Forgotten Wrecks of the First World War

Barge *Wessex* and its Littlehampton Construction Yard

Maritime Archaeology Trust

heritage lottery fund

LOTTERY FUNDED

FIRST WORLD WAR CENTENARY

LED BY IWM

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Barge *Wessex*, River Hamble, Hampshire, and its construction yard at Littlehampton, West Sussex

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I Acknowledgments

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Information and photographs from a display at Littlehampton Museum have been drawn on for this report and we would like to extend thanks for permission to use this material.

MAT Staff involved in the recording, analysis and reporting include: Julian Whitewright, Rachel Bynoe, Brandon Mason, Grant Bettinson and Julie Satchell.

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1 Project Background

Forgotten Wrecks of the First World War is a Heritage Lottery Funded project dedicated to raising the profile of a currently under-represented aspect of the First World War. While attention is often focused on the Western Front and major naval battles like Jutland, historic remains from the war lie, largely forgotten, in and around our seas, rivers and estuaries.

With over 1,000 wartime wrecks and dozens of coastal sites along England's south coast alone, the conflict has left a rich heritage legacy and many associated stories of bravery and sacrifice. The underwater memorials represent the vestiges of a vital, yet little known, struggle that took place on a daily basis, just off our shores. The study and promotion of these archaeological sites presents a unique opportunity to better interpret them and improve physical and virtual access.

The project focuses on underwater and coastal sites from the Isle of Thanet in Kent, to beyond the Isles of Scilly, and over half way into the English Channel. The sites include merchant and naval ships, passenger, troop and hospital ships, U-boats, ports, wharfs, buildings and foreshore hulks. These sites, under water and on the foreshore, have been degrading and deteriorating due to natural and human processes for approximately 100 years and, as a result, are extremely fragile. In many cases, this project represents a final opportunity to record what remains on the seabed and foreshore before it is lost forever.

The project aims to characterise the nature and extent of the maritime First World War archaeological resource surviving on the south coast's seabed and around the coast. This will enable an understanding of the record of maritime activity created during the conflict and provide a window onto some of the surviving sites. While it will not be possible to visit and record every site dating to the First World War along the south coast of England, a representative sample of sites have been selected for more detailed study, analysis and interpretation.

With particular regard to coastal, rather than fully submerged archaeological remains, it has been noted in wider commentaries on England's coastal heritage (Murphy, 2014: 94) that there are relatively few surviving sites because of subsequent reuse and/or destruction during or following the Second World War. As a result, from the perspective of identifying coastal research priorities an emphasis has been placed (Murphy, 2014: 119) on the need to differentiate First World War sites from those of the Second World War.

This report collates information collected relating to one of the south coast's First World War intertidal hulk sites, the Barge *Wessex* located on the Hamble River (Figure 1). The report details the work carried out, the results and future work that could be achieved at the site. There is also consideration of the shipbuilding yard at Littlehampton where the *Wessex* was built, which was subject to a site visit a part of the project.

2 Site Background and Context

This report details the historic background and archaeological investigation of the hulk of the barge *Wessex* on the Hamble River, which was built in Littlehampton against the backdrop of the First World War (Figure 1). Much research has been done by Museum staff and volunteers at Littlehampton Museum into the companies involved with the building and operation of the barge during the war and the images and information they have provided have been gratefully used in this work.

The final resting place of the *Wessex* has been documented for some time, with various surveys demonstrating the degradation of the hulk and gleaning some significant information about its early history. The work undertaken during this survey has produced further results relating to the shipbuilding techniques that were used in the *Wessex*'*s* construction.

In documenting the site, this report demonstrates not only the important work that was continuing to prevail throughout the war years on the home front, but also highlights the constructional nuances so often obscured through archival work alone; elements of the hulk appearing to be different from any that we would expect to find from a barge of this period and location.

This highlights issues of ad hoc or localised construction techniques that were not recorded in the literature at the time which were a flexible response to the changing availability of materials during the war years.

