 1914-18, Murray, Charles Wadsworth, Sub-Lieutenant, 1894-1945

MUR/8 Papers concerning the fate or surrender of German U Boats (class UB) in numerical order from UB1-UB155, during the war years, 1914-18 Murray, Charles Wadsworth, Sub-Lieutenant, 1894-1945

MLS/2 Reports dated 19 Feb 1932, on search for "S/M M2" [i.e. HM Submarine "M.2"], 26 Jan - 4 Feb 1932 Miles, Sir Geoffrey John Audley, Admiral,

TRO/401/22 Naval lecture syllabuses delivered by a series of lecturers at the Royal Naval Staff College. Greenwich, 1924-5, compiled by Sir Thomas Hope Troubridge (1895- 1949) including 'Fleet Submarines, their Employment and Tactics' by Commander O. E. Hallifax

DEY/31 Papers relating to Submarines 1912-18, memoranda on design, strategy, table giving specifications and costs of various types 1913 and proposed design of an 'L' Class Cruiser 1916 D'Eyncourt, Eustace H. Tennyson

VIZB0141 Box containing ship plans and technical records. Ship plans - two plans for Yard Nos. 280-284, two plans for Yard No. 347 'Sao Paulo', one plan for Yard No.436 'HMS Nautilus', three plans for Submarine Boat 'A' Class, one plan for Submarine Boat 'B' Class, two plans for Submarine Boat 'C' Class, three plans for Submarine Boat 'D' Class, one plan for Submarine Boat 'E & AE' Class, one plan for Submarine Boat 'E' Class & two plans for Submarine Boat 'V' Class. Technical records - One record for Yard No. 255 'TSS Gibel Dersa', two records for Yard No. 347 'Sao Paulo', two records for Yard Nos. 415-420, one record for Yard No.436 'HMS Nautilus', four records for Yard Nos. 436-437, one record for Yard Nos. 438-440, two records for Yard No.437, one envelope of records for Yard No.437, one envelope of records for Yard No.438, three records for Yard Nos.449-451, five records for Yard Nos.463-468, one record for 'TSS Colleen Bawn' & 'Mellifont', one record for Submarine Boat 'B' Class, one record for Submarine Boat 'D' Class, one record for Submarine Boat 'E' Class & one record for Submarine Boat 'V' Class.

ADFB0131 Box of folded ship plans, in the sequence S class submarines - St. Agnes (Saint class trawlers) -S class submarine design (1929) -S.1 (submarine) (1915) -S.2 (1915) -S.3 (never commissioned in RN - transferred to Italy) (1915) -S.44 - S.47 (stern wheel tug) (1918) -S.55 (stern wheel towing steamer) (ca. 1918) -Sable (1916) -Sabre (1918) -Sabrina (1916) -**Safari (ex P211)** (1941) -Safeguard (1914) -Saguenay (RCN) (1930) -Sahib (S class submarine) (1942) -Sainfoin (ex Empire Crossbow) (1944) -St. Abbs (tug) (1918) -Saint class trawlers (ca. 1939)

ADUB0194 Box containing fifteen books of small scale diagrams, diagrammatic arrangements and fitted drawings: - one book for HMS 'Upshot'/'Urtica' FS/M 'Doris', 'Utsira', 'Mores', HMS 'Vengeful'. - one book for HMS 'Templar', 'Tally-ho', 'Tantalus' and 'Tantivy'. - one book for P311, 'Trespasser', 'Taurus', 'Tactician' and '**Truculent**'. - one book for HMS 'Spirit' and HMS 'Statesman'. - one book for 'Sibyl' and 'Seadog'. - one book for 'Tradewind' and 'Trenchant'. - one book for S class submarines group 2. - one book for 'Sea Nymph', 'Sickle' and 'Simoon'. - one book for U class submarines group 1. - one book for U class submarines group VII and VIII. - one book for HM Submarines 'Strongbow', 'Spark' and 'Scythian'. - one book for HM Submarines 'Sirdar' and 'Spiteful'. - one book for HM Submarines 'Seneschal' and 'Sentinel'. - one book for HMS 'Stonehenge', 'Stoic', 'Storm' and 'Stratagem'. - one book for HMS 'Stygian', 'Subtle', 'Supreme', 'Seascout' and 'Selene'. Box label 'R.S.D. Submarines Box 5'.

Swan, Hunter & Wigham Richardson, Ltd. Shipbuilders & Engineers, Wallsend Shipyard, Wallsend on Tyne photograph album ALB1098, Page 19:

13.5 NAVAL HISTORICAL BRANCH (LONDON)

Wilkinson (2009), states that the original collection of 20th century warship service histories is held by the Naval Historical Branch (London).

McCartney, 2003 says that the Naval Historical Branch (London) has:
D/M 31695/21 Disposal of U-boats at Sea

13.6 ROYAL NAVY SUBMARINE MUSEUM, GOSPORT

McCartney, 2003 says that Royal Navy Submarine Museum, Gosport has:
Monthly Anti-submarine reports for First World War
Individual boat files for each submarine lost in the Channel.

13.7 TYNE AND WEAR ARCHIVES SERVICE

The Tyne and Wear Archives Service holds records from Vickers Armstrong Ltd including ship plans of vessels built at the Walker Yard (1946-69) later, Swan Hunter. This includes some material about submarines. <http://www.tyneandweararchives.org.uk>

13.8 THE WIRRAL ARCHIVES SERVICE

The Wirral Archives Service holds the records for Cammell Laird Shipbuilders. These include: contracts and specifications, estimates, patents, plans, launch brochures, photographs and albums
<http://www.wirral.gov.uk/my-services/leisure-and-culture/wirral-archives-service/documents-we-hold/collections/cammell-laird>

13.9 IMAGES

Images (photographs and paintings) of specific and general submarines are widely available. The Dock Museum Barrow-in-Furness, Cumbria Archive Service, the Imperial War Museum and the National Maritime Museum, for example, all hold photographs. Ownership of the Vickers Photographic Archive (<http://www.dockmuseum.org.uk/archive/index.asp>) and existing copyrights were transferred to Barrow-in-Furness Museum Service at The Dock Museum when the shipyard donated the collection. Boat and ship models are 'scattered throughout archives and museums the length and breadth of England (Hool and Nutter 2003, 17). <http://www.dockmuseum.org.uk/archive/index.asp>

13.10 IMPERIAL WAR MUSEUM IWM DEPARTMENT OF DOCUMENTS

The IWM (London) is now closed for a major redevelopment project and will partially reopen in July 2013. An on-line search shows almost 9000 items listed under 'submarines'. The material includes photographs, films, interviews with ships personnel and commanders, diaries, ship models, published books and objects removed from submarines. Searching on specific submarines within the English Territorial Waters wreck sample revealed many items of potential interest which would give added value to the wrecks. Examples are given below.

Note that not all submarines in the English Territorial Waters sample have any material listed (for example U 678, 247,772 1018). Others have many or a few entries – Safari for example has 33, Unity 15, Untiring six and Narwhal 22. Many of the Swordfish entries refer to the Fairy Swordfish aeroplane.

