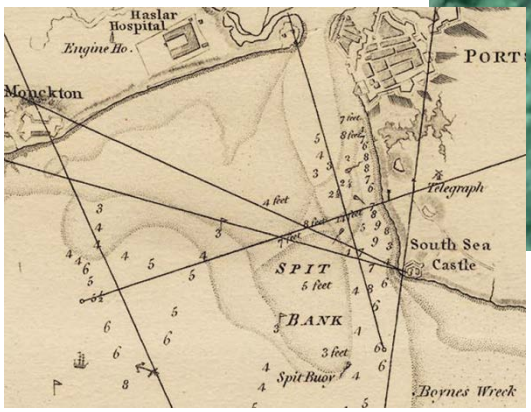
Return to Project Solent Ships (1965)

Continuing the hunt for HMS *Royal George*, HMS *Edgar*, and HMS *Boyne*

Report Prepared for:

The British Sub-Aqua Jubilee Trust

February 2026



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Executive Summary/Abstract

This project used RIB-based marine geophysical surveys to look for evidence of three historic shipwrecks lost in the Solent, identifying suitable targets for as yet uncompleted diving investigations by skilled volunteer divers from the British Sub-Aqua Club.

HMS *Royal George* was a 100 gun first-rate ship of the line, launched in February 1756 after a ten year construction at Woolwich Dockyard. *Royal George* sank in August 1782 during maintenance, resulting in the loss of over 900 lives – one of the greatest maritime disasters in British territorial waters.

HMS *Edgar* was built by the Baylie of Bristol and launched in 1668. *Edgar* served in the Third Anglo-Dutch War and the Nine Year's War before being rebuilt in Portsmouth Dockyard as a 70 gun third-rate ship of the line, subsequently destroyed by fire in 1711 with the loss of all aboard at the time.

HMS *Boyne* was constructed in Woolwich Dockyard, and launched as a second-rate ship of the line in July 1790, which caught fire and exploded at anchor in May 1795, with the loss of 11 sailors – largely due to the presence of other vessels who immediately rendered aid.

The project hopes to determine whether the remains are still in evidence on or near the seabed, despite the recent channel dredging for Portsmouth Harbour.

The wider aim of this project is to form an initial pilot investigation, to inform any future work on these shipwrecks, as well as furthering the

experience and expertise of a highly capable and committed project diving team.

The team was significantly delayed by poor weather, unexpected but continued trailer and boat problems, club politics, and significantly increased professional workloads affecting the availability of key personnel.

The author wishes to thank the British Sub-Aqua Jubilee Trust on behalf of the wider team for their patience and support for this worthwhile and ambitious project.

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Acknowledgements

The author would like to thank **Doug McElvogue** for the original idea and his continued advice and project management support; **Martin Davis** for all the time he has spent fixing boats, then finding more boats, and then completing the lion-share of the time at sea; and **Ken Collins** from the British Sub-Aqua Jubilee Trust for his support from the outset, advice, and advocacy.

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Project Background

In 1965 Southsea Sub-Aqua Club began a local diving project looking for the remains of historic shipwrecks to the East of the Isle of Wight: it was this project, led by Alexander McKee, which eventually led to the rediscovery of the wreck of the *Mary Rose*.

This project intends to revisit the area, but this time using a mixture of geophysical remote-sensing to guide subsequent diver-based surveys to investigate whether or not any remains of the HMS *Royal George*, HMS *Edgar*, and HMS *Boyne* shipwrecks are now evident.

HMS *Royal George*

Royal George was a 100 gun first-rate ship of the line, launched in February 1756 after a ten year construction at Woolwich Dockyard. At the time of launching, *Royal George* was the world's largest warship, serving in the Seven Year's War (1756-1763) and the American Revolutionary War (1775-1783) (Wikipedia 2026a).

Figure 1: HMS *Royal George* (right) shown fictitiously as already afloat during the launch of HMS *Cambridge* in 1755. Painted by John Cleveley the Elder in 1757. Source: Wikipedia (2026a)

Royal George sank in August 1782 during maintenance when a planned roll to port to expose the starboard hull caused flooding and foundering, resulting in the loss of over 900 lives, including over 300 visiting women and children – it was one of the greatest maritime disasters in British territorial waters (Wikipedia 2026a).

The wreck became a significant navigation hazard adjacent to the Spithead, and as such was subject to several attempts to raise or remove it in the mid-nineteenth century involving early commercial divers and subsequently the Corps of Royal Engineers (Parham and McElvogue 2004:1; Wikipedia 2026a).

Figure 2: A contemporary illustration of HMS *Royal George* after sinking with masts above water. Source: Wikipedia (2026a)

HMS *Edgar*

Edgar was built by Baylie of Bristol and launched in 1668. *Edgar* served in the Third Anglo-Dutch War (1672-74) and Nine Year's War (1688-1687) (Pascoe 2024:9) before being rebuilt in Portsmouth as a 70 gun third-rate ship of the line, re-commissioned in 1702 (Wikipedia 2026b).

Edgar was rebuilt again in Rotherhithe in 1706, re-launching in 1709 (Wikipedia 2026b) before being destroyed by fire and a subsequent explosion on 15th October 1711 with the loss of all aboard – over 300 sailors; the officers were all ashore at the time (Pascoe 2024:9).

HMS *Boyne*

The *Boyne* was constructed in Woolwich Dockyard, and launched as a 98 gun second-rate ship of the line in July 1790, which caught fire during an exercise opposite Southsea Castle on 1st May 1795, with the loss of 11 sailors – largely due to the presence of other vessels who rendered aid (McElvogue 2013:7-8).

The fire began with papers in the Admiral's cabin in the stern, possibly ignited by the wardroom stove's funnel; within half an hour the ship was fully ablaze (Wikipedia 2026c).

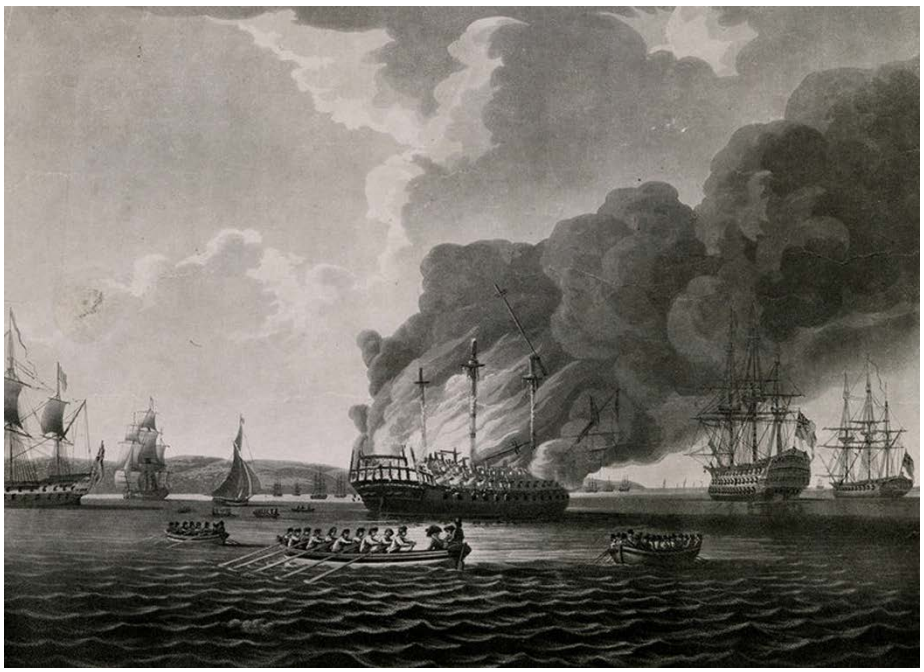

Figure 3: A near contemporary engraving of HMS *Boyne* on fire at Spithead. Source: McElvogue (2013:8).

