

## Case Name: HM submarine A3

## Case Number: 1422535

### Background

HMS A3 is an early Royal Navy submarine, and one of only 5 pre-First World War submarines recorded on England's seabed. The A3 was a member of the first British A-class of submarines, although slightly bigger than the lead boat, A1 (LE 1000043). She was built at Vickers, Barrow-in-Furness and was commissioned on 13 July 1904. She was accidentally rammed whilst surfacing by the submarine tender Hazard off the Isle of Wight on 2 February 1912 and sank with the loss of all on board. The wreck was salvaged and subsequently sunk as a gunnery target near Portland Bill on 12 May 1912, where she remains today.

In particular, the A3 is one of 3 A-class submarines that lie on the seabed of the Channel. The A1 is designated a Protected Wreck Site while the A7 is a Controlled Site under the Protection of Military Remains Act 1986.

### Asset(s) under Assessment

Facts about the asset(s) can be found in the Annex(es) to this report.

Annex	List Entry Number	Name	Heritage Category	EH Recommendation
1	1422537	HM submarine A3	Wreck	Add to Register

### Visits

None: Data from other sources.

### Context

Forming one of four vessels in the first group of pre-First World War A-class submarines, the A3 was built by Vickers, Sons & Maxim Ltd. in Barrow-in-Furness. She was launched in March 1903 and commissioned on 13th July 1904.

Of the other three boats in the Group, the A1 is a Protected Wreck Site, the A2 was scrapped after being sold in 1925 and the A4 was scrapped following her sale in 1920. Of the nine submarines that formed the second Group of A-class boats, only the A7 survives (as a controlled site under the Protection of Military Remains Act 1986) as the other vessels were all scrapped.

The A3 is therefore one of only three surviving A-class submarines anywhere in the world and its special interest was identified during the strategic submarine assessment commissioned under NHPP Activity 3A1.

### Assessment

#### History and Description

Forming one of four vessels in the first group of pre-First World War A-class submarines, the A3 was built by Vickers, Sons & Maxim Ltd. in Barrow-in-Furness. She was launched in March 1903 and commissioned on 13th July 1904.

Following her accidental ramming by the depot ship HMS Hazard in February 1912 with the loss of 14 crewmen (13 of whom are buried at Haslar Royal Naval Cemetery, Gosport, and commemorated on a single memorial. The 14th crew member, Lieut. Donald Campbell, is commemorated at St John's Epsicopal Cathedral, Oban), the A3 was raised and later sunk as a target in May 1912 by HMS St. Vincent. The A3 had been towed out to sea by the tug Seahorse and the dreadnought St. Vincent opened fire at 2,000 yards with her 4-inch guns. At the third shot, the A3 slid from view.

The A3 now lies east of Portland at a depth of between 30m and 40m and is only one of three surviving A-class submarines anywhere in the world.

#### Consultation

Consultation was undertaken in October 2014.

#### The non-statutory criteria:

**Period:** Armed with one 18-in torpedo tube forward, the A3 formed one of four vessels in the first group of A-class submarines built by Vickers, Sons & Maxim Ltd. in Barrow-in-Furness. She was launched in March 1903 and commissioned on 13th July 1904. The initial success of the early Holland boats encouraged the adoption of a regular submarine programme and money was included in the 1902/03 estimates for four A-class submarines. They were laid down at the beginning of 1902. Nine more vessels A5-13 were included in the 1903/04 estimates and laid down during 1903. They completed ex A13 by 1905. The A, B and C-classes which followed were progressive developments of the Holland's. In fact throughout the A-class there were such changes that they can really be classed as four types A1, A2-4, A5-12 and A13. The A3 was commissioned under the 1902-3 programme, at a cost of £41,000. Thirteen A-class submarines were built by Vickers between 1902 and 1905, and almost all were plagued by accidents and failures.

**Rarity:** The A3 formed one of four vessels in the first group of A-class submarines. Of the other three boats in the Group, the A1 is a Protected Wreck Site, the A2 was scrapped after being sold in 1925 and the A4 was scrapped following her sale in 1920. Of the nine submarines that formed the second Group of A-class boats, only the A7 survives (as a controlled site under the Protection of Military Remains Act 1986) as the other vessels were all scrapped. The A3 is therefore one of only three surviving A-class submarines anywhere in the world.

**Documentation:** The A3 has been 'adopted' by Hoddeston sub-aqua club under the Nautical Archaeology Society's Adopt-a-Wreck scheme. During the consultation for this proposed designation, Hoddeston SAC will be asked to provide relevant documentary evidence. Schematics and technical information related to the A3 can be found in the Royal Naval publication *The Development of HM Submarines from Holland No. 1 (1901) to Porpoise (1979)*. Such records will enable planned construction of the A3 to be compared with actual physical remains. In addition, records maintained by Cumbria Archive Service include files of direct relevance to the A3: submarine drawing office (BDB 16/SDO), album of submarine photographs (BDB 16/L/1341), and general correspondence (BDB 16/L/1636).