Catalogue Ref	Ship	Main catalogue entry	Extra info
9153 Interview Also see Cat no 12317 another Umpire interview	<i>Umpire</i>	Interview: British officer commanded submarines H43 and HMS Umpire in GB coastal waters and North Sea, 1940-1941;	REEL 2 Continues: opinion of Dutch submarine forces; attending submarine commanders course at Falmouth including using Attack Teacher. Aspects of commanding submarine H43 in GB coastal waters and North Sea, 1940: character of submarine; patrols off Netherlands coast; heavy losses; communications and radio silence; threat of mines in Heligoland Bight; lack of targets; air attacks on submarines; lack of investigation after loss of his submarine HMS Umpire; number of collisions off east coast.
28696	<i>Truculant</i>	Interview: British stoker served aboard submarines HMS Truculent and HMS Osiris in Arctic, Mediterranean, Indian Ocean and Far East, 1941-1945	REEL 2: duties on board HMS Truculent in Arctic; classes of submarines used in war;
KAY1927	<i>Truculent Sidon</i>	Small collection of films: these are mainly projection prints of instructional or documentary films (both British and American) but there are also a few original unedited films showing salvage operations around Britain. (1950) They include:	SALVAGE - THE REWARD" (Admiralty A2828). Projection print. Already held as DRN 2828. Assessed: C. 15. "TRUCULENT: SALVAGE OPERATIONS" (Admiralty A1437). Projection print. Held as DRN 1437, but only one print (and a couple of negs) held. Assessed: B 41. "SALVAGE OF HMS SIDON SUBMARINE. PORTLAND". 16mm B&W silent 1500ft. To be viewed. (HMS Sidon sunk in Portland Harbour in 1955 after one of her torpedos exploded with the loss of 13 lives.) Assessed: A.
17603	<i>Sidon</i>	Interview: British engine room artificer served aboard submarines HMS Oswald and HMS Seahorse, 1920s-1930s; served aboard submarine HMS Porpoise in North Sea and Mediterranean, 1939-	REEL 5 Continues: accident to HMS Sidon involving collision with uncharted object off Scotland;
13392	<i>Upstart</i>	Interview: British midshipman served aboard HMS Kent on China Station, 1939-1938; officer served aboard submarine H34 in North Sea and aboard submarine HMS Torbay in Mediterranean, 1941-1942; commanded submarine HMS Upstart in Atlantic and Mediterranean, 1943-1944	
http://commons.wikimedia.org/wiki/File:HMS_Upstart.jpg		Photo on wicki comons	
9578	<i>Unity</i>	British engine room artificer served aboard submarine HMS Unity in GB coastal waters and North Sea, 1939-1940 including sinking, 4/1940; served aboard submarine HMS Utmost in GB coastal waters; served aboard submarine HMS Tigris in Atlantic and Arctic	REEL 1 Recollections of operations as engine room artificer aboard submarine HMS Unity in GB coastal waters and North Sea, 1939-1940:

Catalogue Ref	Ship	Main catalogue entry	Extra info
26543	<i>Swordfish</i>	Interview:	REEL 6 Aspects of period as stoker aboard submarines HMS Rainbow and HMS Swordfish in GB coastal waters, 1934-1939: drafting to submarine HMS Swordfish;
MH7396	<i>U118</i>	Photograph: German submarine U118 mine layer, having mined Halifax, being attacked from the air, 12 Jun 1943. (Aerial photograph.) Foreign Office Political Intelligence Dept (PID)	
COM78	<i>UB110</i>	high frequency radio receiver	Taken from German U-boat UB 110, a UB III-Class submarine which was sunk off Whitby, on the east coast of Yorkshire on 19 July 1918 by depth charge attack by the British Motor Launch ML263 and the destroyer HMS Garry.
MAR 660	<i>UB76</i>	Gyroscope from surrendered Submarine UB 76 Stamped 5249	
IWM 695	various	1918 film Our Day	Aerial sequence shot from an airship of the U-boats arriving off Harwich - Admiralty R and Modified R Class destroyers lead in Kreuzer (large) and Mittel (medium displacement) U-boats. Medium shot as a U.160 Class (?) submarine passes left to right, followed by U.99 and U.105 Class boats. Medium close-up as a U.66 Class boat passes right to left. Shots of the surrendered submarines anchored at Harwich - cameracraft passes a group of three comprising U.99 and U.90 Class boats and one other. A second group - the nearest is UB.III Class. A third group of boats - nearest is UB.133 Class. The crew of a U.81 Class (?) boat assemble on deck with their kit ready for trans-shipment. Medium shot as cameracraft passes another group of three boats - U.43 and U.99 Class and one other.
Documents 5099	<i>UC26</i>	Diary Catalogue date 1984-05-16	Photocopy of a ms translation (5pp) of the diary of Heinrich Petersen, second in command of the submarine UC-26, April - May 1917, recording a patrol in the English Channel which included minelaying and frequent encounters with British vessels, but ending on 7 May 1915, as two days later UC-26 was caught in the Dover Barrage by HMS MILNE, rammed and sank with only two survivors
ADM 520	<i>Safari</i>	Film: Gaumont British Newsreel	HMS Safari returning to Portsmouth with the 'Jolly Rodger'
MHG 6683	<i>Narwhal</i>	Film: Short documentary about life on board	
	<i>Untiring</i>	Book: Submariner by John Coote	Associated with Untiring and Totem
MAR 628	<i>Truncheon</i>	Ships bell	Ship went to Israel – parts of the T class in Haifa
MOD 98	<i>E29</i>	Ship model	91.5 inch model date 1921 made by Armstrong Whitworth

14 ANNEX 7: A SELECTION OF THE WEBSITES USED IN RESEARCH FOR THIS REPORT

Selection of websites used in background research for submarines. (Accessed between c. February and August 2013)

<http://www.atlanticscuba.net>

<http://www.bsac.com> British Sub Aqua Club

<http://canmore.rcahms.gov.uk>

<http://www.canterburydivers.org.uk>

<http://www.channeldiving.com>

<http://www.coflein.gov.uk>

<http://www.cwgc.org>

<http://www.cyber-heritage.co.uk>,

<http://www.divernet.com/>

<http://www.divernetxtra.com/wrecks>

<http://divezone.net> (Cornish wrecks)

<http://www.pastscape.org.uk/>

www.fileybay.com/lee/norsurvsub1.html (Lee Norgate)

www.fleetairarm.com

www.forces-war-records.co.uk

<http://www.guildford.bsac.com> (A3)

<http://www.godfreydykes.info/WARSHIP%20ADOPTIONS%20IN%20WW2.html> (Warship weeks)

<http://www.gwpda.org> Great War primary document archive

www.hullwebs.co.uk/ Hull trawler losses WW1

www.IWM.org.uk (Imperial War Museum)

<http://www.irishwreckonline.net>

<http://www.infomar.ie>

<http://www.kenthistoryforum.co.uk>

<http://www.marinearchaeology.org/> Marine Archaeology and Shipwreck Research

<http://nauticalarchaeologicalsociety.org>

www.thedockyard.co.uk (Ocelot, Chatham)

www.maritimequest.com

www.msac.org.uk (search for M1, Affray)

<http://www.nauticalarchaeologysociety.org/>

www.nationalhistoricships.org.uk

<http://collections.rmg.co.uk> (National Maritime Museum)

<http://www.naval-history.net>

<http://www.navy-net.co.uk> opinions etc. from Naval community

<http://www.navynews.co.uk>

www.rnsubs.co.uk (Submariners Association, Barrow-in-Furness Branch)

