

# *Archaeology Wales*

## **SS Damão, Historic Wreck Site**

Archaeological Desk Based Assessment



By  
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Report No. 1564

# Archaeology Wales

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## *Non – Technical Summary*

*In February 2017, Archaeology Wales was commissioned by Lanthorn Exploration Ltd to carry out an Archaeological Desk-Based Assessment to determine the archaeological potential and significance of the wreck site of the SS Damão, off Bardsey Island, Wales. The assessment has been undertaken in as part of an application for salvage work on the vessel.*

*The SS Damão was a British-built cargo ship of 5668 grt, built by Swan, Hunter & Wigham Richardson Ltd in 1911. It was originally known as the SS Brisbane, and was built for the Deutsche Australische Dampfschiffs Gesellschaft, based in Hamburg, Germany. It operated as a cargo vessel operating between Hamburg and Australia. At the outbreak of the First World War it was interned at a Portuguese-controlled port, and in 1916 was requisitioned by the Portuguese state-owned company Transportes Marítimos Do Estado, and renamed the SS Damão. On the 28<sup>th</sup> **April 1918, when 12 miles west of Bardsey Island in St George’s Channel,** the SS Damão was torpedoed and sunk by the German submarine U-91, commanded by Alfred von Glasenapp. The site of the wreck has been identified, although the condition of the wreck is unknown.*

*The SS Brisbane/Damão is relatively common type of vessels, incorporating common, well-established technologies. Due to the numbers of such vessels sunk by U-boats in the First World War it is likely to be well represented in the general wreck assemblage, although no comparative examples remain afloat. The SS Brisbane/Damão may therefore be of some representative value in illustrating the dominance of Northeast England in shipbuilding, the established use of technologies that had developed rapidly over the preceding century, and the frequency of cargo vessels and maritime trade in the waters off the coast of Wales. Similarly its wartime value lies in it being a representative example of the huge numbers of **cargo vessels that were vital to Britain’s war effort.***

*The wreck may also be of some interest internationally, in being a representative example of German attempts to extend their maritime trading network and influence in the early 20<sup>th</sup> century, and also representing a moment in Portuguese history which directly drew them into the conflict of the First World War.*

## 1 Introduction

- 1.1 In February 2017 Archaeology Wales (AW) was commissioned by Lanthorn Exploration Ltd, to carry out an archaeological Desk-Based Assessment of the proposed salvage of materials from the wreck of the SS Damão, **which lies in St George's Channel**, to the west of Bardsey Island off the Llyn Peninsula, Wales (54°45,335'N 005°06,664'W, NGR SG 90156 22093, Figure 1, AW Project Number 2500).
- 1.2 This assessment has been prepared as part of a submission for a licence to salvage the wreck (RML1610/1610). The purpose of this desk-based assessment, which is detailed in the following report, is to provide Natural Resources Wales (NRW) and Cadw with the information they are likely to request in respect of the proposed salvage. This assessment was recommended by the Maritime Officer of the Royal Commission on the Ancient and Historical Monuments in Wales (RCAHMW). The work is to highlight and assess the impact upon the wreck remains and the potential significance of those remains.
- 1.3 An application for a licence to salvage cargo from the wreck is currently in preparation.

## 2 Site Description

- 2.1 The wreck site lies in **St George's Channel in the Irish Sea**, approximately 23km from the coast of the Llyn Peninsula, and 20km west of Bardsey Island, Wales.
- 2.2 The wreck itself was located at **54°45,335'N, 005°06,664'W** by HMS Fawn in 1981, using Hi-FIX Parabolic scanning, which has an accuracy of 25m. At this point it was described as having an approximate length of 130-140m, at an **angle of 0° to 180°**. The breadth was not recorded. It was recorded at a depth of 67m, in an area where the general water depth is recorded at 83m. The wreck is described as upright.
- 2.3 The wreck is recorded in the National Monuments Record (NMR) as NPRN 271669, at SG 90156 22093. The site lies beyond the limit of the Marine Character Areas that surround Wales (NRW 2015).