Due to the risk of already loaded cannon firing from the intense heat – after some had already caused fatalities amongst the rescuers aboard *Queen Charlotte* – the other ships at anchor evacuated to safety at St. Helen's Bay on the Isle of Wight before the *Boyne*'s anchor cables were destroyed and the ship then drifted to the East and ran aground, before it blew up and sank (McElvogue 2013:8).

The approximate position of the HMS *Boyne* has been marked since the sinking, on the edge of the channel the wreck was recorded as lying in.

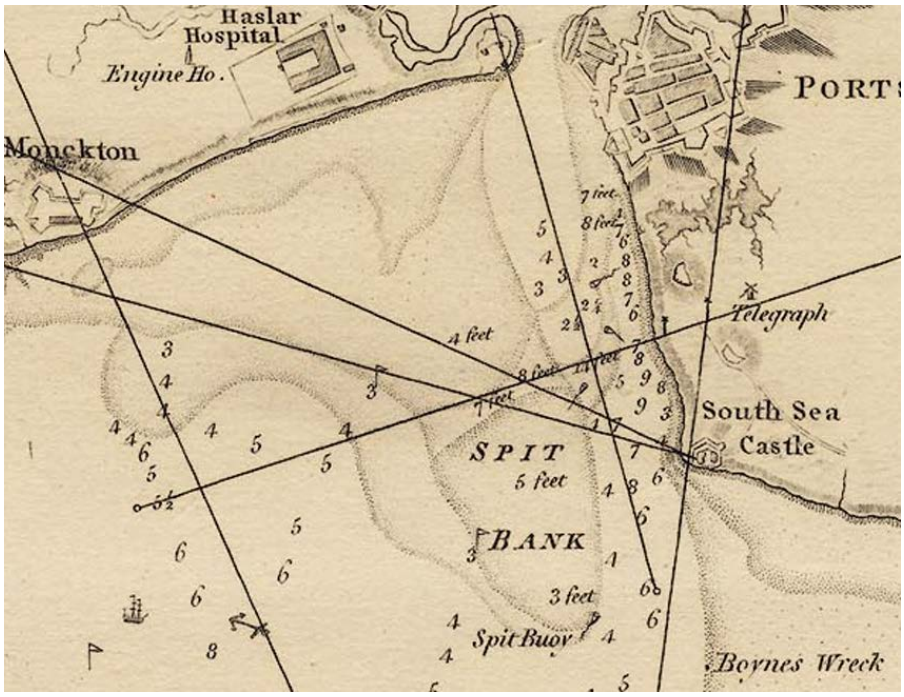

Figure 4: Mark of HMS *Boyne* prior to it being used as a channel marker 1799. Source: McElvogue (2013: 9).

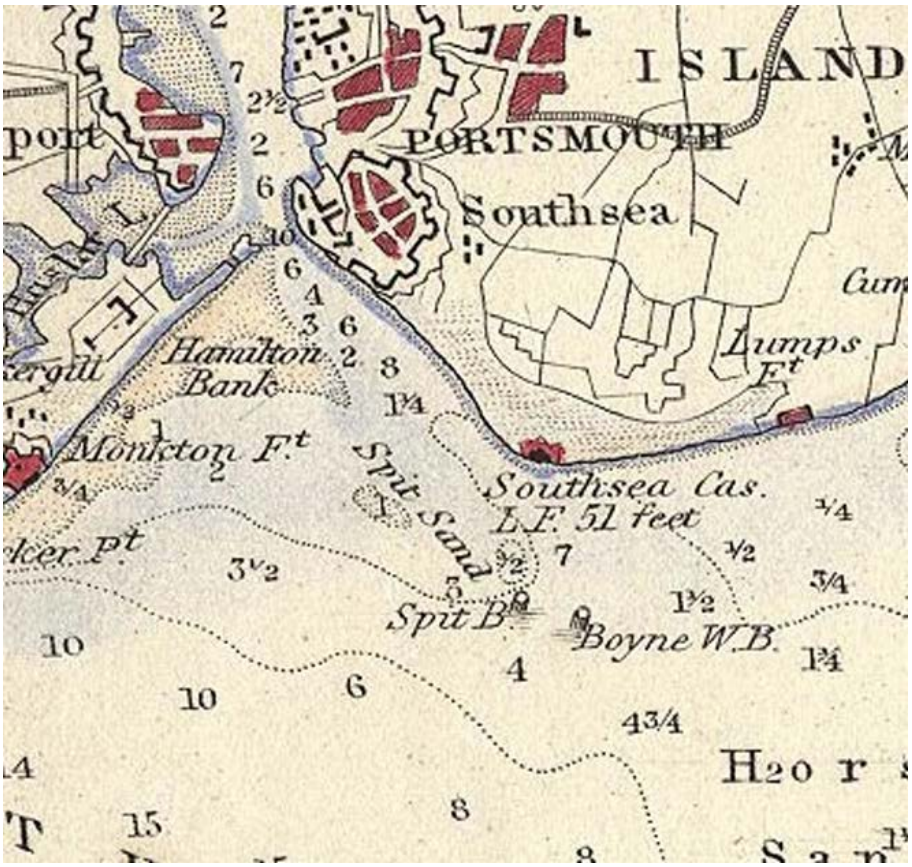

Figure 5: HMS *Boyne* Buoy marking the Eastern side of the channel into Portsmouth. Source: McElvogue (2013:10).

Recent Environmental Change

During the years prior to this project, Portsmouth Harbour and its approaches have been dredged to widen and deepen the channel to allow the new aircraft carriers safe passage into Portsmouth Harbour.

Recent surveys of the *Mary Rose* wreck's surroundings have highlighted that new timbers were being exposed since this dredging work (MSDS Marine 2021).

This could also have had an effect on the *Royal George*, *Edgar* and *Boyne* sites, possible exposing material previously submerged during previous surveys and investigations.

As these are not protected wrecks, they have not been officially investigated. However, as significant wrecks of national, historical, and archaeological importance, they warrant investigation to ensure they are not eroding as well.

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Previous Salvage and Investigation

HMS *Royal George*

The wreck was a navigation hazard as well as attractive for salvage, with early work taking place using a diving bell in 1782, before Charles and John Deane began working on the site from 1832-1834 using diving helmets they had invented to recover several cannons and claiming salvage from the Board of Ordnance (Wikipedia 2026a).