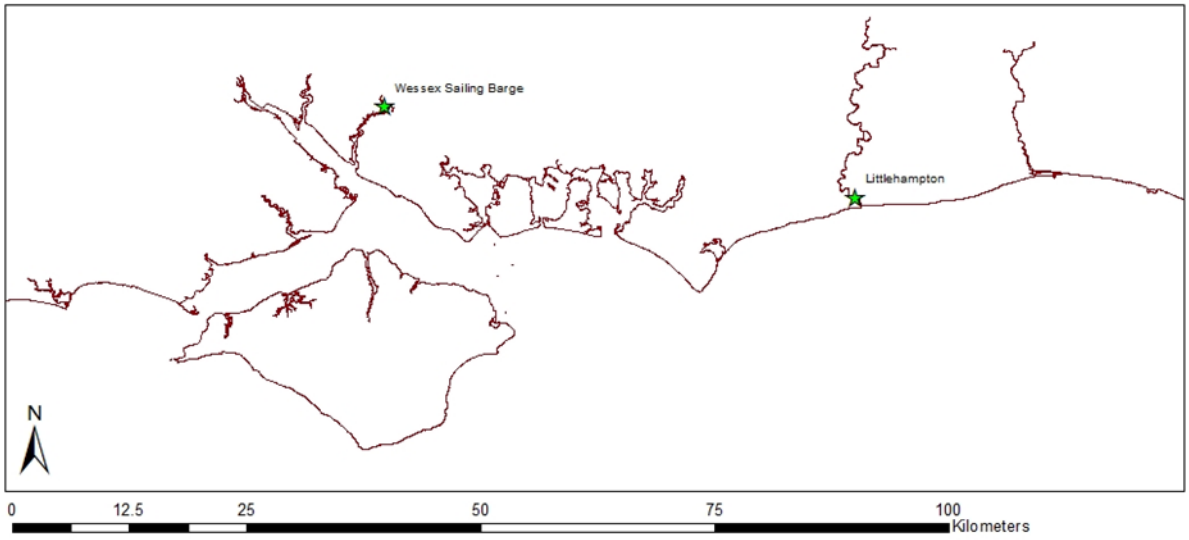

FIGURE 1: LOCATION MAP - BARGE WESSEX - RIVER HAMBLE AND HARVEY'S SHIPBUILDING SITE AT LITTLEHAMPTON.

2.1 SITE HISTORY

Although the main focus of this report is the barge *Wessex*, there is also consideration of the shipbuilding yard at which it was built located in Littlehampton, West Sussex. Littlehampton is located at the mouth of the River Arun, where the development of ship building, trade and aggregate industries led to its main economic success from the late 18th century onwards (Simmonds 2013). The shipbuilding companies were particularly important during the war, building ships exclusively for the Royal Navy throughout both the First and Second World Wars.

The barge *Wessex* was built during the First World War at Harvey's shipbuilders, Clymping, Littlehampton, a boatyard absorbed by the war effort in 1914 (Littlehampton Museum information). Completed in 1918, it was a 30m long, flat bottomed, flush planked (carvel) built sailing barge with a 96bhp engine – one of the earliest of its kind – classed as an auxiliary ketch. It was owned in succession

by Vectis Shipping, Williams Steamship and then Belsize Boatyard, all Solent based companies (Mercantile Navy List, 1919-1970).

The barge is an interesting Forgotten Wreck as it demonstrates the continuation of traditional wooden boat-building methods at a time of great technological development. While warships, submarines and steam ships were the pinnacle of technology at this time, rural life was predominantly still being lived on a much smaller scale, with traditional techniques and practices remaining in use.

2.2 Geographical Context

The *Wessex* is located on the eastern side of the River Hamble, approximately 8km inland from its mouth, in intertidal muds and silts on the northern side of the bend of a small tributary, near Fairthorne Manor (Figure 2; SU 51975 11910). Despite being a significant distance from the mouth of the river, this is still very much a tidal site and windows for working were planned in advance to take advantage of low tide opportunities. The maximum tidal range at the site is 4.9m, with the site workable from a tidal height of approximately 1.5m and below.

Figure 2: Hulk of the barge Wessex sitting in a tributary off the main Hamble River.

Harvey's shipbuilders at Littlehampton is located on the western side of the River Arun, on the edge of Littlehampton and Clympton. Whilst the river is tidal, the site is not affected by this and basic survey is possible at any time (Figure 3).

FIGURE 3: THE OLD DOCK AT LITTLEHAMPTON, FORMERLY HARVEY'S SHIPBUILDERS

2.3 RESEARCH QUESTIONS

In April 2007 a survey of the barge *Wessex* took place by the Maritime Archaeology Trust, then the Hampshire and Wight Trust for Maritime Archaeology in conjunction with students at the University of Southampton as part of the Recording Archaeological Remains on the River Hamble Project (See report HWTMA, 2008: 169-180). This survey recorded the extant remains of the hulk and conducted some preliminary research into its working life. The results of this survey indicated that, whilst there was structure visible above the water line, the hulk was quite seriously degraded. They recorded the main extant areas as those below the level of the chine, with some upstanding structure of the starboard side (See Figure 4).

The main components were recorded as the keelson, a possible mast step, bottom hull planks and vessel frame timbers. The hulk is mainly composed of wood, with metal fixtures and knees. They also recorded what was interpreted as a 3m long section of hull from the port side.