## 3 Methodology

- 3.1 The aim of this assessment is to establish the significance of the SS Damão and to inform salvage proposals.
- 3.2 The primary objective is to make full and effective use of existing information in establishing the archaeological significance of the SS Damão, to elucidate the presence or absence of archaeological material, its character, distribution, extent, condition and relative significance. This will help inform future decision making, design solutions and potential mitigation strategies.
- 3.3 This report has been compiled and written in accordance with the principles outlined in the CfA *Standard and Guidance for Archaeological Desk Based Assessment (2014)*. The standard set by this document is as follows:

“Desk-based assessment will determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment within a specified area. Desk-based assessment will be undertaken using

appropriate methods and practices which satisfy the stated aims of the project, and which comply with the *Code of conduct* and other relevant regulations of CIfA. In a development context desk-based assessment will establish the impact of the proposed development on the significance of the historic environment (or will identify the need for further evaluation to do so), and will enable reasoned proposals and decisions to be made whether to mitigate, offset or accept without further intervention that impact..”

A desk based assessment is defined as:

Desk-based assessment is a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is to be judged in a local, regional, national or international context as appropriate.

- 3.4 There is no specific guidance on assessing wrecks in Welsh waters, therefore this assessment utilizes criteria set out in a variety of documents that have largely been concerned with assessing the significance of wreck sites in English waters. This work will **however be underpinned by Cadw’s Conservation Principles** for the Sustainable management of the historic environment of Wales (2011). This states that the significance of an historic asset embraces all of the cultural heritage values that people associate with it, or which prompt them to respond to it. In order to assess the significance of an historic asset these Principles state that four component values need to be considered. These are:

- Evidential value
- Historical value
- Aesthetic value
- Communal value

- 3.5 However, as no assessment of significance for an historic wreck site has yet been undertaken in Welsh waters this document will utilize the specific guidance and layout that has been used in comparable studies in England, **which draw on Historic England’s Designation Selection Guide – Ships and Boats: Prehistory to Present (HE 2012)**. The key considerations applied to vessels are broken down into seven topics. These are:

- Period
- Rarity
- Documentation
- Group Value
- Survival/Condition
- Fragility/Vulnerability

- Diversity
- Potential

- 3.6 Due consideration is also given to the detailed research and guidance presented in a series of reports for Historic England undertaken by Wessex Archaeology. Of particular note for this wreck are *Assessing Boats and Ships 1860-1913: Archaeological Desk-Based Assessment* (Donohue 2011a) and *Assessing Boats and Ships 1914-1938: Archaeological Desk-Based Assessment* (Donohue 2011b).
- 3.7 More recent studies of particular relevance to the SS Damão include *The National Importance of Cargo Vessels: Tees Pilot* (Firth & Rowe 2016). Although studying the Tees area, this report for Historic England is of particular relevance in examining the guidance used to assess the importance of post-1840 cargo vessels, which can be applied in the current context. However, for the sake of current consistency the topics outlined in the Historic England Designation Selection Guide (HE 2012) will be used in this report.
- 3.8 Archaeological remains on the seabed, and any archaeological procedures associated with them, are subject to local, regional and national policy, guidance and legislation aiming to protect and maintain the historic environment.

## 4 Archaeological and Historical Background

### 4.1 Sources Used

#### 4.1.1 National Monuments Record (NMR)

Historic Environment Record (HER)

United Kingdom Hydrographic Office (UKHO)

Maritime and Coastguard Agency Receiver of Wreck

International Journal of Nautical Archaeology or other relevant journals

Standing Conference on Problems Affecting the Coastline (SCOPAC) Website

Offshore Geological Mapping (British Geological Survey (BGS) Maps

SeaZone Hydrospatial

The Shipwreck Index of the British Isles

Larn, R. & Larn, B, 1995. *Shipwreck Index of the British Isles Volume 1*. London:

Lloyd's Register of Shipping

Public Record Office, Kew

Press Articles

[www.wrecksite.eu](http://www.wrecksite.eu)

<http://uboat.net>

A full list of sources consulted is provided to the rear

## 4.2 *History of the SS Damão*

### 4.2.1 Build

The SS Damão was built in 1911 by Swan, Hunter & Wigham Richardson Ltd, yard number 848, in Wallsend, Tyneside. It was a cargo ship of 5668 gross register tonnage (grt), measuring 135m long, 17.4m wide and 8.2m deep. It was powered by a triple-expansion steam-powered engine of 701 nominal horsepower (nhp), capable of up to 12.5 knots.

The ship was originally known as the SS Brisbane, and was built for the Deutsche Australische Dampfschiffs Gesellschaft (DAMS), based in Hamburg, Germany. They owned the ship until 1916, when it was officially requisitioned by the Transportes Marítimos Do Estado (TME), of Lisbon, Portugal, and renamed the SS Damão. No photos or illustrations of the ship are known, although the DAMS ships were identified by a black funnel with a broad red and white stripe around the top.