**Group value:** The A3 brings together the remains of the Protected A1 and A7 to demonstrate the typological development of HM submarines. As no other boats in this Class survive, the A1, A3 & A7 show the rapid change in constructional attributes afforded to the very earliest group of commissioned submarines in the Royal Navy. All of these boats were for coastal defensive work and had a limited range.

**Survival / condition:** The site lies in approximately 30-40 metres of water on a muddy sandy gravel seabed, east of Portland. The A3 is reported to lie on an even keel, measuring 34m in length with a beam of 4m. While the sea bed drops to 38/39m, the depth to the conning tower is 32m. The submarine is believed to be comparatively intact with the exception of the conning tower hatch and windows. Three hatches are reported to have been removed from the wreck, with the conning tower hatch having been displayed at the Diving and Shipwreck Centre, Weymouth. It is not yet known whether the battery-powered electric motors and Wolseley petrol engine remain onboard.

**Fragility / vulnerability:** Isolated and non-designated iron and steel shipwrecks are vulnerable to legitimate, but uncontrolled, salvage. While EH is to commission research into the volume of such activity and the economic drivers behind it, the A3 remains vulnerable. Designation will protect the A3 from unauthorised interference.

**Diversity:** The initial success of the early Holland boats encouraged the adoption of a regular submarine programme and money was included in the 1902/03 estimates for four A-class submarines. These were laid down at the beginning of 1902. Nine more vessels A5-13 were included in the 1903/04 estimates and laid down during 1903, with A13 being completed by 1905. The A, B and C-classes which followed were progressive developments of the Holland's. In fact throughout the A-class there were such changes that they can really be classed as four types A1, A2-4, A5-12 and A13. The A3 was commissioned under the 1902-3 programme, at a cost of £41,000. The A1, the first boat to be designed by Vickers followed, was 3 knots faster than the Holland's and in every way a success. The A, B and C-classes followed of entirely Vickers design and differed in every respect from any other known type of submarine. A1-4 were improved Holland-type, fitted with a high conning tower and short periscope. The 'spindle hull' form was retained in the A, B and C Classes. In A2-13 an effort was made to better the form to improve speed. The maximum beam

near amidships was increased and the lines in the forward body and at the extreme after end made finer. These efforts were however largely nullified since the introduction of a second bow tube made it necessary to make the sections right forward much fuller and the bows blunter than in A1. In A1 the conning tower was made 7 ft high with a freeboard of 8 ft 10 in but there was only 2 ft freeboard to the superstructure top. In A2-4 the conning tower height was reduced to 5 ft 6 in and a portable bridge fitted at the aft side. Because of the latter presumably, no superstructure was fitted amidships.

Potential: Given that throughout the A-class there were such changes that they can really be classed as four types A1, A2-4, A5-12 and A13, the A3 provides the only physical evidence of the second group anywhere in the world. The A3 therefore has potential associated with understanding the physical development of pre-First World War HM submarines.

#### Location Confidence

The A3 has not been visited by a specialist diving contractor; its position has been determined from the relevant UK Hydrographic Office record which accurately amended the submarine's position following survey in 2009 using dGPS. This survey was carried out by Fugro OSAE (who gained formal ISO 9002:1994 accreditation in 1997, which has since been updated to ISO 9001:2008).

#### Discussion

HM submarine A3 is a very important and rare survivor of a Class of pre-First World War British-designed submarines that was plagued by accidents and failures. Considerable variation is known between boats in the class, but the A3 forms one of only three survivors of 13 boats in the Class, and is the only one of these not currently afforded statutory protection. Known technical plans of the A3 will allow for comparisons to be made of actual seabed remains enabling further understanding of the typological development of the Class, given that it is believed to be comparatively intact. At present, the A3 remains vulnerable to legitimate, but uncontrolled, salvage.

#### Conclusion

Our assessment has determined that the remains of HM submarine A3 is, or may prove to be, lying wrecked in, on or under the seabed east of Portland, Dorset. In addition, any objects contained or formerly contained within the submarine which may be lying on the sea bed in or near the wreck are of historical and archaeological importance.

The historic submarine A3 has been identified for planned designation assessment as part of our strategic submarine study and English Heritage acknowledges that the hull remains vulnerable to legitimate, but uncontrolled, salvage.

After taking all relevant considerations into account, HM submarine A3 should be recommended for designation under the Protection of Wrecks Act 1973.

#### Reasons for Designation Decision

HM submarine A3, commissioned in 1904, has been recommended for designation under the Protection of Wrecks Act 1973 for the following principle reasons:

\* Historical Importance: The A-class was the Royal Navy's first class of British-designed submarines, laid down during 1903. The Class was designed for coastal defensive work.

