

Project report for Peter Small Jubilee Trust Award – 2022

HMS D1

Steve Mortimer and the Gasperados

Introduction

This report describes how, working alongside a US historian and Historic England, the Gasperados Diving Team identified a landmark Royal Navy submarine sunk close to Dartmouth. We are a group of technical divers from the South and West of the UK who specialise in wreck diving. Several of us are expert underwater photographers. All are BSAC members, although our technical diving qualifications are from a wide range of organisations.

Why was there interest in diving the site?

A submarine wreck off Dartmouth had been known for some time, though it has been dived infrequently as on-site conditions are often dark and silty. The Royal Navy record of “Fates” for German WWI submarines ⁽¹⁾ suggested it was UC 49. As such, it was an important wreck as it would have been the first submarine hunted to destruction over an extended period by the Royal Navy using hydrophones. According to the Royal Navy, it was sunk by destroyer HMS Opossum with depth charges on 8th August 1918.

US U-boat historian Michael Lowrey is re-examining the losses of all WWI U-boats. He was sceptical about the Opossum claim, as he felt UC 49 was the submarine most likely to be responsible for the sinking of the City of Brisbane on the 13th August 1918 in the Eastern English Channel. As that date was after the claimed date of sinking of UC 49, he felt it possible the wreck near Dartmouth was a different submarine. Thus, he asked us to investigate.

Planning the diving

The diving on the wreck was organised from the charter boat Wey Chieftain IV in August 2018. The date was worked around our MOD licence to dive Controlled Site HMS Formidable in Lyme Bay.

A project-specific Code of Practice was written, based on the safe diving practices of the training agencies through which the divers were qualified, and the principles of the HSE ACOP for Scientific and Archaeological Diving Projects. None of the divers were “at work”, so full adoption of the HSE ACOP was not appropriate.

All divers used closed circuit rebreathers with trimix suitable for the depth (approximately 50 metres). Everyone was suitably qualified and experienced. A shot line was deployed for descent and each diver used a Delayed Surface Marker Buoy for the ascent. Divers dived in teams of at least 2.

Several weeks in advance of the dive, Michael Lowrey shared pictures and plans of the key features of the UCII class of submarine (to which UC 49 belongs). Each team of two was tasked with specific tasks (survey actions, video, photography, scrubbing the propellers to look for identifying inscription etc).

Two of the dive team were qualified doctors and provided enhanced emergency kits in case of any medical problems – fortunately these were not required.

Passage and diving plans were logged in advance with HM Coastguard.

The project was undertaken in accordance with the Rules annexed to the UNESCO 2001 Convention of the Protection of the Underwater Cultural Heritage.

A risk assessment was drafted and agreed with the charter boat skipper beforehand.

Data gathering

The dive teams were allocated an area of the wreck to survey and record by photography or video if possible. One team was tasked with scrubbing the hub area of the propeller and photographing any details found.

After the dives, any observations or impressions were gathered from the divers and recorded in a project notebook.

Key photographs were shared with Michael Lowrey while we were still at sea, and he fed back comments and questions the same day.

Analysis of Information gathered

There were three phases of analysis of the data gathered on the dive and from subsequent archival visits.

1. Initial analysis of resulting images and items seen.

Michael Lowrey gave feedback on the key features seen in photographs and video:

- a. No mine chutes forward of the conning tower – hence not a UCII class submarine.
- b. Two propellers and one rudder – hence not a UBII, its sister class UB III nor a type VII from WWII.
- c. No inscription on the propeller hub, so unlikely to be a WWI German submarine.
- d. Likely bronze/gunmetal conning tower suggested British design. That was never a German design feature.
- e. Enclosed propeller shafts confirmed this was a British submarine, not a German one.
- f. Rope tied around mooring bollard on aft deck – suggesting lost under tow or deliberately sunk.
- g. Michael Lowrey then found a reference to HMS D1 being sunk as a training target off Dartmouth in October 1918.

2. Archival data gathering.

The dive skipper and crew obtained archival plans of HMS D1, which confirmed that the features seen were present in the design of this submarine.

3. Analysis of video and comparison with original design plans.

Wessex Archaeology were commissioned by Historic England to carry out a ROV survey of the site in 2020. This was cancelled due to the pandemic restrictions, so their ROV operator conducted a detailed comparison of our video of the site with the plans of HMS D1, matching all the important features and concluding that this was without doubt the wreck of HMS D1.

Conclusions

1) Identification.

The various phases of data analysis all confirmed that this was the wreck of HMS D1. She was a ground-breaking design of submarine, perhaps one of the most important of all time.

Before D1, submarines were primitive vessels intended for coastal defence. D1 was the first boat designed for longer range offensive operations by taking the attack to the enemy's home waters across the North Sea. She was the prototype for the successful Royal Navy submarines in WWI and beyond. It has been argued that she made a material contribution to the arms race that led to WWI, as Germany was forced to respond in kind.

D1 was a hugely innovative submarine. She was the first Royal Navy submarine to have saddle tanks (creating more useable internal space), the first to be designed with diesel engines from the outset, the first to have a stern torpedo tube and the first to have a transmittable wireless fitted.

2) Planning.

Approaching the diving in a structured and methodical way allowed us to be confident we could do the dives safely and collect as much data as possible. Allocation of specific tasks to dive teams was particularly useful in this respect. Use of a project notebook to collect impressions as soon as possible after the dive meant that valuable observations not recorded photographically were captured before they could be forgotten.

3) Designation of the site.

Because of her historical importance, Historic England designated HMS D1 as a Scheduled Monument in April 2021. Divers can continue to visit, but damage and removal of any artefacts is prohibited.

4) Collaboration with others.

Relationships developed with other individuals and organisations (Michael Lowrey, Historic England, Wessex Archaeology) were critical in (a) identifying that this was an interesting site to investigate, (b) accessing ROV operator expertise to compare video versus plans and (c) assessing that it was of historical significance and worthy of protection.

5) Modern underwater photography and videography.

Despite the low light and poor visibility on this site, modern camera equipment in the hands of expert photographers gave us good images, allowing clear identification of the wreck. Of particular note, the comprehensive video, captured with a GoPro camera, allowed a ROV operator to make a very detailed analysis.

Note: The wreck of UC 49 was identified off the coast of Flanders shortly after the team identified HMS D1.

Funding

The project was self-funded by the divers who participated in it. We would like to be considered for the Peter Small award to help fund similar projects in 2022.

References

(1) Controlled Book C.B.01292G O.X.O., the final issue of “Losses of Enemy Submarines with Summary of Cases”, bound into book form within NA ADM239/26. National Archives, Kew.

Images

A summary of the project including the photographs and video can be seen at this YouTube link:

[\(99\) The U-boat that wasn't - rediscovering HMS D1 - YouTube](#)

and in this magazine article:

“D1 – the forgotten sub”, Scuba Magazine, July 2021