The SS Brisbane was one of at least fifteen ships built by Swan, Hunter & Wigham Richardson Ltd in 1911, of which ten were cargo ships (Nautilus 2016), with the majority also being steel-built and powered by triple expansion steam engines (The Engineer 1911).

### 4.2.2 Use: SS Brisbane

The ship was built for the Deutsche Australische Dampfschiffs Gesellschaft (DAMS), operating between Germany and Australia. DAMS was one of the largest merchant shipping companies operating out of Germany, with a fleet of around 50 vessels by the start of the First World War ([www.theshipslist.com](http://www.theshipslist.com)).

The SS Brisbane operated out of Hamburg, with newspaper articles indicating its common route travelled between Hamburg, Antwerp, London and then on to Australia. The first arrival in Australia appears to be recorded in October 1911, with a general cargo (Daily Commercial News and Shipping List 1911). This route is repeated in August 1912, but then it does not appear again in the Australian newspaper archives until 1914, with many references becoming confused with a cargo steamer also called the SS Brisbane but operated by the Melbourne Steamship Company, and largely involved in the timber trade between Australia and New Zealand. DAMS however regularly traded with Australian ports in the period leading up to the First World War, and it would appear likely that the SS Brisbane repeated this route throughout this period.

In 1914 the SS Brisbane was en-route from Australia to Hamburg with 200 tons of general cargo along with 20 tons of ore. It is unclear whether she was still en-route, or was on a return journey, but at the time war broke out the SS Brisbane was at anchor at the port of Mormugao, Goa, western India ([www.theshipslist.com](http://www.theshipslist.com)).

### 4.2.3 Use: SS Damão

Mormugao was within a Portuguese-controlled territory in the early 20<sup>th</sup> century. Although remaining neutral at the start of the war, the Portuguese government refused to guarantee the safety of German and Austro-Hungarian ships within their harbours,



and so the SS Brisbane, along with 71 other German ships, remained immobilized for two years.

In 1916 the Portuguese finally seized these vessels within its ports, as a result of which Germany declared war on Portugal, bringing them officially into the First World War. A state-owned company was set-up, the Transportes Marítimos Do Estado (TME), which nationalised these vessels and put them back into service for the Portuguese government. The SS Brisbane was renamed the SS Damão at this point. The SS Brisbane was one of five DAMS vessels that were seized and requisitioned by the Portuguese at this time.

There are very few references to the journeys and cargo transported by the SS Damão during the war. It is listed as part of a convoy in October 1917, as it was being escorted by the HMS Kildonan Castle, before it breaks off with four other ships, presumably to head for its destination port ([www.naval-history.net](http://www.naval-history.net)). The only other route to be referenced is its final journey in 1918, when it was travelling across the North Atlantic. It would seem likely therefore that for its final two years the SS Damão was used as a supply ship transporting cargo to the UK.

#### 4.2.4 Loss: Final Journey

In the spring of 1918 the SS Damão was en-route from New York to Liverpool and London with a general cargo on board. This cargo included 472 tons of lead and 67 tons of zinc spelter (Nautilus 2016, NMR). Claim settlements against the loss of the Damão also reveal additional cargo included canteen stores for the Navy and Army Canteen Board, and timber.

As convoy systems had become mandatory in 1918 it is likely that the SS Damão was part of a larger convoy, although no details of this convoy exist. On the 28<sup>th</sup> April 1918, when 12 miles west of **Bardsey Island in St George's Channel**, the SS Damão was torpedoed and sunk by the German submarine U-91, commanded by Alfred von Glasenapp. There is no data on the precise nature of the attack or on the fate of the crew.

#### 4.2.5 Survival & Investigation

The location of the wreck site was first recorded on the occasion of its sinking in 1918. It was reported in 1953, and again in 1971 when a depth of approximately 60m was established, confirmed in 1978. In 1981 the wreck was surveyed by HMS Fawn, using Hi-FIX Parabolic scanning, which recorded the wreck as intact and standing upright and established a reasonably accurate location. A shadow height of 16m was recorded, with the wreck recorded at a depth of 68.4m in an area where the typical depth of water is around 83m.

Risdon Beazley held a salvage contract on this vessel. Risdon Beazley specialised in the salvage of metal cargoes, and were notably responsible for the salvage of the SS Great Britain. It would appear that they undertook some salvage work on this vessel, as the Damão appears in company accounts of the early 1950s (Martin & Craigie-Halkett 2006), it may be at this point that tin concentrate was salvaged from the wreck (Nautilus Group 2016).