<http://www.sussexdiving.co.uk>

www.strandmus.dk/

<http://www.scubadiving.com/> 'Ask an Expert: should you dive war graves?'

www.shipnostalgia.com

www.submarinersassociation.co.uk

www.submarineheritage.com Barrow-in-Furness, Submarine Heritage Centre

<http://www.submarine-history.com> The Navy Times Book of Submarines: A Political, Social and Military History

World Submarine History Timeline 1870-1914 Prepared by Captain B. Harris, USN (Retired) Author

<http://www.submarine-museum.co.uk/>

www.submerged.co.uk

www.southwestmafia.com

<http://www.twsac.org>

<http://tynebuiltships.co.uk>

<http://www.uboat.net>

<http://uboatarchive.net>

<http://www.ukdiving.co.uk>

<http://www.unesco.org/new/en/culture/themes/underwater-cultural-heritage/world-war-i/underwater-cultural-heritage-from-wwi/>

<http://www.youtube.com/watch?v=IXgSR3D57HE>

<http://www.westbaydiving.co.uk>

www.warhistoryonline.com

<http://wightspirit.co.uk> (Upstart, U480)

www.worldnavalships.com (Forum)

www.wrecksite.eu

<http://www.yorkshire-divers.com>

15 ANNEX 8 SUBMARINE SHIPBUILDERS

The British submarine wrecks in English Territorial Waters generally are a good reflection of the pattern of UK submarine production, with the majority of British submarine wrecks having been built by Vickers of Barrow-in-Furnace, and other yards being represented by smaller small numbers and smaller time ranges. No Scottish built-boats are amongst the known wrecks however.

The building of submarines has to be seen in a commercial as well as military context. Before the outbreak of the First World War, British submarines were overwhelmingly built by Vickers at Barrow-in-Furness who had, in 1902, been granted by the Admiralty 'what was tantamount to a commercial monopoly of submarines for the Royal Navy in exchange for its agreeing not to sell submarines to third parties' (Peebles, 1987/2000, 87), and by the Royal Dockyard at Chatham. A very few submarines were built elsewhere under licence, such as the three Fiat-designed submarines built by Scotts of Greenock (ibid, 78; Robb 1993). The first of the latter (HMS/m *S1*) was ordered at the end of 1911 and completed in 1914 at a loss to the company. The experimental Admiralty-designed *Swordfish* delivered in 1916 was also built at a loss. The two other Fiat-designed boats and *E31* (delivered in 1915) were all profitable contracts (Robb 1993, 558-572). Submarines *S1-3* were ceded to the Italian Navy in 1916; *Swordfish* was converted to a patrol boat in 1918. It was scrapped in 1922, as was *E31* (ibid). (Several submarines were built by Scotts between the Wars, and ten were built during the Second World War. They continued to build diesel-powered submarines in the post-war period (Winkalerth, 2000 112-3)). No Scottish-built submarines have been identified amongst the wrecks in English Territorial Waters.

Submarine construction numbers increased dramatically at a wider variety of locations during the First World War and again during the Second World War. These included Royal Dockyards at Devonport, Portsmouth, and Pembroke, and commercial yards on Tyneside, Merseyside, and the Clyde. Small numbers of submarines were also imported during the First World War and some were acquired from other navies during the Second World War (for example, seven which escaped from Holland).

Vickers built two Nordenfelt boats and then all five of the Royal Navy's Holland Boats between 1901 and 1903. *Holland No. 5* (Barrow-in-Furness Yard no. 282, photograph Hool and Nutter 2003, 27), is one of the wrecks in this assessment and *Holland No. 1* has been conserved at RN Museum Gosport. Vickers became Britain's major submarine builder, the exclusive contract with the Royal Navy having been extended from 1906 to 1912 (ibid, 25). The yard produced over 40 submarines before the end of the First World War. They produced several submarines for foreign countries between the wars and 80 submarines during the Second World War. Submarine production resumed in 1955 and six diesel powered submarines were built for the Royal Navy in the next ten years. In 1960, Vickers built Britain's first nuclear-powered submarine, *Dreadnaught* and in 1980s continued to build nuclear submarines (of the *Trafalgar Class*) (Winkalerth, 2000 103-6). The wrecks assessed represent Vickers-built submarines of all periods from the *Holland No. 5* (1902) and other early submarines including three A Class and one B Class submarines, up to the U Class war emergency *Upstart* of 1942. It should be noted that between 1886 and 2001 Vickers had built 329 submarines, of which 303 were for the Royal Navy. It is not surprising that this preponderance is reflected in the wreck list.

The Royal Naval Dockyard, Chatham began building submarines in 1908 and had built 24 by end of the First World War. Submarine production was resumed in 1925 with the experimental X1, and a total of 15 were built before the outbreak of the Second World War with 11 built during the war, and one completed after end of war. Between 1961-8 six Oberon Class submarines were built there (Winkalerth, 2000 48-9). The range of Chatham built submarines spans the period from the pre-First World War 1909 C Class C33 to the U Class war emergency Umpire of 1940.

Cammell Laird built its first submarine in 1915 (*E41*) and seven more before the end of the First World War (Wirral History, Accessed 26/01/2013). A further 40 submarines were built during the Second World War, including the *Thetis*, and ten were constructed in the post-war period, the last being the Unicorn in 1993 (Winkalerth, 2000, 109; and *ibid*). Two Second World War S Class submarines built by Cammell Laird are wrecks in English Territorial Waters.

The Swan Hunter yard on the Tyne is better known for passenger liners and destroyers, but did build three submarines during the First World War (Winkalerth, 2000 98). There is one Swan Hunter built submarine amongst the known wrecks in English Territorial Waters, the *E43* of 1916. Also on the Tyne was the Armstrong yard which built eight submarines during the First World War and merged with Vickers in 1928. Three more submarines were built prior to the Second World War at a yard famous for building destroyers, and three more submarines were built during the war (Winkalerth, 2000 97). The U Class war emergency Untiring of 1943 was built at Vickers Armstrong's Newcastle yard.

During the First World War, the first batches of British H Class submarines were built by foreign manufacturers; *H1* to *H10* having been built (1915) by the Canadian Vickers Company of Montreal, and *H11* to *H20* having been built by the Fore River Co. plant at Quincy, Massachusetts, though export was halted until after the United States entered the war. Although the only known H Class wreck in English Territorial Waters (*H52*) was built at Pembroke Dockyard, *H5* lies off Anglesey and is protected under the Military Remains Act, and *H11* was found c.2006 some seven miles off Eyemouth on the Scottish Borders.

The German U-boat wrecks in English Territorial Waters are also largely representative of the major production centres (Winkalerth, 2000, 243-273). These include 'state run' yards at Danzig (established as a Royal Shipyard in 1850), Kiel Imperial Shipyard (later sold to Deutsche Werke AG), and Wilhelmshaven Imperial Shipyard (later National Marine Shipyard). Private shipyards represented include Blohm & Voss at Steinwerder on the River Elbe across from Hamburg, established in 1877. Other yards near Hamburg represented by wrecks in English Territorial Waters include Vulkan (established 1909), Deutsche Werft Hamburg (established 1920) which produced also submarines for export, and Stülcken which transferred to Steinwerder Island c. 1845 and was severely damaged by bombing raids in the Second World War.