Whilst on this project, they were asked by fishermen to investigate a location one kilometre to the Northeast where nets were getting snagged – this is how the *Mary Rose* was first found (Wikipedia 2026a).

Figure 6: A Representation of HMS *Royal George* now lying sunk at Spithead, having been under water fifty one years. Mr Deane equipped in his newly invented Diving Apparatus in August 1832. Source: Wikipedia (2026a).

Between 1839 and 1842 the Corps of Royal Engineers, led by Sir Charles Pasley used submerged barrels of gunpowder to break-up the wreck before using divers to recover more cannons, brass surgeons' instruments and some silk and leather. Following the recovery of the keel and lower timbers using dragged anchors in 1843, the site was declared to have been cleared (Wikipedia 2026a; Parham and McElvogue 2004:3).

This was examined by Portsmouth Dockyard at the time, dragging a frigate's anchor across the site (which now sounded at 18 inches above the seabed) and found to be clear of obstruction with any remaining ballast or cannons assumed to be submerged in the muddy seabed.

The UK Hydrographic Office surveyed the area in 1990 finding a flat seabed in the area within 200m of the listed position, although divers from Southsea SAC had reported finding mounds of concreted artefacts during the 1960s (Parham and McElvogue 2004:1-2).

There was no evidence of these mounds during further investigations in 2003, although magnetometer surveys indicated buried iron totalling around ten tons: this is consistent with the anticipated un-salvaged ferrous material, based on the *Royal George's* inventory (Parham and McElvogue 2004:3-10).

HMS *Edgar*

Following the violent explosion which caused the loss of the *Edgar*, the wreckage was deemed a navigation hazard and buoyed, although over time the buoys needed repositioning. Inaccuracies crept in here, resulted in fishing boats' anchors and other equipment becoming

snagged and lost, so the Corps of Royal Engineers were tasked with marking the accurate position of the wreck again (Pascoe 2024:9-10).

Sir Charles Pasley's team from the *Royal George* relocated the *Edgar* again in 1843, 700m Southeast of *Royal George* (Pascoe 2024:10-12). After initial recoveries of cannons and timbers in 1843, the Royal Engineers returned in May 1844, identifying the remaining central section, but indicating the bow and stern were either missing or more broken-up and elsewhere - most likely due to magazine explosions fore and aft; this is important both in interpreting the wrecking process *and* as an indicator that other sections of the *Edgar* may have not been located by the Royal Engineers at the time (Pascoe 2024:10-11).

It should also be noted that, based on reported salvage compared to the *Edgar*'s inventory, there could be up to 11 cannon unrecovered after the Royal Engineers finished work on this site on 31st October 1844 – these may account for the magnetic anomalies identified during magnetometer surveys conducted in 2021, which show ferrous material of varying masses scattered widely with a few concentrated areas. Bathymetry from the same year indicated two distinct mounds which could be different sections of the wreck (Pascoe 2024:11).

Diving investigations of one of these mounds in 2023 resulted in the discovery of a large pulley block and part of a human skeleton (Pascoe 2024:20-29).

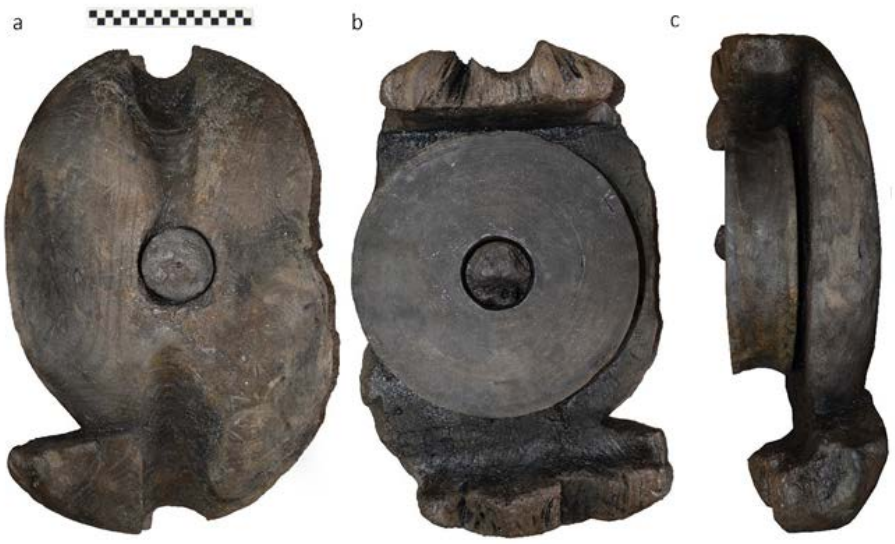

Figure 7: Shoulder block Edgar23A00001.
Source: Pascoe (2024:28)

HMS *Boyne*

The *Boyne* was first dived and salvaged by John and Charles Deane using Standard Diving helmets in 1832 – this was also the first wreck they salvaged, before *Royal George* and *Mary Rose* (Bevan 1996, cited in McElvogue 2013:6). As such it is 'immensely significant to the birth of the diving industry' (McElvogue 2013:6).

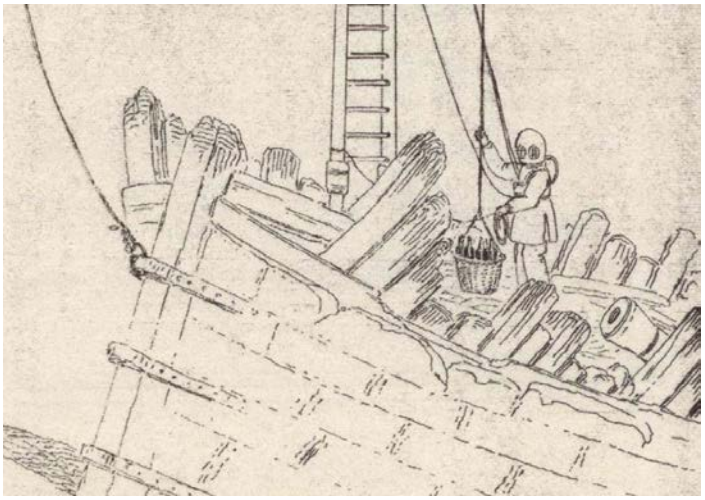

Figure 8: One of the Deane brothers recovering wine bottles from the *Boyne*.
Source: McElvogue (2013:6).

After subsequently being used for training by the developing Royal Navy diving capacity, in training an HMS *Excellent*, by the mid eighteenth

century the site was essentially buoyed and left unexplored until the development of recreational SCUBA diving in the 1960s, when it was visited by the Southsea SAC team led by Alexander McKee (McElvogue 2013:10-11).

The ballast mound reported by McKee was not found in investigations by Maritime Archaeology Ltd. into the impact of dredging on underwater cultural heritage in 2007 (or subsequent side-scan sonar surveys conducted in 2010), although a cannon was found and various other artefacts were recovered in 2007 (McElvogue 2013:11).

Figure 9: Finds from Portsmouth Harbour in 2007 including *Boyne* cannon balls and copper sheet. Source: McElvogue (2013:11).