There is no current record of the condition of the wreck. The survey by HMS Fawn in 1981 notes that there is no scour.

### 4.3 Historical Background

#### 4.3.1 Shipbuilders

John Wigham Richardson started a small Tyneside shipyard in 1860, known as the **'Neptune Works'**, covering an area of around 4 acres (1.6 hectares), with a river frontage of just over 100 yards (*circa* 90m). In 1872 the firm also began to make its own marine engines and boilers, and the works expanded in the late 1870s and 1880s. By the end of the century the firm had become a limited company and acquired a reputation for constructing high class ships, particular for those with specialist duties.

In 1852 Charles Mitchell had also started a shipbuilding business in the area, and was later joined by the two brothers of Henry Frederick and Charles Sheridan Swan. In the late 1870s they in turn went into partnership with George Burton Hunter, a Wearside shipbuilder, and established C S Swan & Hunter. They too started on a similarly small site of less than 7 acres (2.8 hectares), with a 100 yard river frontage. They also expanded throughout the 1880s, and in 1897 acquired a neighbouring shipyard, which was reorganised for the construction of the largest types of ships.

In 1903 the two neighbouring firms of C S Swan & Hunter and Wigham Richardson Ltd amalgamated to form Swan, Hunter & Wigham Richardson Ltd. They acquired further land the same year which gave them an unbroken river frontage of some 4000 feet (1220m), and works covering nearly 80 acres (32 hectares). This amalgamation was undertaken to bid for, and win, the contract to build the RMS Mauretania for Cunard, which held the record for the fastest crossing of the Atlantic for 20 years, and became the most famous ocean-going liner in the world. The firm was also now able to deal with all aspects of shipbuilding activity, including the design and construction of the hulls, and the internal machinery and propulsion, as well as being able to undertake repairs and overhauls. Although famous for the construction of large ships such as the Mauretania, and the RMS Carpathia (which rescued survivors of the Titanic), the works manufactured a large number of cargo and other vessels, as well as floating docks and pontoons.

Although records are not complete, Swan, Hunter & Wigham Richardson Ltd built at least 15 ships in 1911, 10 of which were cargo ships including the SS Brisbane, alone making up 69,496 tons of output for that year (Nautilus 2016). Where records survive, the cargo ships of that year appear largely to be steel-hulled vessels, powered by triple expansion engines (The Engineer 1911).

The company went on to build a large number of vessels throughout the First World War, averaging out at around 72,649 gross tons each year (Nautilus 2016). It continued to build ships through the inter-war and Second World War periods. Following the Second World War it underwent a series of reorganisations and mergers, and still continues to operate as Swan Hunter, but only in the design and engineering fields.

In a review of vessels built between 1860 and 1913 Wessex Archaeology (Donohue 2011a; 7-8) demonstrate the predominance of the Northeast of England in ship construction, simply in terms of quantity. The majority were built in Sunderland, with

Newcastle second. This area developed a strong tradition for ships built during the 19<sup>th</sup> century, and was regarded as the most prolific shipbuilding region in the country, with bulk trade in coal and timber driving the demand for large numbers of cargo vessels. Boosted by cheap coal and cheap electricity the first two decades of the 20<sup>th</sup> century was a boom time for the shipyards of the northeast, and the Tyne turned out a large **proportion of the world's shipping (Moffat & Rosie 2006). Between 1911 and 1913 an average of 52% of the UK total in new ships came from the northeast (Ville 1993).** With the onset of the First World War this dominance increased further, with production concentrating on the production of cargo vessels in an attempt to build ships quicker than they were being lost to German submarines.

During the First World War 74 Swan, Hunter & Wigham Richardson Ltd ships were sunk, 54 of which were cargo ships.

#### 4.3.2 Technology

The 19<sup>th</sup> century saw rapid technological advancements in sea going vessels, with the development of steam-propulsion replacing the use of sail, and the change from wooden vessels to iron and later steel construction. The first steam engines were introduced on canals in the early years of the 19<sup>th</sup> century, appeared on cross-channel ferries in the 1820s, and were beginning to extend across the Atlantic and Far East by the 1830s. Steam provided a source of power independent of the wind, which could be powered by the **UK's increasingly ready supply of coal. The use of iron became** more commonplace after the 1830s and 1840s, and the screw propeller was introduced in the mid-19<sup>th</sup> century.