Other locations represented include the Weser River near Bremen (AG Weser incorporated 1872), and Bremer Vulkan at Vegesack – a major producer in the Second World War with over 10,000 slave labourers. At Kiel, the Deutsch Werke Kiel AG was established on the southeastern coast of the Kiel Fjord in 1925 (consolidating the Kiel Imperial Shipyard) between two other yards, Howaldtswerke (sold to the German government in 1939) and Germaniawerft, (taken over by Krupp in 1882). The Germaniawerft yard built the first German-built submarine U1 in 1906 and went on to be a major producer of submarines in both World Wars. Though the Nordseewerke at Emden and the Flensburger Schiffbau AG yard at Flensburg both produced a reasonable number of submarines they are not amongst

the known wrecks. A single private shipyard in the Baltic is represented, the second of two Baltic yards owned by Schichau, and based (like the state-run yard) at Danzig. The other Baltic based yard which produced submarines was Flender Werft at Lübeck which built 21 submarines prior to and during the Second World War but none of these appear to be represented amongst the wrecks.

16 ANNEX 9 BRITISH FLOTILLAS, BOATS AND BASES

Information collated from the Navy Lists of various dates, also consulted disposition data from D Perkins (1914 & 1916) <http://www.gwpda.org/naval/rnsub16.htm> and Graham E Watson (1918) <http://www.gwpda.org/naval/fdrn0007.htm>, and Domvill-Fife (1914, 60-63). Red = boats in this study.

- 1st Pre 1912 Fort Blockhouse (*Holland No. 5*)
- 1st 1913 Devonport (A7-A9)
- 1st Jan 1914 Devonport same
- 1st Aug 1914 Devonport (A8-A9)
- 1st Aug 1916 Firth of Forth (B3, C23-C25)
- 1st 1920 Rosyth (12 K Class vessels)
- 1st 1931-4 Malta (*Oberon*)
- 1st 1934-5 Home Fleet (*Oberon*)
- 1st 1938 Malta
- 1st Jan-Aug 1939 (7 boats)
- 1st 1939-40 Malta
- 1st 1940-2 Alexandria
- 1st 1940 Alexandria (*Rainbow*)
- 1st 1942-4 Beirut
- 1st 1944 Alexandria
- 1st 1944 Dispersed to 8th

- 2nd 1913 Portsmouth (A5-A6, A13, B1)
- 2nd Jan 1914 Portsmouth same
- 2nd Aug 1914 Portsmouth joined by E10, D2, S1
- 2nd June 1916 Portsmouth LD (B1, B5)
- 2nd Aug 1916 Tyne (C7-10, C12-14, C16)
- 2nd 1920 Devonport (8 Class vessels)
- 2nd Jan-Aug 1939 Home Fleet (*Cachalot, Porpoise, Narwhal, Seahorse, Starfish*, by Aug *Oswald* and *Triumph*)
- 2nd 1939 Dundee (Seawolf) (7XS, Triumph, Oxley)
- 2nd 1939-40 Rosyth (5XT vessels)
- 2nd 1940-1 Holy Loch
- 2nd 1941 Halifax Combined into 3rd
- 2nd 1944-5 Trincomalee

- 3rd 1913 (B3-B5, C14-C16)
- 3rd Jan 1914 Devonport same
- 3rd Aug 1916 Immingham (D1, D3-D4, D6-D8)
- 3rd Nov 1918 Humber (C12, C19, C22, D1)
- 3rd 1920 Portsmouth (8 H Class vessels)
- 3rd 1939 Harwich

- 3rd 1940 Harwich (*H49*) (8XS vessels lost half by end of year)
- 3rd 1940 Rosyth
- 3rd 1941 Greenock (*P551*)
- 3rd 1941-5 Holy Loch
- 3rd 1944 Holy Loch (*Clyde, Visigoth*)
- 4th 1913 (*C17-C18, C31-C35*)
- 4th Jan-Aug 1914 Portsmouth same in Jan, Dover by Aug
- 4th June 1916 Dover (*A11-A12, C15, C17-C18, C32, C34-C35, F1, V2-V4*)
- 4th Aug 1916 Queenborough (*C1-C6*)
- 4th 1920 China station (6 L Class vessels joined by 6 L Class vessels from Mediterranean)
- 4th 1931-9 China station (*Olympus*)
- 4th Jan-Aug 1939 China station (15 boats)
- 4th 1939-40 Singapore absorbed into 1st
- 4th 1942-3 Colombo
- 4th 1943-5 Trincomalee (1944 T class)
- 4th 1945 Fremantle to replace 8th
- 5th 1913 (*C1-C6*)
- 5th Jan 1914 Chatham same, Aug same at Sheerness
- 5th June 1916 Nore LD (*C1-C6*)
- 5th Aug 1916 Dover (*C15, C17-C22, C28, C30, C34*)
- 5th 1920s-1930s Gosport (*H28, H31-H4*)
- 5th 1927-31 Portsmouth (*Oberon*)
- 1933 Portsmouth (*Seahorse*)
- 1935-8 Portsmouth (*Oberon*)
- 5th 1936-9 Portsmouth (*Seawolf*) (1939 split Gosport, Portland, Sheerness)
- 5th Jan-Aug 1939 (18 boats including *Unity*, which transfers to 6th by June)
- 5th 1939-post WW2 Portsmouth old subs anti-submarine warfare and new work-ups
- 6th 1913 (*C7-C10, C12-C13*)
- 6th Jan 1914 Chatham same, Aug same at Humber
- 6th June 1916 East Coast (*C7-C10, C12-C14, C16*)
- 6th Aug 1916 Portsmouth (*B1, B5*)
- 6th Nov 1918 Portsmouth (*C1, C5, C15, C18, C20, C24, C28, C30, D4, D6, D8, G14*)
- 6th 1920s Portland (*H50*)
- 6th Jan-August 1939 Portland (10 boats including *Swordfish*, *Unity* arrives June)
- 6th 1939 Blyth (*Seahorse*) (*3XU, 2XL, 1XH*)
- 6th 1940 Blyth (*Swordfish*)
- 6th 1940 Immingham (*Seal*)
- 6th 1941 Blyth (*P551*)
- 7th 1913 (*C19-C30*) **C29**
- 7th Jan 1914 Chatham same, Aug same at Leith
- 7th June 1916 Firth of Forth LD (*C19-C20, C22-C27*)
- 7th Aug 1916 Ardrossan (*A10, B4*)
- 7th March 1917 Ardrossan (*A10*)
- 7th H boats 1939, 1940 *Rothesay*
- 7th 1942-?4 Holy Loch (*P555*)
- 7th 1942-3 Holy Loch (*P511 A/S* trainer)
- 7th 1940-45 *Rothesay*