Questions that were pertinent for the 2016 survey related to the building and life of this ship throughout the First World War:

- Has there been a significant change in condition between the 2007 and survey of the site in 2016?
- Does the vessels construction reflect what we would expect to see from barges at this time, or was it constructed differently; does this reflect the impact of the war, or simply local and ad hoc methods?

For the site visit to the shipbuilding yard at Littlehampton the key aims were to determine whether the site of the shipyard could be located and to undertake a photographic survey of any elements that represent structure likely to have been in place during the construction of the *Wessex*.

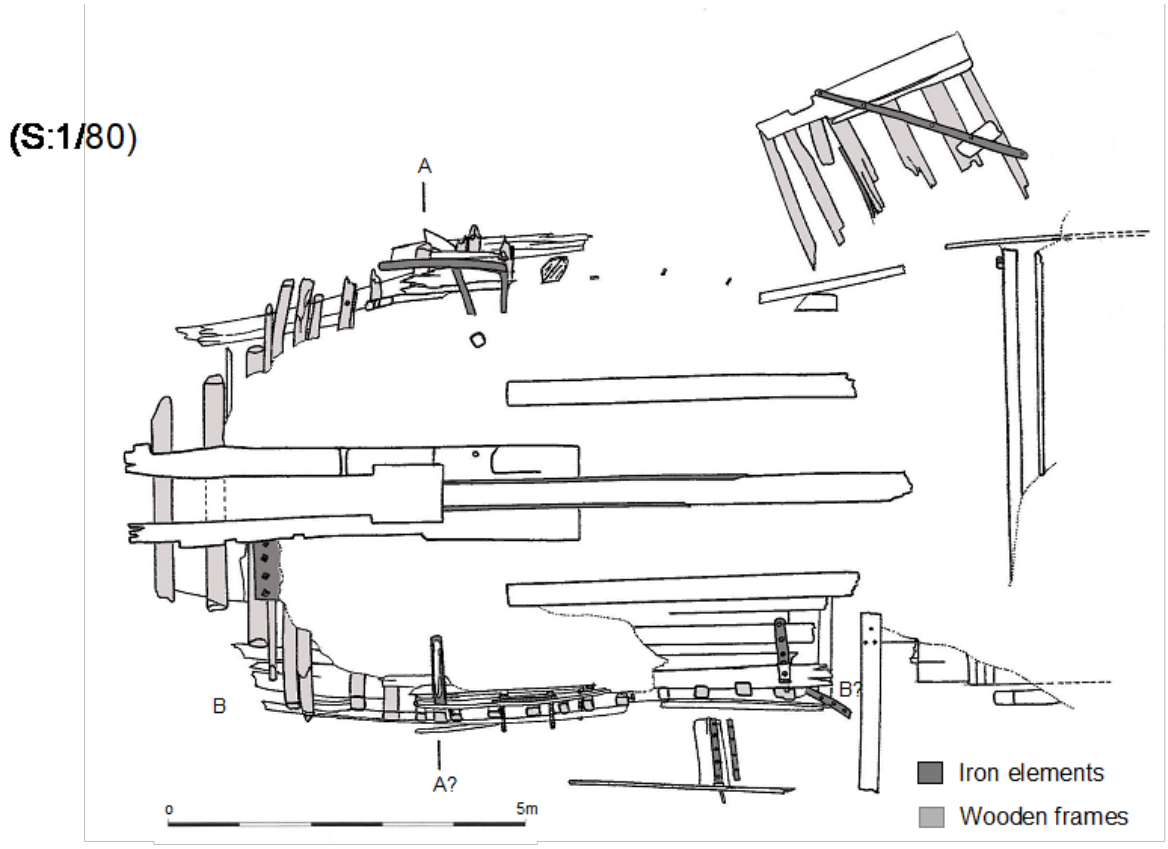

FIGURE 4: SURVEYED PLAN OF THE HULKED REMAINS OF BARGE WESSEX NEAR FAIRTHORNE MANOR (WEST-EAST) (COURTESY MOSS ET AL)

3 Fieldwork Methodology

Forgotten Wrecks Project site visits and fieldwork aimed to:

- Provide opportunities for volunteers to access and take an active role in the recording and research of a range of different types of maritime First World War sites.
- Record extant remains for heritage records.
- Record extant remains for public dissemination, enabling 'virtual' access for those not able to achieve physical access.

Intertidal/coastal fieldwork comprised a combination of the following (depending on the nature and extent of the site): initial site visit, characterisation of remains through detailed inspection, full site survey and/ or creation of a 3D model.

Methods used included site sketch and measured survey, and photographic/video survey, employing a drone where appropriate. For further information about methodology, please refer to the MAT's *Forgotten Wrecks of the First World War: Project Methodology Report*.