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Project Aims & Objectives

Aim

Conduct geophysical and diver-based surveys of the seabed in the areas where HMS *Royal George*, HMS *Edgar*, and HMS *Boyne* shipwrecks are believed to be located, to examine if new material is now evident following dredging in the approaches to Portsmouth Harbour, recording any underwater cultural heritage found and then consulting our wider archaeological colleagues regarding how best to preserve it.

Objectives

1. Identify anticipated locations and then suitable search areas for HMS *Royal George*, HMS *Edgar*, and HMS *Boyne.*
2. Conduct area searches using a boat-towed magnetometer and hull-mounted down- and side-scan SONAR.
3. Identify magnetic and geometric anomalies for further investigation as diving targets.
4. Dive the targets, eliminate false-positives, and metrically record any underwater cultural heritage found.
5. Consult with appropriate external experts as needed regarding any underwater cultural heritage found whilst still in-situ.

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Planned Methodology

A digital copy of an archived Royal Navy chart from 1841 (the "Sheringham Chart") was bought by Trendive for researching the historic wrecks of the Solent, and donated to this project as a sponsorship-in-kind of £150.

This marks the positions for the shipwrecks in question, and Geographical Information Systems software was used to reference the chart into a contemporary map projection and coordinate system in order to extract coordinates for the wrecks, then design suitable search areas for evidence of their remains.

The first stage of the investigation was to be geophysical remote-sensing surveys using the Southsea SAC's specially designed project RIB, the *Southsea Explorer* (a 6.3m Humber Ocean Pro with an Evinrude 175hp engine) which had an extensive range of Raymarine vertical- and side-scanning SONAR transducers onboard, coupled with twinned Axiom touchscreen displays.

Southsea SAC also has an AquaScan MC5 towed proton magnetometer, and the author has experience of using such equipment from previous wreck-hunting during RIB-based archaeological fieldwork where anomalies are screened (to eliminate returns from samples of ferrous material deemed too small to be relevant) and their positions logged to allow targets to then be generated for further investigation.

It needs to be noted at this point that these surveys would need to be completed by project team members in the absence of other club

members, as the searches would be far too time-consuming to be combined with regular BSAC branch diving – especially in a highly tidal area such as the Solent.

Figure 10: AquaScan MC5 Proton Magnetometer.
Source: https://www.str-subsea.com/products/aquascan-mc-5-portable-magnetometer/

Figure 11: *Southsea Explorer* Project Diving RIB.
Source: Martin Davies ©

The objective of this part of the project was to identify targets for further investigation by diver-based survey – these were to be in the form of SONAR echoes, or disturbances to the local magnetic field, which are within the appropriate size and/or shape parameters to be possible wreckage, cargo, or armaments.

The following diving would then consist of pairs of divers tasked with circular searches, working outwards from shot-lines deployed at target locations – the dive teams would confirm the presence or otherwise of indicative material, and record any such finds using tape-measures, callipers, and photography.

A “priority list” would then be drawn up for further, more detailed recording of any underwater cultural heritage subjects found, including detailed measured sketching and 3D reconstruction using Image-Based Modelling, sometimes referred to as Multi-View Stereo Photogrammetry.

At this point, appropriate external experts would also be invited to join the team, or act in an advisory capacity, to help ensure the relevant scientific and archaeological standards were met – with any underwater cultural heritage found still in-situ at this point; this project was *not* to become a “treasure hunt”.

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Problems Encountered

In addition to the specific problems outlined below, it needs to be highlighted from the outset that project diving – especially investigating the archaeology of post-medieval sailing warships – is very much a niche interest within most branches of the British Sub-Aqua Club.

Club diving boats are collective assets, there to enable their members to participate not only in cost-price diving, but also in diving under their own steam; this promotion of small boat diving and practical seamanship is one of the most unique and most rewarding aspects of life as a BSAC member.

However, whilst many club members may be supportive of a minority of members completing historical or environmental research projects, this cannot be perceived to be at the expense of wider diving activities.

Perhaps the most significant problem for this project was the time-consuming nature of the extensive geophysical searches which needed to be completed *before being able to go diving*.

Project divers can share a boat with other non-tasked divers, and share a dive on the same site, but this project needed the boat for extended periods of time – in good weather – to complete lengthy surveys before anyone could go diving.

The idea had been to work on this as an on-going task in the background, before arranging a series of subsidised project diving days open to all branch members to showcase the project and some of the historic sites on the club's doorstep.

In hindsight we should have focussed on one wreck at a time, rather than planning to delay all diving until all the geophysical surveys had been completed on all three wreck sites.

The specific problems which faced the project team also resulted in significant loss of diving opportunities for wider club members – so it was understandably important in the immediate term for the interests of the wider membership to prevail.

After a busy year with the grant being awarded in July 2022 when we were all very busy with projects, increasing work commitments, moving house, and relocating the club's facilities following the unexpected termination of the lease on the club's long-term base, 2023 got off to a very bad start with poor weather and endangered species of birds laying eggs inside the stripped-down engine within the boat shed!

It would have been illegal to move or disturb them, so we just had to wait until the situation resolved itself, needing an extension from the BSAJT as we were now out-of-time to complete the project and the report before the one year anniversary of the grant's award.

The magnetometer we planned to use had also developed a fault and, as old equipment no longer supported, spares were only available sporadically from places such as eBay, and troubleshooting to identify problems can be very time-consuming – not least as there are no longer technicians available to service them.

2024 started out with trailer problems, which resulting in the significant expense of a new trailer being needed, but quickly snowballed with the boat's engine developing an unidentifiable fault in March – which the

local dealers were unable to diagnose, even after extended periods of time with the boat out-of-action. These problems continued well into summer, with the new trailer being delivered late as well – at the same time as our sailing club host's boat hoist failed for three weeks!

This resulted in the club being essentially restricted to shore-diving until well into July before it was able to borrow another club's boat, at which point understandably the priority was not to lose a whole season's diving; however successful a BSAC branch may be, its membership will *always* plunge if it's unable to provide a programme of events beyond socials and shore-dives.

The project was delayed again, with another extension requested from the BSAJT: thankfully, they were exceptionally understanding.

Further problems afflicted the beginning of the 2025 with club politics and dissatisfaction with the still on-going boat situation, and disagreements about what should be done about the expensive engine problems in the longer term. Some key personnel left Southsea SAC following an AGM and joined the Nautical Archaeology SAC instead – only to find that accessing their RIB was far from straightforward either!

The project needed progress to report to the BSAJT by the end of the year, so as well as using the NASAC RIB, Martin Davis also agreed to use his own recently-acquired personal boat to complete surveys for the project – but first he understandably needed to complete the set-up of all the various SONAR and navigation equipment.

The result was that we didn't complete the SONAR surveys to identify diving targets until the very end of 2025, with no further time available...

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Project Progress

SONAR surveys of HMS *Edgar* were completed using *Southsea Explorer* in summer 2023, with further surveys of all three sites using the Nautical Archaeology SAC's RIB *Honor* in summer 2025.