8 th	1913 (D1-D8, E4) D5
8 th	Jan 1914 Portsmouth same plus E1, E2, E4-E6 E6
8 th	Aug 1914 Maidstone (D1, D3-D8, E1-E9, E11)
8 th	June 1916 Harwich (D1, D3-D4, D6, E1, E4-E5, E8-E9, E16, E18-E19, E22-E24, E26, E29, E31, E41, E55, H6-H10, V1)
8 th	Aug 1916 Yarmouth (F1, F3, H5, H7-H10, V1-V4)
8 th	Nov 1918 Yarmouth (H21, H28-H30)
8 th	1939-40 Colombo (<i>Olympus</i>)
8 th	1941-2 Gibraltar
8 th	1942-3 Algiers
8 th	1944 Trincomalee (S boats)
8 th	1944-5 Fremantle
8 th	1945 Subic Bay
8 th	1945 Hong Kong
9 th	Aug 1914 Ardrossan (A10-A12)
9 th	June 1916 Clyde LD (A10, B3-B4)
9 th	Aug 1916 Harwich (E23, E29, E30-E33, E35, E37-E38, E42-E43, E45-E47, E53-E56) E43
9 th	Nov 1918 Harwich (E Class vessels, L Class vessels & C23, C25) E43
9 th	1940-45 Dundee Allied boats
9 th	1944 Dundee (<i>Venturer, Viking</i>)
10 th	Aug 1914 Devonport (B3-B5, C14-C15)
10 th	June 1916 East Coast (C21, C28, C31, W1-W3)
10 th	Aug 1916 Tees (E44, G7-G9, G11-G13, E39) G11
10 th	Nov 1918 Tees (E Class vessels, G Class vessels, L Class vessels)
10 th	1940 Harwich
10 th	1941-2 Malta
10 th	1942 Alexandria
10 th	1942-3 Malta
10 th	1943-4 Maddalena
11 th	June 1916 Grand Fleet (D7-D8, E30, G1-G2, G4-G5)
11 th	Aug 1916 Blyth (G1-G6, G10, J1-J6, S1) G3
11 th	Nov 1918 Blyth (G Class vessels, J Class vessels) G3
12 th	Nov 1918 Rosyth (K Class vessels)
12 th	1939 Midget subs, 1944 Rothesay
13 th	Nov 1918 Rosyth (K Class vessels)
14 th	Nov 1918 Blyth (H Class vessels, L8, R Class vessels) H11
	Lamlash 1913 (A10-A12)
	1914 same
Falmouth	Nov 1918 (L1-L7) L1
Med	Aug 1914 (B6-B11)
Med. Fleet	June 1916 (E2, E11, E21, E25, H2)
China	Aug 1914 (C36-C38)
China	June 1916 (C36-C38)
Portsmouth	1920 submarine school (H, R M) material reserve (E Class vessels, G Class vessels & R Class vessels)
Portland	1920 periscope school (H Class vessels) reserve (H Class vessels)

17 ANNEX 10: CLASS SUMMARY INFORMATION

17.1 HOLLAND, A, B AND C CLASSES

The Holland class were trialled at Barrow-in-Furness and based at Portsmouth. They were not really sea-going boats and were used as test beds for new ideas and adaptations, such as raised conning towers and periscopes. However, they proved their potential as war ships and led to improved designs by a mutual co-operation between Vickers and the Admiralty.

The resultant petrol driven A class was an enlarged boat (c. 12m longer than the Holland Boats), again, a number of variations between boats within the series. Still relatively small, they were mainly used for coastal defence (Brown 1999, 81). The *Holland No. 6* (re-designated the *A1*) was the first of 14 A class submarines built from 1902-5 and the *A14* was designated *B1* on completion.

Unfortunately, unlike the Holland class, it had a poor safety record, suffering a number of accidents and sinkings including in training (Bowers, 1999, 193) though none were lost in conflict. The A class survivors served as local defence boats in First World War at Portsmouth, Devonport, Dover, Ardrossan and the Clyde. The B class was larger again and examples were moved farther afield. It was also used in a harbour defence role but now covered the harbours at Gibraltar and Malta as well as in home waters. By the end of THE FIRST WORLD WAR up to 11 had been deployed to the Mediterranean. The C class represented the last of the Holland class developments and the last of the petrol engine boats. It was the first class to be produced in significant numbers and in spite of its limitations gave reliable service before and during the war. Three had been based in Hong Kong before the war and later four were sent as far as the Baltic. The rest of the class was heavily involved with coastal defence based at Dover and the East Coast.

17.2 D, E AND L CLASSES.

The D class represented a considerable step forward in capability. It was intended as a "overseas" boat, and with its diesel engines and moderate size had the range and duration required to operate off enemy coasts. The D class showed its aggressive design with the addition of a deck-gun. The Ds were based in home waters at Dover, Harwich, Immingham and Blyth until late in the war when they were relegated to a training role at Portsmouth. The D class was refined and improved into the E class which itself went through a series of modifications. There were three production groups of the E class and additionally a sub group of 6 minelayers. The E class had started production before THE FIRST WORLD WAR and the first examples were initially based at Harwich as the 8th Flotilla. Production continued and the E class became the standard workhorse of the RN throughout the war. Casualty figures reflect this hard usage with about a 50% loss rate. As well as home waters E class boats were sent to the Mediterranean and the Baltic. The Baltic continued to be an active campaign area during the 1918-20 anti-bolshevik intervention.

The L class deserves consideration on its own merits, but was effectively the last development of the D and E form. It was designed for operations in the North Sea and the class also went through a number of modifications, resulting in three production groups and a minelaying subgroup. The full production development of this class was cut short by the end of the war. In some examples the deck gun was positioned in a protected bridge mounting, a feature to be repeated in later large designs. During the 1920s the L class was sent to the China station, and although it was not really suited to the local conditions it provided a necessary extension of Imperial power, for example against pirates in waters near Hong Kong. By the 1930s the L class was being replaced and many boats were

relegated to reserve or training duties. Three survived the 1930s and were still in use during the Second World War, eventually working in Canada as A/S trainers for convoy escort groups.

17.3 G CLASS

A limited experiment with a double hull design, it proved to have no appreciable advantages over the E class. It was, however, the first class to have the new 21" torpedoes. The boats were based at Tees, 10th Flotilla, and Blyth, 11th Flotilla, and were used for patrols of the Bight and the North Sea.

17.4 J CLASS

Originally conceived as a Fleet submarine, in spite of its triple diesel engine/screw configuration it was not fast enough. Nonetheless it was the fastest diesel engine submarine of the time. Only seven were built. They were based with 11th Flotilla at Blyth but assigned to the Grand Fleet. After the war they were viewed as too large and expensive. The six survivors were passed on to the RAN but were not ultimately successful.

17.5 K CLASS

The First World War Fleet submarine built for speed. Unfortunately in order to keep up with the Fleet they were powered with steam turbines which led to a number of technical problems. It should also be pointed out that the underlying philosophy of submarines working in close concert with the surface fleet presented a number of problems which eventually resulted in fatal consequences in the so-called "Battle of May Island".

17.6 M CLASS

An unsuccessful attempt to maximise the potential of the submarine deck-gun. Developed too late to demonstrate its full potential during WW1, one boat was cancelled and two of the remaining three were modified into other experimental designs.