4 Site Results

4.1 DBA AND HISTORICAL RESEARCH

The desk-based assessment (DBA) and historical research phase of investigation proved to be extremely helpful in establishing the overall disposition of structural remains at the sites, and the potential life of the *Wessex* prior to its abandonment in the Hamble. Key sources were documents at

Littlehampton Museum, and information within their display 'Littlehampton Age of Sail', and data gathered during the 2007 fieldwork.

Historic OS maps were crucial in the identification of the location of Harvey's shipbuilders at Littlehampton and their use allowed the site to be accurately located on the west side of the river Arun near to the old Rope Walk (Figure 5). The dock is now used to moor boats and no boat building occurs on site, however, the remains of the old boat building warehouse are still extant and the historic buildings remain intact (Figures 3 and 6).

The shipyard, to eventually become Harvey's, was founded in 1837 by a local called Stephen Olliver. After several years of struggling for work, this was sold to Henry Harvey in 1846, who turned its fortunes around producing large, square-rigged ships (Littlehampton Age of Sail exhibition). Passing away in 1868, Henry Harvey was succeeded by his two sons, John and William Benjamin, who carried on the family business. Despite the company being bought out in 1916, after William Benjamin's retirement, it retained the name Harvey Shipbuilding Company and became heavily involved in the War Effort during the First World War. Building the *Wessex* was one of the last jobs they did, as they were bought out in 1921.

FIGURE 5: SHIPBUILDING DOCK THROUGH TIME. TOP: THE HISTORIC DOCK IN THE 1950S; BOTTOM: 1910S LOCATION, APPROXIMATELY CONTEMPORARY WITH CONSTRUCTION OF THE WESSEX

Figure 6: External image of Littlehamptons Shipbuilders.

Historical photographs obtained during archival research at Littlehampton Museum provide additional context for the construction of the barge *Wessex*, with features such as the extant crane, seen in both Figures 3 and 7.

Figure 7: The launch of the barge Wessex in 1918 from Harvey's at Littlehampton. Note the crane to the left side of the dock, which can be seen in Figure 3. (Courtesy of Littlehampton Museum Archive)

The 1919 Mercantile Navy List further confirms the barge *Wessex* being built here in 1918 by J. and W.B. Harvey, with the first owners being the Vectis Shipping Company of Newport, Isle of Wight. The *Wessex* was constructed as a Pole-Mated Auxiliary Ketch (Benham and Finch 1983: 159), fitted with a 96bhp engine, however, the sails would have been the primary source of propulsion. The *Wessex* was one of the earliest barges to be provided with both modes of propulsion.

The registered details of the *Wessex* are as follows:
- Length 100.7' (30.7m)
- Breadth 24.2' (7.4m)
- Hull depth 8.4' (2.6m)
- Tonnage 84 tonnes net, and 148 tonnes gross
- Engine 96bhp

Information collected from the registers shows that the *Wessex* was owned by the Vectis Shipping Company until just after the Second World War. From 1948 to 1958 *Wessex* was owned by the Williams Steamship Company, of Southampton and finally to the Belsize Boatyard Ltd of St Denys, Southampton from 1959 until it last entry in the 1970 Mercantile Navy List.

The original purpose of the *Wessex*, however, was a little more exciting: *Wessex* was intended as a 'Q Ship' or 'mystery ship' as it was to be fitted with concealed armaments (Littlehampton Museum 'Age of Sail'). Unfortunately, the war was over before the vessel was fully completed and so this never came to pass. Harvey's closed in 1921, bought out by two companies, Osborne's and Hillyard's boat builders, who split the yard between them.

4.2 Fieldwork – Measured Survey

The hulk was found in a not dissimilar condition to that of 2007, with a few areas—particularly those that were upstanding previously—showing more decay than others. The low tide allowed full access to the vessel in order to clean back areas of the planking and look at constructional features and condition.

Seven log sheets were completed over the course of the low tide (approximately 2 hours), documenting the upstanding starboard side with a profile through the vessel, the exposed planking and general features of note. The starboard side was the main area of loss, with some of the frames and planking now eroded away.

FIGURE 8: 2007 IMAGE SHOWING THE UPSTANDING STARBOARD SIDE OF THE WESSEX WITH AN IRON KNEE AND THE REMAINS OF DECKING ABOVE

FIGURE 9: THE STARBOARD SIDE IN 2016, SHOWING THE CHANGES SINCE 2007: MUCH OF THE PLANKING HAS BEEN LOST AND THE DECKING THAT PREVIOUSLY RESTED ON THE KNEE HAS ALSO GONE.

FIGURE 10: OUTER VIEW OF THE STARBOARD SIDE OF THE WESSEX IN 2007

FIGURE 11: OUTER VIEW OF THE STARBOARD SIDE OF THE WESSEX IN 2016, DEMONSTRATING THE LOSS TO THE INNER AND OUTER PLANKING AND THE FRAMES.