Honor is a 6.4m BWM Rib with a Honda 150hp engine, with a Raymarine Element navigation system and an HV SONAR transducer.

Figu: NASAC Diving RIB *Honor*.
Source: Martin Davies ©

The decision was taken in late summer 2025 to concentrate on the *Boyne* as the shallowest, to maximise the chance of getting to dive any identified targets before the end of November 2025 in order to meet the submission deadline for this report.

The further SONAR surveys were to be completed using team member Martin Davies' own RIB, *Pebble*, which is a 7m Zodiac NZO cabin RIB with a Yamaha 300hp engine, equipped with an extensive range of Raymarine vertical- and side-scanning SONAR transducers onboard, coupled with twinned Axiom touchscreen displays.

Figure: Team Member's Personal RIB *Pebble*.
Source: Martin Davies ©

Using *Pebble*, further methodical data capture runs were completed within the search area for HMS *Boyne*, using both parallel "corridor" and "box" search patterns to ensure full and overlapping coverage.

In addition, waypoints were added to mark the boat's location at the time potential targets appeared on the SONAR displays.

It should also be noted that there was often a one knot current running which makes this task significantly challenging when also dealing with wind whilst proceeding on tick over as needed for effective data capture.

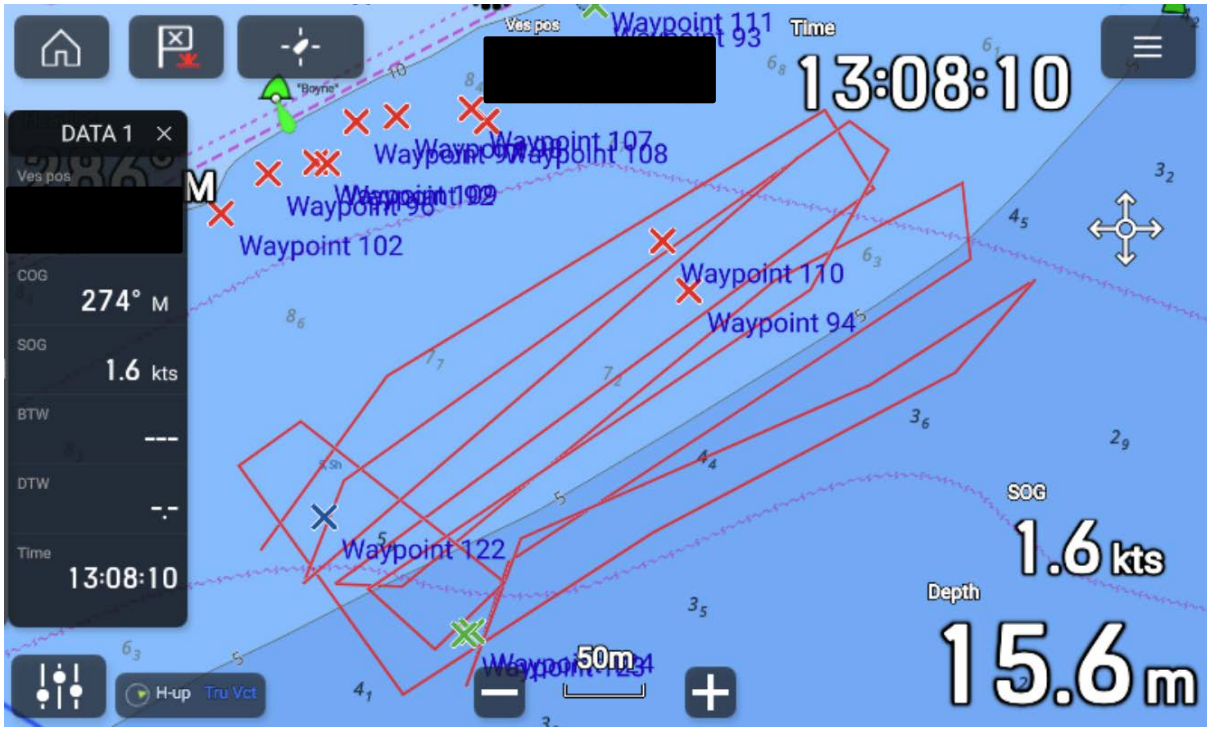

Figure 12: Parallel Corridor Search Pattern.
Source: Martin Davies ©

Figure 13: Box Search Pattern.
Source: Martin Davies ©

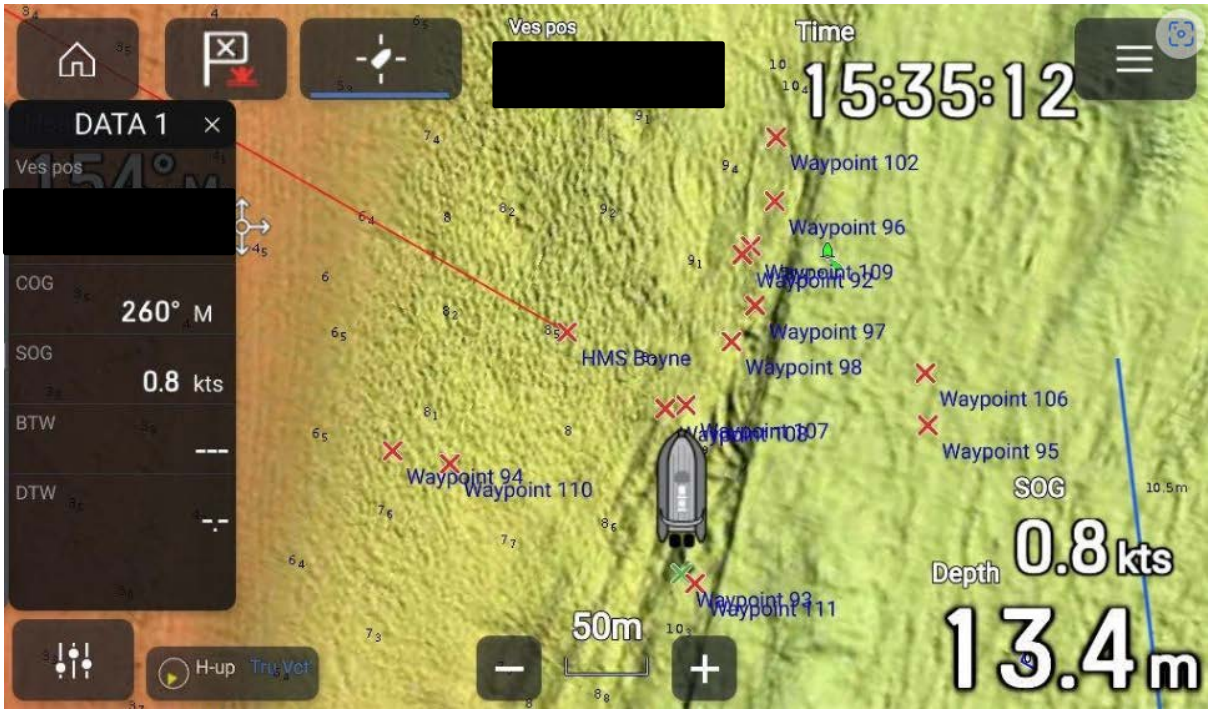

Figure 14: Waypoints.
Source: Martin Davies ©

As a result of these surveys, we have identified one target for diving investigation relating to HMS *Edgar* – which may be one of the mounds investigated by Dan Pascoe's team in 2023 (Pascoe 2024) – and six targets relating to HMS *Boyne*.