17.7 H CLASS

During the First World War the need for more coast defence boats in the early stages of the war resulted in the purchasing of an "off-the-shelf" solution. An agreement was made with the Bethlehem Steel Corporation for the supply of 20 boats of an Electric Boat Company design from America. The arrangement was not straightforward as America was neutral at the time. The boats were to be assembled at Montreal by a Vickers subsidiary company. *H1-H4* became the first submarines to cross the Atlantic under their own power. Of the first batch, *H1-H4* served in the Mediterranean, *H5-H10* with 8th Flotilla at Harwich and later Yarmouth, and *H11-H12* at Blyth with the 14th Flotilla in 1918. The H class boats proved themselves to be very effective in shallow waters and a second group was manufactured under licence in Britain. These served with the 8th and 14th Flotillas. The second group continued to be used in considerable numbers after the war as training vessels both for submarine crews and for anti-submarine warfare vessels. Experiments were also carried out with this class, for example *H32* became the first RN submarine to have ASDIC mounted. Nine survived as trainers up to the Second World War, when they were again used as operational boats in 1940 and 1941. Ben Bryant in *H49*, Harwich 5 as anti-invasion scouts, sank two ships, radios upgraded with ones from Wellington bombers, previous only 60mile range. By Oct 1940 resume training duties 7th Flot Rothesay, from Gosport, having lost *H31* and *H49*. Heads for ratings between engines.

The main inter war classes, the Porpoise and Grampus minelayers, Thames fleet boats and Oberon, Oxley, Odin, Parthian and rainbow patrol classes (28 in all) are not represented in the English Territorial Waters record.

17.8 S CLASS

This class was developed as a medium sized boat for offensive patrols in narrow waters. This was not a Far East design, as the need for a boat usable in European waters was now being considered. The first two boats ordered in the 1929 programme were Swordfish and Sturgeon, both from Chatham Dockyard. By 1940 the need for submarines to operate in the North Sea was back on the agenda. The U class was seen as too small and the T as too large. The S class was therefore repeated with alterations to increase the diving depth. Cammell Laird became the lead manufacturer with this class during the war with a production rate of up to one every six weeks. The Safari was the first vessel of the improved S class and was used for first of class tests for speed and dive depth. Further modifications were undertaken as the war progressed to meet demands for greater endurance as the theatres of operations were expanded to include the Far East. There were considerable similarities in performance between the third production group of the S class and the famous German Type VIIC boats. Seven of the S class were converted into High Speed Target submarines during 1944-5.

17.9 U/V CLASS

Class designed for submarine and anti-submarine training, and for defensive patrols of UK and Empire bases. It was intended as a replacement for the H class. To be built under the 1936 building programme, the first three, *Undine*, *Unity* and *Ursula* were ordered from Vickers in that year. The following two production groups were mainly used in the Mediterranean where they suffered heavy losses, 9 out of 12 of the group I boats were lost. The survivors of the group II boats were used as A/S trainers at home and in Canada. The final production group, the V Class vessels, arrived too late for the Mediterranean campaign and many were lent to allied navies. After the war the U class was found to be too slow for A/S training and most were scrapped.

17.10 T CLASS

Intended as a replacement for the O, P and R classes for use in the Far East, they were designed as large patrol boats capable of cruises of up to 42 days duration in any ocean. The first two production groups suffered heavy casualties, especially in the Mediterranean. Later they were deployed to the Far East. The A class can be considered as an improved, larger and faster, T variant, specifically for the Far East.

17.11 A CLASS

A new design approved in 1943 for a general purpose submarine with improved speed, endurance and diving depth. Prefabrication of the pressure hull by using electric welding allowed for sectional building and improved production times. Mock-ups and plans of the submarine were used by seven different shipbuilders with orders for 46 boats as a first run. 55,000 BTU/hr Freon air-con. Units were installed.

During the 1920s the *X1* was launched. It represented an experimental test bed for advances in British designed diesel engines of greater power than those used during the First World War. It also represented another attempt at a very large, heavily armed ocean-going submarine. By 1922 a smaller Overseas Patrol Type, the *Oberon*, was considered. This boat was launched in 1927 and was joined by the *Oxley*, *Odin*, *Parthian* and *Rainbow*

Classes, 19 boats in all. These were joined by the Thames Class which had been designed as fast attack and reconnaissance units to accompany the Fleet. A class of minelayers, *Porpoise/Grampus* was initially ordered in 1930. The S Class, first ordered in 1929, was designed for use narrow waters and represented a return to smaller boats. The U class was intended as a replacement for the H Class and combined the functions of training and coastal defence. The T Class on the other hand was intended as a replacement for the aging fleet of O, P and R Class boats used in the Far East. Wartime requirements resulted in repeat orders for the S, U and T Class boats with improvements and modifications throughout the war rather than new designs.

18 ANNEX 11: CLASS TECHNICAL INFORMATION

Note: this is a large Excel spreadsheet currently stored in a sparate file.



- 12 nautical mile limit
- German submarine
- Allied submarine
- Unknown nationality
- Wrecks protected under the Protection of Wrecks Act (1973)
- Wrecks protected under the Protection of Military Remains Act (1986)



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PROJECT TITLE
Strategic Assessment of Submarines in English Waters

FIGURE TITLE
Study Area, Showing Protected Submarine Wrecks

PROJECT NO.	4132	DATE	16/10/2014	FIGURE NO.
DRAWN BY	LJH	REVISION	00	2
APPROVED BY	JB	SCALE@A3	1:2,500,000	



- 12 nautical mile limit
- German submarine
- Allied submarine
- Unknown nationality
- Pre-war (up to 1913)
- WWI (1914-1918)
- Inter-war (1919-1938)
- WWII (1939-1945)
- Post-war (1946-present)



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PROJECT TITLE
Strategic Assessment of Submarines in English Waters

FIGURE TITLE
Submarine Losses in English Territorial Waters

<small>PROJECT NO.</small> 4132	<small>DATE</small> 15/10/2014	<small>FIGURE NO.</small>
<small>DRAWN BY</small> LJH	<small>REVISION</small> 00	2
<small>APPROVED BY</small> JB	<small>SCALE@A3</small> 1:2,500,000	




- British submarine yard
- ▲ German submarine yard

(1903-1918) main yard (with period of use)
 (1903-1918) minor yard (with period of use)