Elements of the vessel's construction were reinterpreted during the 2016 visit. It had previously been thought that the large rectangular hollow towards the aft end of the central keelson was a mast step. The size of this (approximately 1m long and 0.6m wide) makes this unlikely. Its relationship to a long passageway with a concave base moving out to the stern of the vessel indicates that this could instead be the location of the engine, with the passageway being where the prop-shaft sat (Figure 12).

FIGURE 12: TOP IMAGE SHOWING THE DIMENSIONS OF THE POSSIBLE ENGINE HOLE WITH THE POSSIBLE PROP SHAFT MOVING OUT TO THE TOP OF THE PHOTO (IMAGE FROM 2007), WITH THE BOTTOM IMAGE LOOKING TOWARDS THE POSSIBLE PROP SHAFT, SHOWING ITS CONCAVE BASE AND EXTENSION TO THE STERN OF THE VESSEL.

A series of sketches have been collected at approximately the same location as the 2007 survey to provide directly comparable images to access the condition of the vessel highlighting how it has deteriorated since 2007. Figure 13 shows the profiles in 2016, while Figure 14 shows the extent of the structure in 2007.

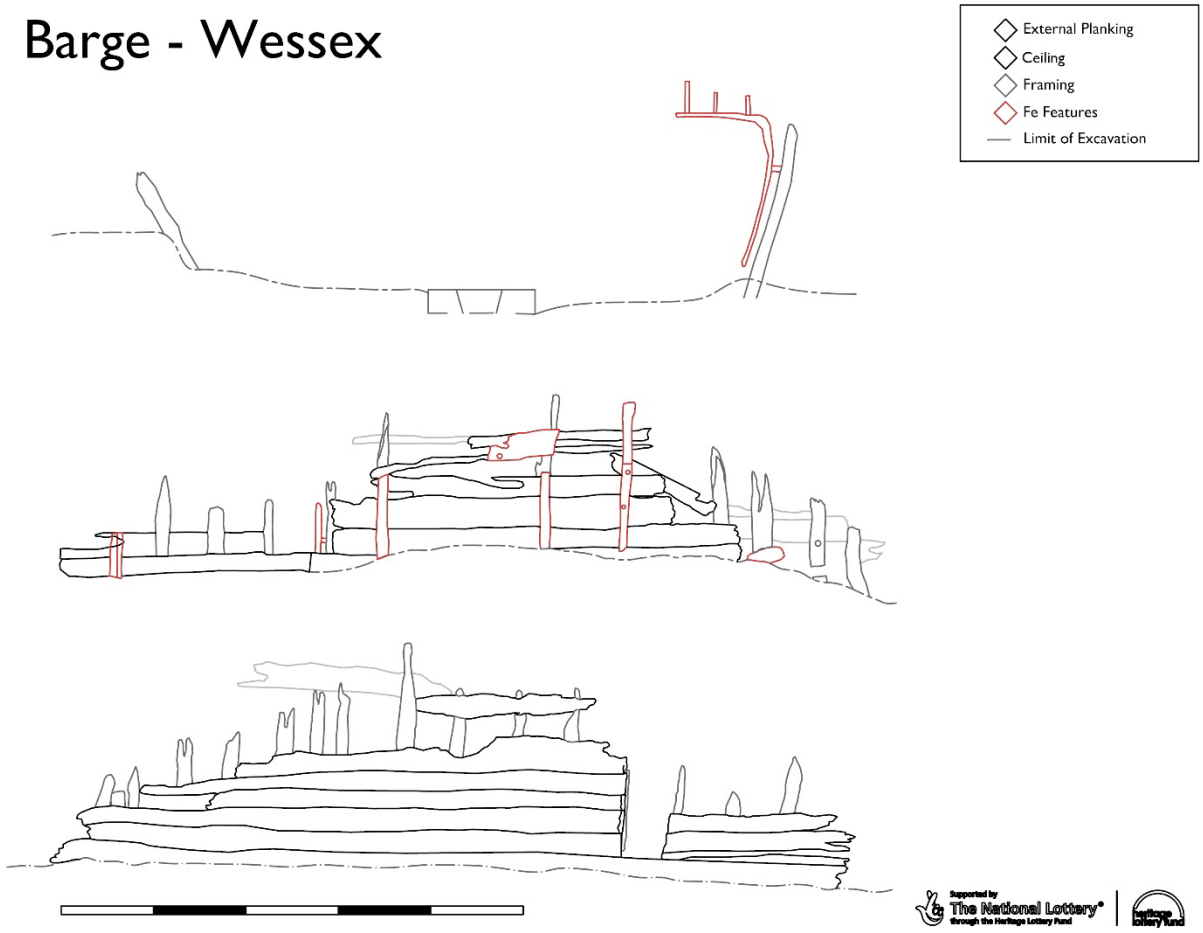

FIGURE 13: PROFILE ILLUSTRATIONS USING 2016 DATA

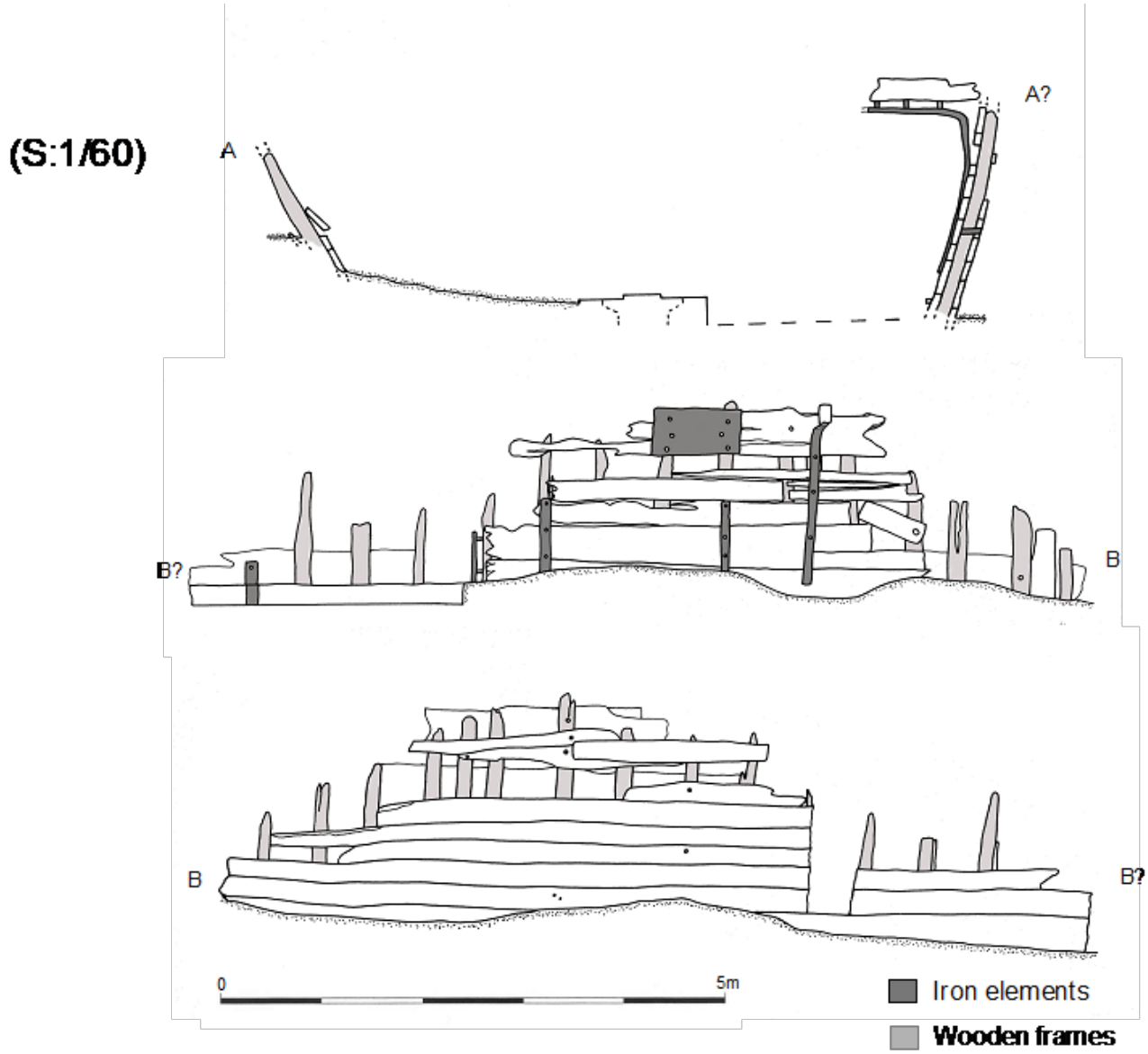

FIGURE 14: 2007 SURVEY ILLUSTRATION (COURTESY OF MOSS ET AL)

4.3 FIELDWORK – DRONE SURVEY

A Remotely Piloted Aircraft System (Drone) Survey was conducted on the 20th June 2016. The drone, was flown by Brandon Mason directly over the site taking a series of still photographs and a limited amount of video footage. The drone was flown using manual controls attempting to replicate the on the ground concentric method used to collect stills for use in photogrammetry.

The data collected during the drone survey was used to create visualisation outputs produced through the manipulation of the images via photogrammetric software.