\* Archaeological Importance: Together with A1 and A7, the A3 demonstrates experimentation and technical evolution in form, displacement and stability.

\* Rarity: The A3 is one of only three surviving A-class submarines anywhere in the world and is a unique survivor from the second group of boats built in the Class.

\* Vulnerability: The A3 remains vulnerable to legitimate, but uncontrolled, salvage.

[countersigningcomments2]



**Annex 1****List Entry****Heritage List for England**

This copy shows the entry on 13 October 2014 14:35.

**List Entry Summary**

This site is designated under the Protection of Wrecks Act 1973 as it is or may prove to be the site of a vessel lying wrecked on or in the sea bed and, on account of the historical, archaeological or artistic importance of the vessel, or of any objects contained or formerly contained in it which may be lying on the sea bed in or near the wreck, it ought to be protected from unauthorised interference. Protected wreck sites are designated by Statutory Instrument. The following information has been extracted from the relevant Statutory Instrument.

**Name:** HM submarine A3

**List Entry Number:** 1422537

**Location**

10.2 km south of Worbarrow Tout, Dorset

**Competent Authority:** Not applicable to this List entry.

The site itself may lie within the boundary of more than one authority.

National Grid Reference	Longitude	Latitude
SY8672869345	-2.18858300	50.52373000

**Date first designated:**

**Date of most recent amendment:**

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**Legacy System Information**

The contents of this record have been generated from a legacy data system.

**Legacy System:** Not applicable to this List entry.

**Legacy Number:** Not applicable to this List entry.

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**Asset Groupings**

This site does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

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### List Entry Description

Information provided under the Statutory Instrument heading below forms part of the official record of a protected wreck site. Information provided under other headings does not form part of the official record of the designation. It has been compiled by English Heritage to aid understanding of the protected wreck site.

### Summary of Site

HM submarine A3 was built by Vickers, Sons & Maxim Ltd. in Barrow-in-Furness. She was launched in March 1903 and commissioned on 13th July 1904.

Following her ramming by the depot ship HMS Hazard in February 1912 with the loss of 14 crewmen, the A3 was raised and later sunk as a target east of Portland in May 1912 by HMS St. Vincent. The A3 had been towed out to sea by the tug Seahorse and the dreadnought St. Vincent opened fire at 2,000 yards with her 4-inch guns. At the third shot, the A3 slid from view.

The A3 is one of only three surviving A-class submarines anywhere in the world.

### Reasons for Designation

The remains of HM submarine A3 is a Protected Wreck Site for the following principal reasons:

- \* Historical Importance: The A-class was the Royal Navy's first class of British-designed submarines, laid down during 1903. The Class was designed for coastal defensive work.
- \* Archaeological Importance: Together with A1 and A7, the A3 demonstrates experimentation and technical evolution in form, displacement and stability.
- \* Rarity: The A3 is one of only three surviving A-class submarines anywhere in the world and is a unique survivor from the second group of boats built in the Class.
- \* Vulnerability: The A3 remains vulnerable to legitimate, but uncontrolled, salvage.

### Statutory Instruments

YEAR/NUMBER

### History

Forming one of four vessels in the first group of A-class submarines, the A3 was built by Vickers, Sons & Maxim Ltd. in Barrow-in-Furness. She was launched in March 1903 and commissioned on 13th July 1904.

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The A3 is therefore one of three surviving A-class submarines anywhere in the world. The construction of all A-class submarines pre-dates the First World War.

### Details

Designation History: Designation Order: xxx Made: xxx Laid before Parliament: xxx Coming into force: xxx  
Protected area: 50 metres within 50° 31.424' N 002° 11.315' W.

No part of the restricted area lies above the high-water mark of ordinary spring tides.

Documentary History: The initial success of the early Holland boats encouraged the adoption of a regular submarine programme and money was included in the 1902/03 estimates for four A-class submarines. They

were laid down at the beginning of 1902. Nine more vessels A5-13 were included in the 1903/04 estimates and laid down during 1903. The A13 was completed by 1905.

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Archaeological History: The site lies in approximately 30-40 metres of water, east of Portland, Dorset. The A3 is reported to lie on an even keel, measuring 34m in length with a beam of 4m. While the sea bed drops to 38/39m, the depth to the conning tower is 32m. The submarine is believed to be comparatively intact with the exception of the conning tower hatch and windows. Three hatches are reported to have been removed from the wreck, with the conning tower hatch having been displayed at the Diving and Shipwreck Centre, Weymouth.

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## **Selected Sources**

### **Books and journals**

Akermann, P, Encyclopaedia of British submarines 1901-1955, (1989)

Harrison, A N, The Development of HM Submarines from Holland No. 1 (1901) to Porpoise, (1979)

## Chart



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The above chart is for quick reference purposes only and may not be to scale. For a copy of the full scale map, please see the attached PDF - 1422537\_1.pdf