0 250km

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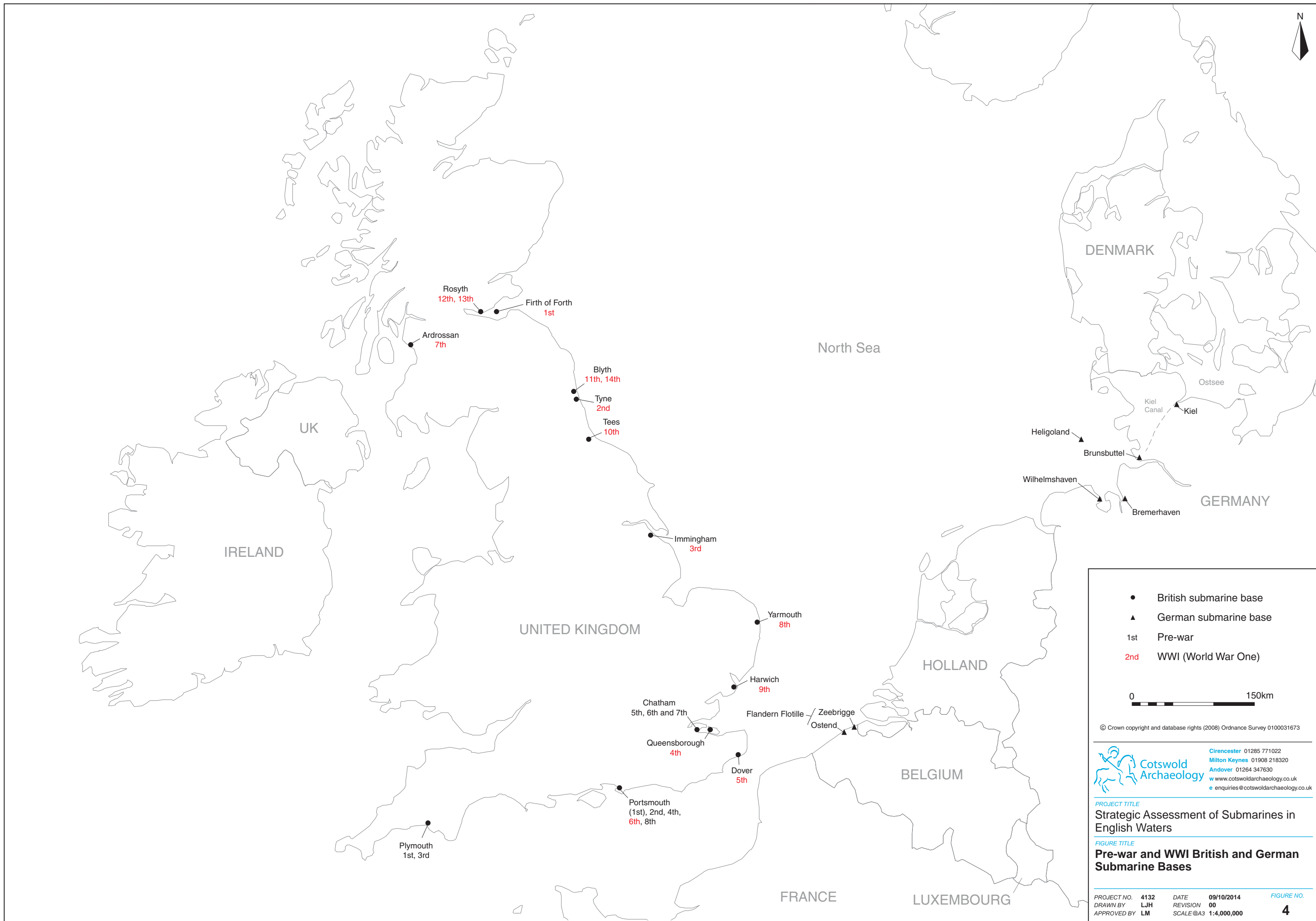
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PROJECT TITLE
Strategic Assessment of Submarines in English Waters

FIGURE TITLE
Main British and German Submarine Builders (1903 to 1946)

PROJECT NO. 4132	DATE 08/10/2014	FIGURE NO. 3
DRAWN BY LJH	REVISION 00	
APPROVED BY LM	SCALE@A3 1:5,000,000	



- British submarine base
- ▲ German submarine base
- 1st Pre-war
- 2nd WWI (World War One)



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PROJECT TITLE
Strategic Assessment of Submarines in English Waters

FIGURE TITLE
Pre-war and WWI British and German Submarine Bases


PROJECT NO. 4132	DATE 09/10/2014	FIGURE NO. 4
DRAWN BY LJH	REVISION 00	
APPROVED BY LM	SCALE@A3 1:4,000,000	



● British submarine base
 ▲ German submarine base

0 300km

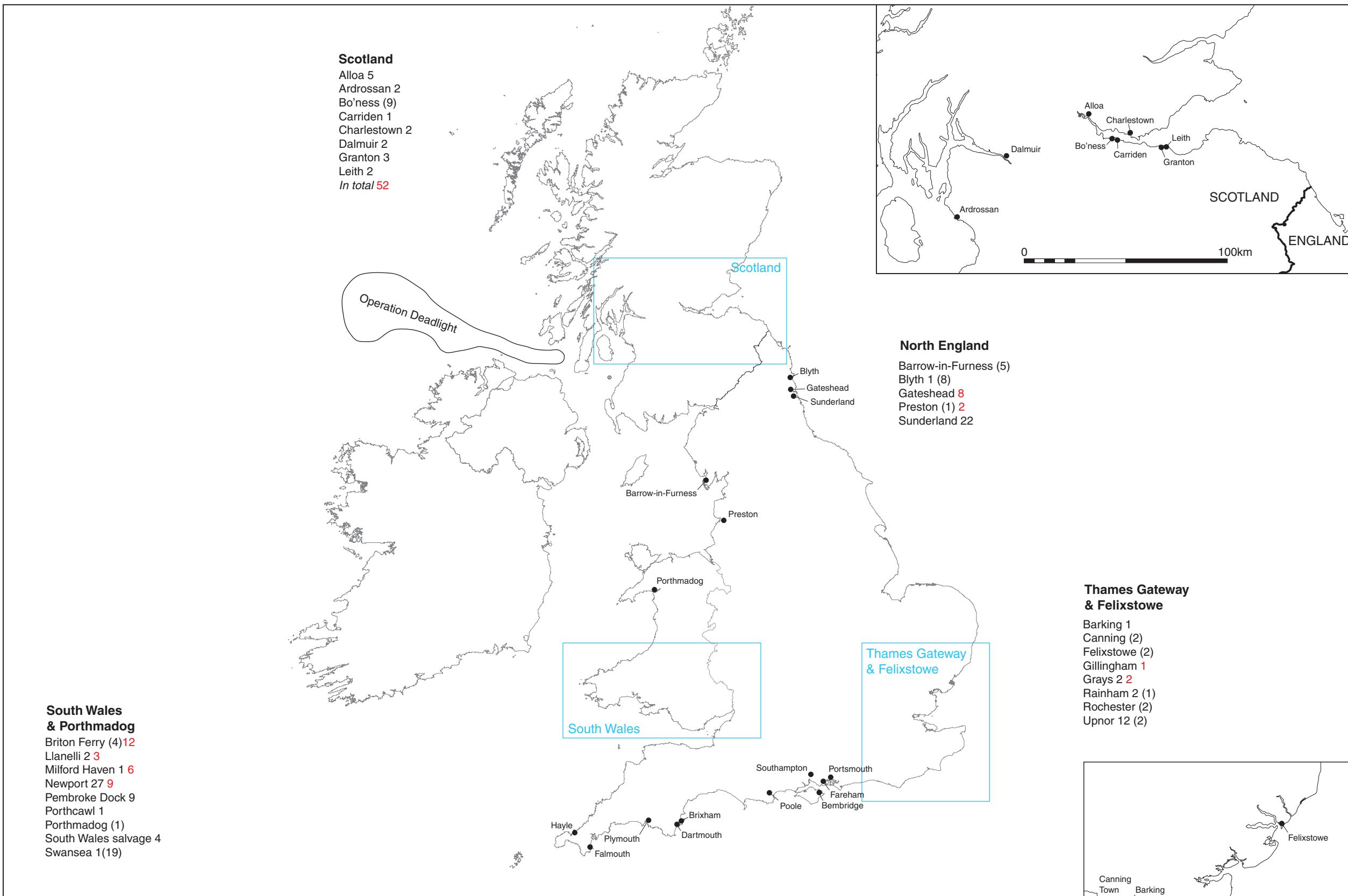
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PROJECT TITLE
Strategic Assessment of Submarines in English Waters