4.4 ORTHO MOSAIC

By collecting a series of aerial photographs an accurate orthographic image was created, this was used to develop an updated plan of the site. Figure 15 below shows the comparison of the two site plans which demonstrates a largely similar condition other than the losses of structure mentioned above.

FIGURE 15: ORTHOMOSAIC GENERATED SITE PLAN FOR THE BARGE WESSEX, SHOWING CHANGES ON THE SITE BETWEEN 2007 AND 2016.

4.5 3D MODEL

Photogrammetry was used to capture of the geometry of the site using still images that were processed in the software package Agisoft to create a 3D model. Known reference points were then used to refine the model during analysis and reality capture was used to create texture and more accurate geometry.

The model was used as a public output and can be accessed from Sketchfab at; www.skfb.ly/RQ8o.

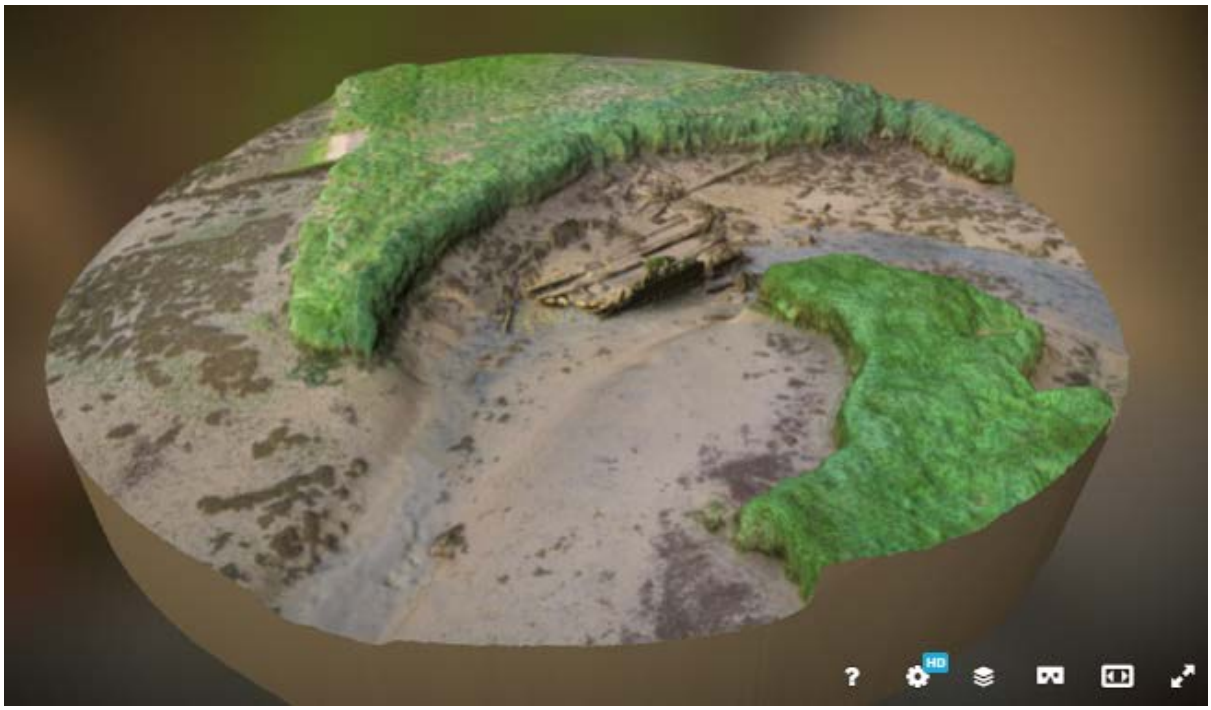

FIGURE 16: EXAMPLE IMAGE OF 3D MODEL OF THE BARGE WESSEX

5 Discussion & Future Research

Survey results have determined that there has been some deterioration in the condition of the site in the nine years between 2007 and 2016. The deterioration has been most significant in areas of constant erosive action by tidal cycles which as caused some loss of structure. The upstanding remains that were present in 2007 are still upstanding, however, some areas of both the internal and external planking have been lost from the siding of the vessel. The upstanding remains are likely to be further impacted over the coming decade. The lower hull of the vessel has been buried in sediment and remains relatively stable. Comparison between the two surveys show that there has been a slight build-up of sediment levels in general across the whole site.

It is interesting to note that none of the forward area of the ship is present, this is likely to be due to later salvage activity, and further information on this might be discovered through discussion with local residents.

'Does the barge reflect what would expect to see from barges at this time?'