Unfortunately when the team did go out in January 2026 to dive some of these, they found the visibility too low for safe and effective ground-truthing, completing further SONAR surveys instead.

The team have dates planned in March, April, and May to get out and dive these targets and report back before the end of 2026.

Results:

HMS *Edgar*

Target 1

Figure 15: HMS *Edgar* Target 1.
Source: Martin Davies ©

HMS *Boyne*

Target 1

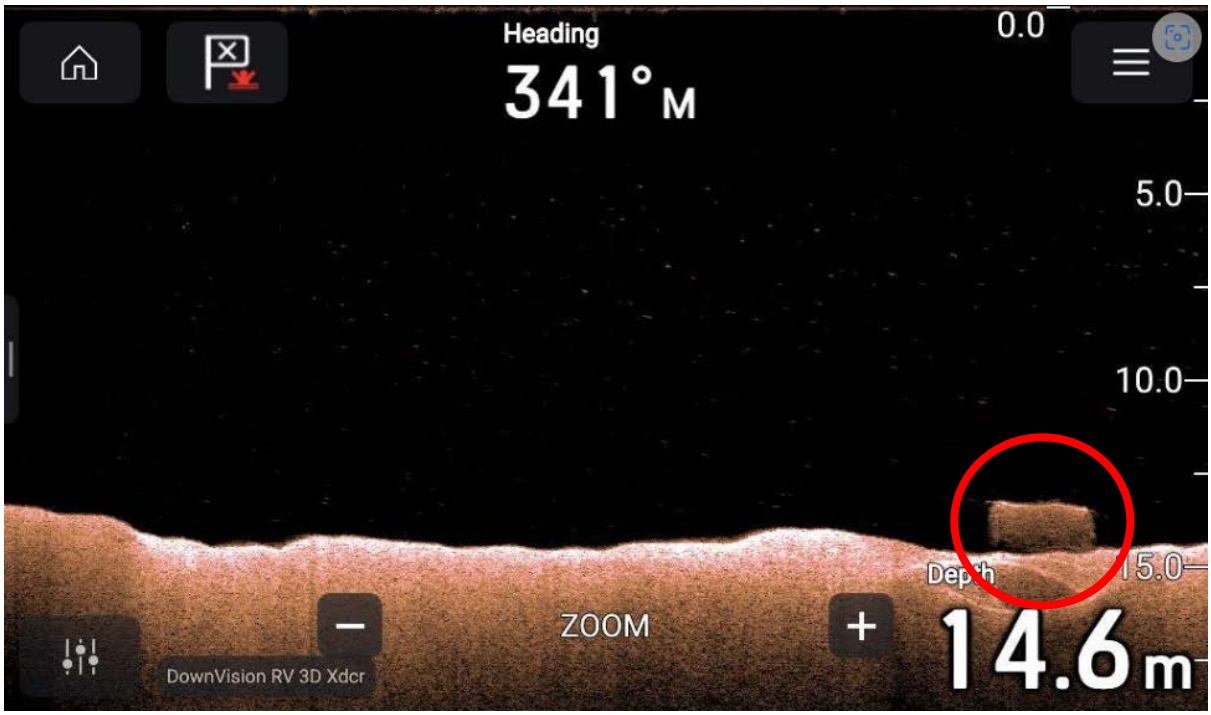

Figure 16: HMS *Boyne* Target 1.
Source: Martin Davies ©

Targets 2+3

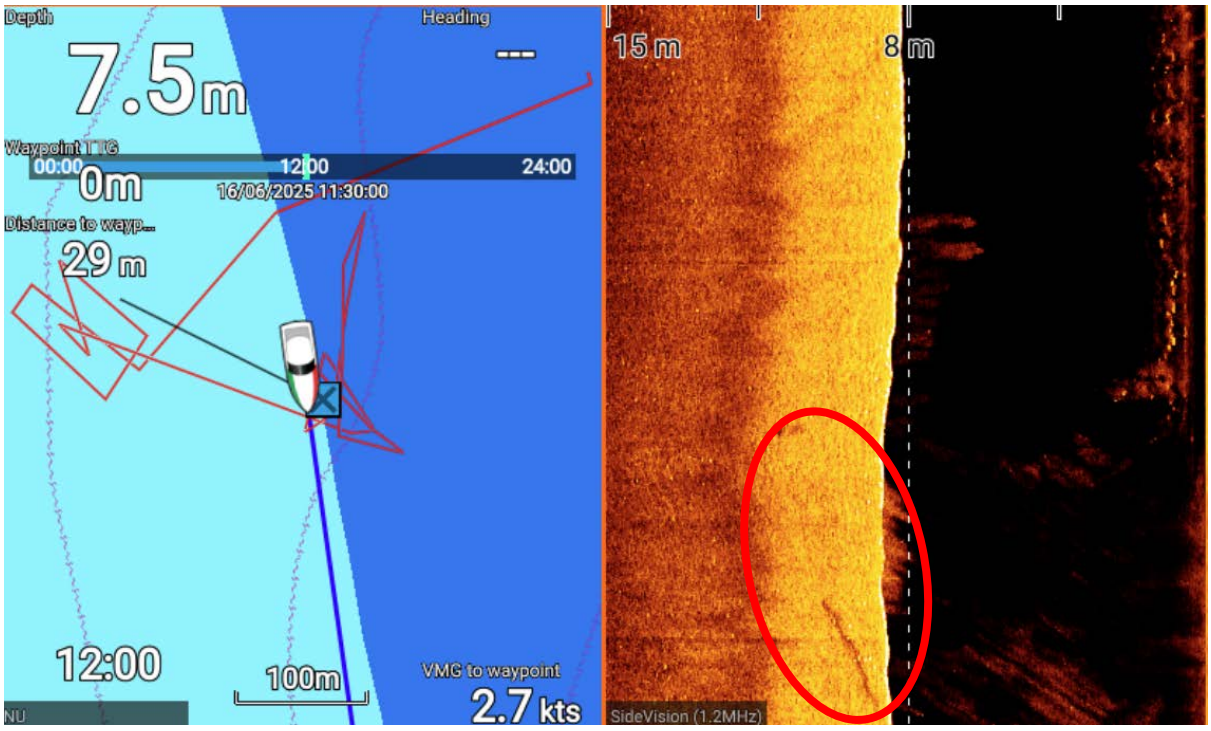

Figure 17: HMS *Boyne* Targets 2+3.
Source: Martin Davies ©

Targets 2+3

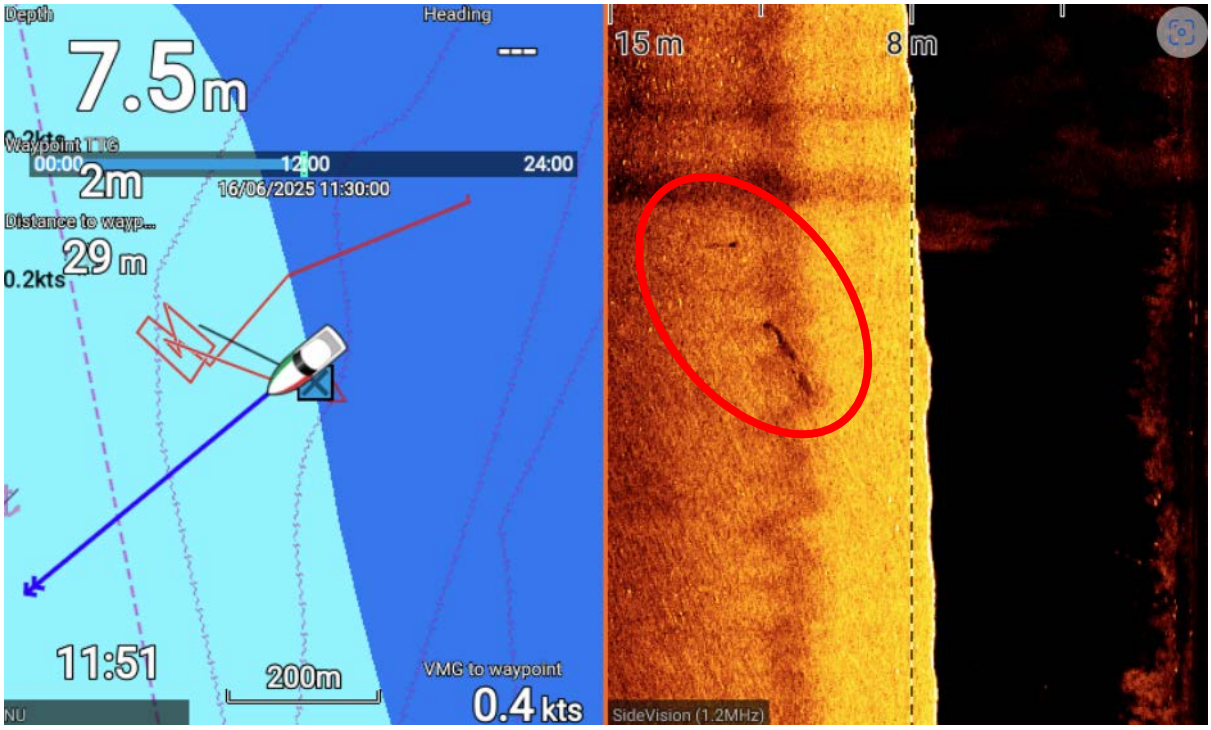

Figure 18: HMS *Boyne* Targets 2+3.
Source: Martin Davies ©

Target 4

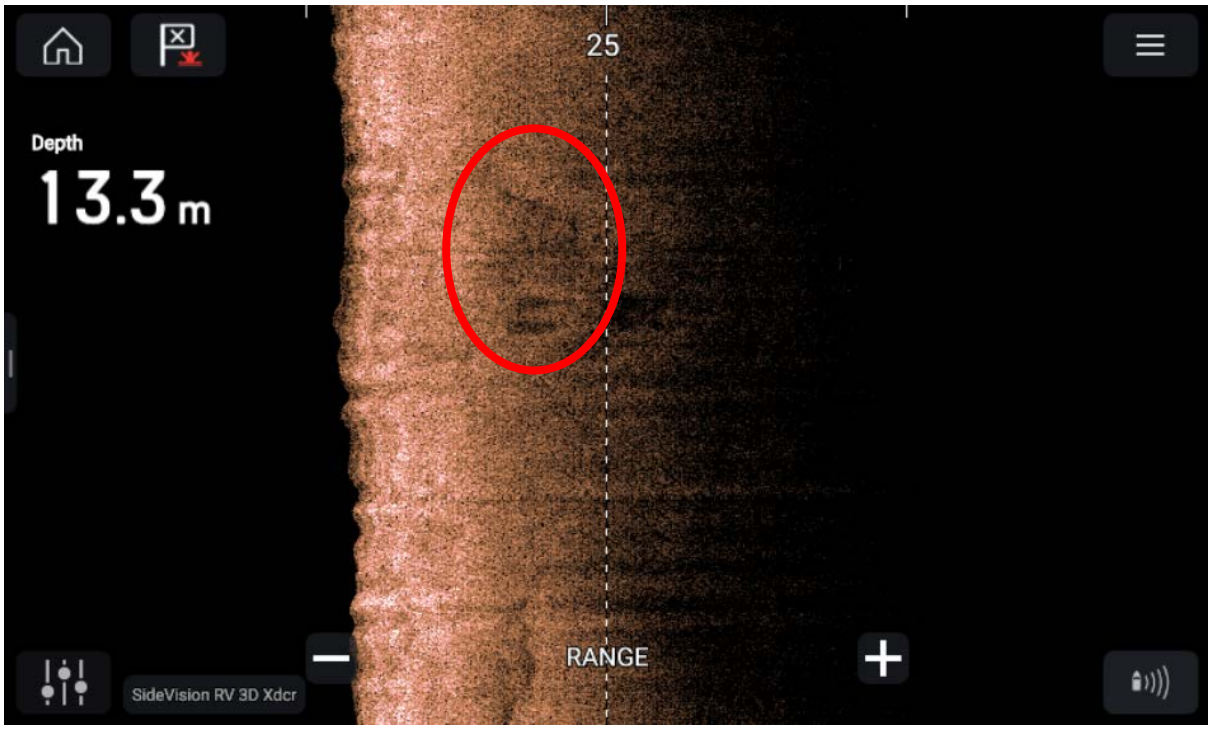

Figure 19: HMS *Boyne* Target 4.
Source: Martin Davies ©

Target 5

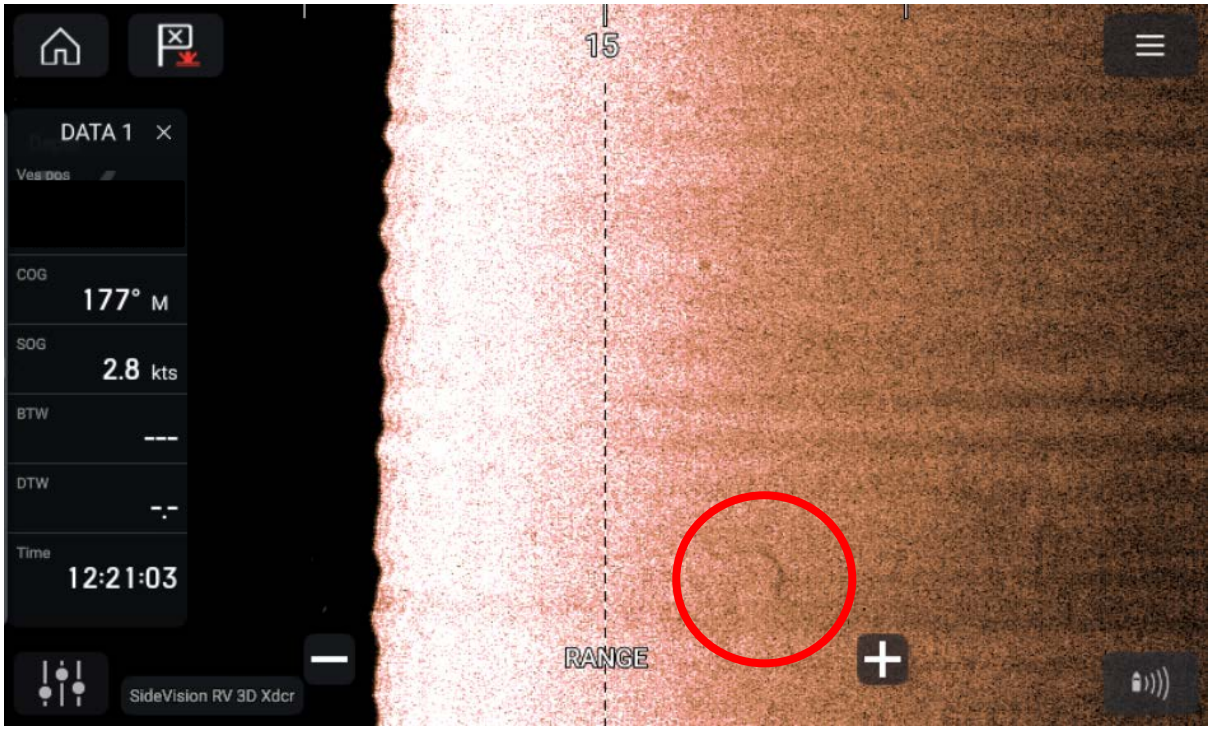

Figure 20: HMS *Boyne* Target 5.
Source: Martin Davies ©

Target 6

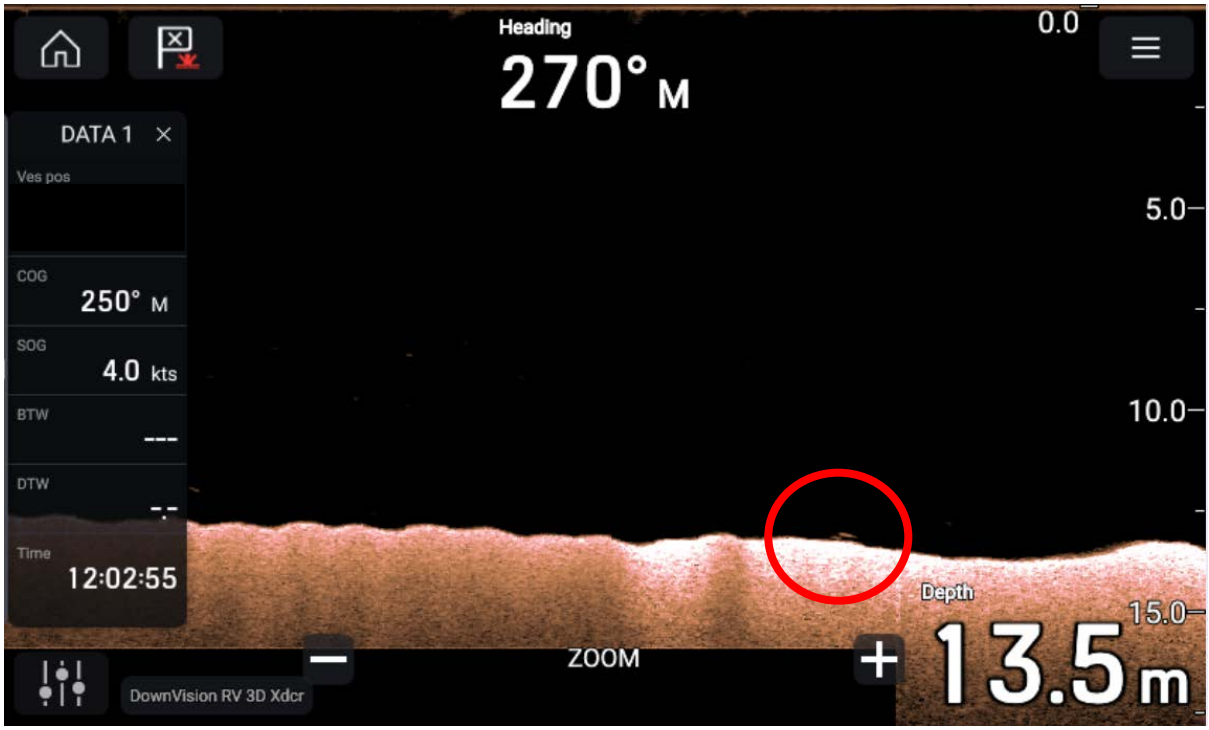

Figure 21: HMS *Boyne* Target 6.
Source: Martin Davies ©

Planned Future Work

The project team have identified two possible windows in April for ground-truthing dives on the targets identified above and some of the other marks taken during the SONAR surveys:

Saturday 11th April 2026	LW 1242
Sunday 12th April 2026	LW 1355
Saturday 25th April 2026	LW 1235
Sunday 26th April 2026	LW 1341

In addition, it is possible that spares have now been sourced for Southsea SAC's AquaScan magnetometer.

The team are also looking at other options for accessing an alternative magnetometer via contacts and colleagues in Historic England, the Protected Wrecks Association, and the Nautical Archaeology Society.

Another option for driving geophysical analysis, especially of magnetometer or sub-bottom profiler data sets, is acquiring existing material to import into Geographical Information Systems software alongside other data from Historic Environment Records and published Environmental or Archaeological Impact Desk-Based Assessments: some of these are now in our possession.

To this end, the team is anticipating completing further geophysical surveys and GIS analysis for target identification during March, before (finally!) going diving in April and May 2026 to ground-truth these targets and then see what we uncover...

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Expenses Summary

The British Sub-Aqua Jubilee Trust awarded a £1200 grant in July 2022.

To date, we have spent:

- £322.88: Boat fuel and oil for seven days' surveying
- £28.47: Subscription to Wrecksite.eu UK Hydographic (1 year)
- £39.99: Subscription to Navionics Boating App Android (1 year)
- £35.95: Belfield Software - Chart and Tide Plotter Update

We are left with **£772.71.**

We anticipate the following minimal costs for completion of this project, excluding marine oil, possible mooring & launch fees and trailer consumables, car parking and towing:

- Five to Six days' diving costing **£600-£720**
    - 40 litres unleaded per day (approx. £55-60 at £1.38/l)
    - £10 per diver per day for Nitrox
    - £120 per day based on six divers plus a Coxswain
- Two+ extra surveying days each costing around **£40** in boat fuel

A further report will be provided after the completion of this season's work, by the end of December 2026.

Also, a digital copy of an archived Royal Navy chart from 1841 (the "Sheringham Chart") was bought by Trendive for £150 for researching the historic wrecks of the Solent, and donated to this project as a sponsorship-in-kind; without this we wouldn't have had any project coordinates.

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