FIGURE TITLE
WWII British and German Submarine Bases

<small>PROJECT NO.</small> 4132	<small>DATE</small> 09/10/2014	<small>FIGURE NO.</small>
<small>DRAWN BY</small> LJH	<small>REVISION</small> 00	5
<small>APPROVED BY</small> LM	<small>SCALE@A3</small> 1:6,000,000	



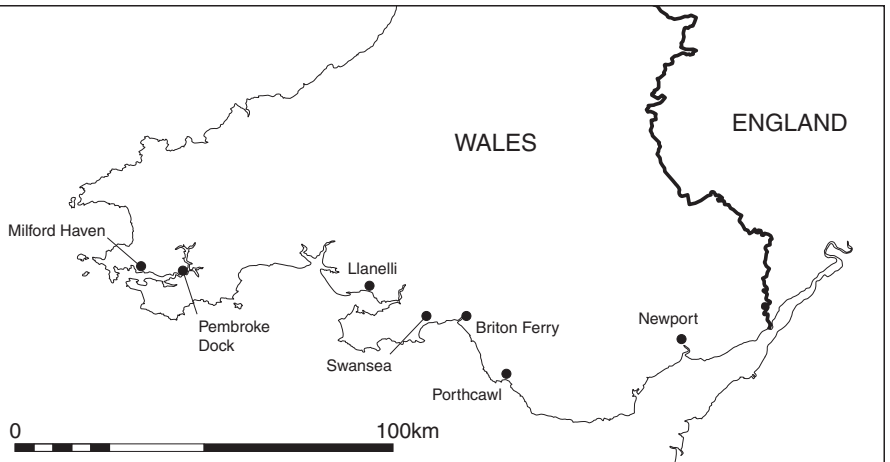
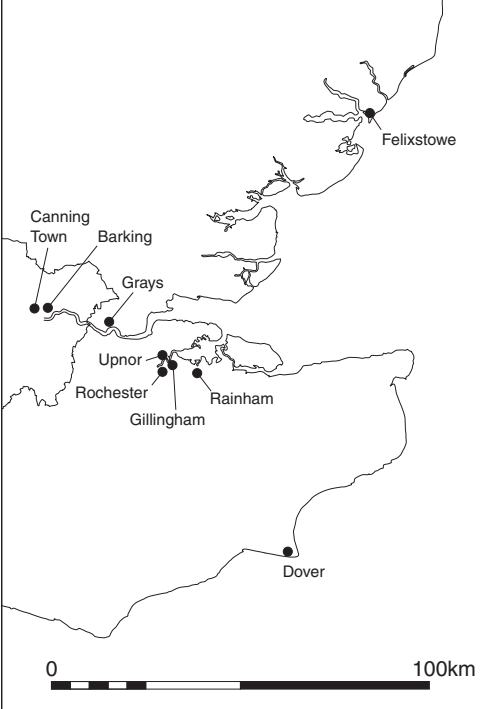
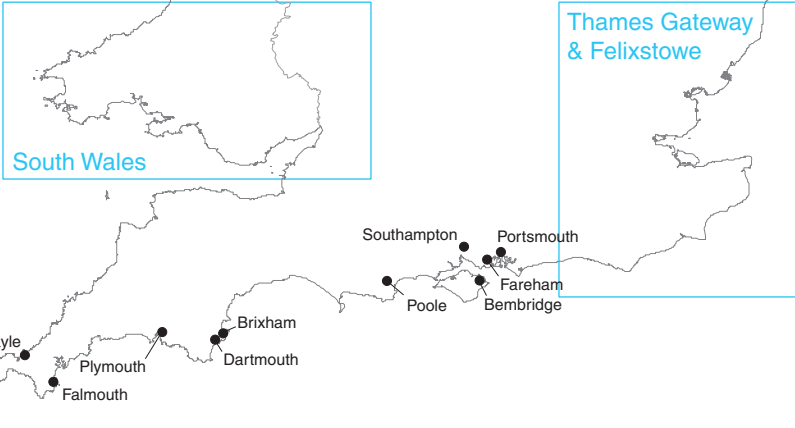
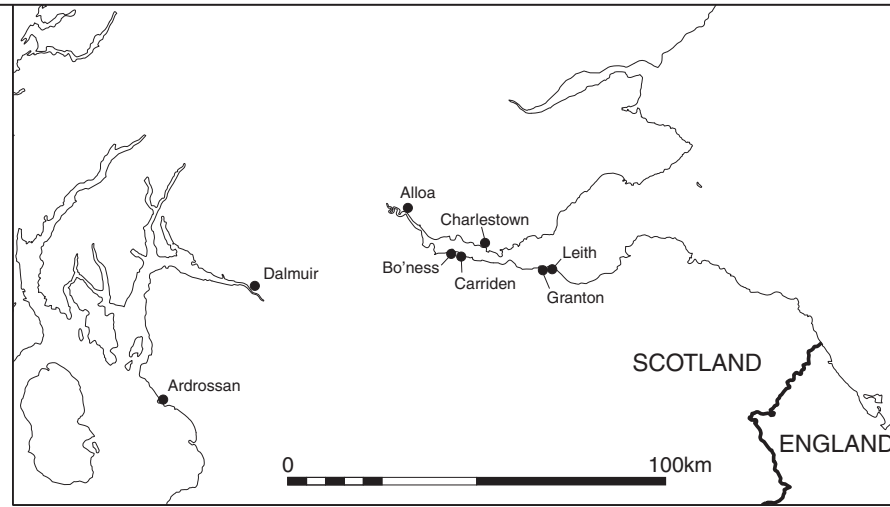
Scotland
 Alloa 5
 Ardrossan 2
 Bo'ness (9)
 Carriden 1
 Charlestown 2
 Dalmuir 2
 Granton 3
 Leith 2
In total 52

North England
 Barrow-in-Furness (5)
 Blyth 1 (8)
 Gateshead 8
 Preston (1) 2
 Sunderland 22

South Wales & Porthmadog
 Briton Ferry (4) 12
 Llanelli 2 3
 Milford Haven 1 6
 Newport 27 9
 Pembroke Dock 9
 Porthcawl 1
 Porthmadog (1)
 South Wales salvage 4
 Swansea 1(19)

Thames Gateway & Felixstowe
 Barking 1
 Canning (2)
 Felixstowe (2)
 Gillingham 1
 Grays 2 2
 Rainham 2 (1)
 Rochester (2)
 Upnor 12 (2)

South Coast
 Bembridge I.O.W 7
 Brixham 1
 Dartmouth 1
 Dover 6
 Hayle 2
 Poole 7
 Portsmouth 9 4
 Falmouth (6) 1
 Fareham (3)



- scrapping site
- 7 Royal Navy submarines scrapped Post-WWI
- (7) German Navy submarines scrapped Post-WWI
- 7 Royal Navy boats scrapped Post-WWII



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PROJECT TITLE
 Strategic Assessment of Submarines in English Waters

FIGURE TITLE
 British Submarine Scrapping Sites (Used Post-WWI and Post-WWII)

PROJECT NO.	4132	DATE	08/10/2014	FIGURE NO.	6
DRAWN BY	LJH	REVISION	00		
APPROVED BY	LM	SCALE @A3	1:5,000,000 & 1:2,000,000		