The barge *Wessex* was one of the earliest vessels to be fitted with dual propulsion (Benham and Finch, 1983:98), however, this type of vessel became common during the First World War and in the inter-war period when many were constructed. Plans were rarely used in the construction of sailing barges and very few were exactly alike (Hazell, 1986:11), meaning further comparison with vessels of a similar type could reveal information on changes to form over time and any adaptations for particular working environments.

The 2016 survey identified what was previously believed to be a mast step as an engine box and run for the prop shaft. In research undertaken by Moss et al (2007) a superimposed plan and profile of a boom coastal barge from a similar date of construction and of very similar tonnage and proportions was presented to give context to the site remains (See Figures 17 and 18). Recent research has also identified a photograph of the barge *Wessex* in 1918 (See Figure 19), which demonstrates there was

a mizzen mast in a similar position to where an engine box may be located. The presence of a prop shaft run would suggest this particular feature is an engine box, however, it is clear the mizzen mast would have been located close to this position.

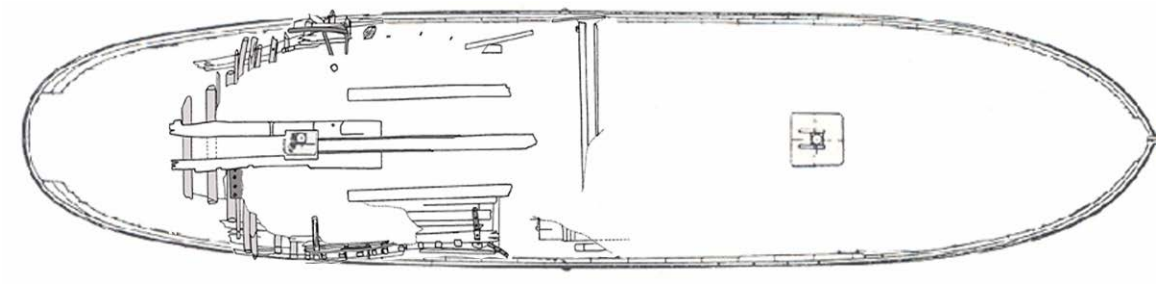

FIGURE 17: PLAN AND PROFILE INTERPRETATIONS: DA SILVA, KIM, BURT AND MOSS (MOSS ET AL)

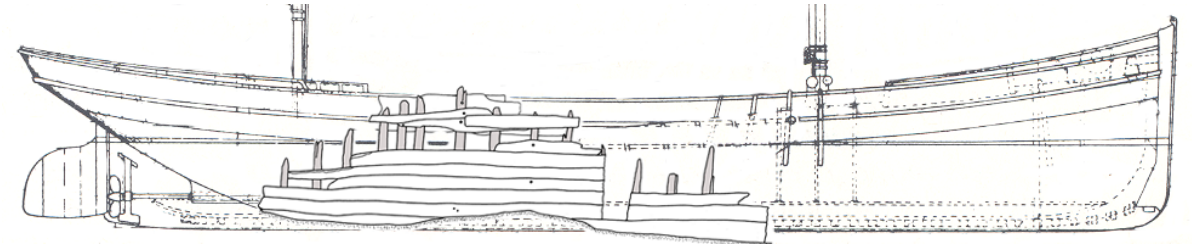

FIGURE 18: PLAN AND PROFILE INTERPRETATIONS: DA SILVA, KIM, BURT AND MOSS (MOSS ET AL)

FIGURE 19: COPY OF A FRANK SPRY POSTCARD SHOWING THE WESSEX IN 1918 (KINDLY SUPPLIED BY ANTHONY PRATT)

It is noted that one of the fundamental differences between a sprit sail barge and a ketch barge is that the latter usually stepped the masts through the deck into the keelson, as opposed to use of a deck tabernacle as in the former (Leather, 1984: 25). However, this does not necessarily mean that on the *Wessex*, as a new type of vessel, the mast was supported in an alternative manner to accommodate the engine.

The remains of the barge *Wessex* show no obvious constructional trends that would suggest its use as a 'Mystery or Q-ship' (Littlehampton Museum). The changes required for tramp trawlers and cargo vessels to act as Q-ships or decoys for unsuspecting U-boats were largely confined to the upper works of the vessel, such as adding a machine gun placement, with little or no difference in general hull design. There is little structure surviving from of the *Wessex* that would have been above the waterline any may have shown some adaptations for Q-ship use. As the *Wessex* was not completed before the end of the war it would not have seen active use as a Q-ship meaning it may never have been fitted with any concealed arms.

The 2016 survey provides an updated dataset to monitor changes to the site over time. While the field survey has furthered understanding of the physical remains, without excavation it will be difficult to add much more to the current interpretation. Future study could investigate whether there is a mast step within the structure. There is also potential to evaluate where the material used to build the vessel (mainly oak) has been sourced from and how this reflects on the availability of materials during war time.

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