The developments of the industrial revolution, and the ready supply of iron ore and coal, allowed many shipbuilding elements to be produced relatively cheaply, allowing the UK to become a dominant producer of ships. The Crimean War and the American Civil War (where a submarine was first deployed successfully) brought some advances in naval technology, but these advances were mainly driven by the mercantile community, with the UK at the forefront of international maritime trade. The widespread use of iron produced a shift in the location of the shipbuilding industry to Northeast England the Clyde in Scotland, where iron and coal were more readily available.

In the 1860s compound engines were developed, where steam was expanded in two or more stages using high-pressured, super-heated steam. These brought about an economy in fuel, and increase in cargo capacity, and began to be commonly used in long-distance cargo and passenger travel. This was followed in 1874 by the even more powerful and efficient triple-expansion engine. A third intermediate cylinder was added to the high and low pressure cylinders of the compound engine, requiring a boiler capable of withstanding higher pressures. This brought about further savings in coal and allowed ever larger ships to be built. Changes in steel production in the second half of the 19<sup>th</sup> century allowed for cheaper, better quality steel that was readily adopted in shipbuilding from the 1870s onwards. Marine propulsion was further developed in the 1890s with the development of the steam turbine, increasing the power to size/weight ratio. Oil began to be used as fuel from the turn of the century, allowing greater ranges and higher speeds than could be achieved with the same weight of coal. Wireless technology was also a new invention that was soon adopted

in the early years of the 20<sup>th</sup> century (Donohue 2011a, HE 2012).

There are few details about the construction of the SS Brisbane, but as it lay towards the end of this period of rapid development the vessel is likely to be steel-built. It was powered by a triple-expansion steam-engine of 701nhp, capable of 12.5 knots, which had been developing since the 1870s, and had become the most common type of engines to be fitted to vessels of this size since the 1890s.

Steamships form a major component of the known wreck assemblage. By the start of the 20<sup>th</sup> century triple-expansion engines are the only form of propulsion represented in the known resource in English waters (Donohue 2011a: 17), it is not currently known how well represented these engines are in the wreck assemblage in Welsh waters.

#### 4.3.3 Shipping Company

The Deutsche Australische Dampfschiffs Gesellschaft (DAMS) was founded in 1888 and operated until 1926. It began as a cargo and passenger service, but passenger services were discontinued after only a couple of years. Between 1889 and 1914 it maintained a regular service between Hamburg and Australia, as well as the Dutch East Indies. At its height in 1914, it was the fifth largest German shipping operator. Outside the commonwealth nations, Germany was one of the main trading nations plying a trade to Australia (Knibbs 1913; 659-661), with DAMS at the forefront of that trade. By 1908 **Germany was operating the world's second largest merchant navy, although still much smaller than that of the UK - German firms owned 11% of the world's steam tonnage, with the UK owning 50%.** The German state fostered the expansion of German merchant shipping during this period, although with particular interest in north Atlantic routes (Henderson 1975).

At the outbreak of the First World War around 50 vessels are listed as being owned by DAMS ([www.theshipslist.com](http://www.theshipslist.com)), 21 of which were built in the period between 1908 and 1913 (including the SS Brisbane), which appears therefore to have been a particularly prosperous time for the company. They suffered heavily during the First World War however. At the outbreak of the war 43 ships are listed as being seized by a variety of foreign nations, five of which were seized in Portuguese-controlled ports (including the SS Brisbane). A further two ships that had been requisitioned by the German navy were sunk during the war, and at the end of the war the company lost a further 15 vessels in German reparations to the UK and France.

Following the war the company acquired another 18 ships throughout the early 1920s to compensate for their losses, and continued to trade. In these latter years the company was largely trading with North and South America, before being taken over by the Hamburg America Line in 1926.

There are very few records relating to the Transporte Maritimos do Estado. At least two ships, the SS Damão and the Tungue, were torpedoed and sank off the UK coast, therefore the company was clearly involved in the supply of goods to the UK during the war period. After the war the company continued to use its fleet of requisitioned ships, and began to operate a few trans-Atlantic passenger services between Lisbon and Azores, to Boston and New York. The service ceased in 1921.

#### 4.3.4 Wartime

##### Portugal

At the outbreak of the First World War Portugal remained a neutral state, although tensions with Germany were high. Portugal had relatively recently become a republic in 1911, and the new administration was somewhat unstable. Portuguese African colonies were of particular importance in bolstering the new government, but Britain and Germany had been seeking to exploit this unstable position, and right up to the start of the war had been discussing a partition of Portuguese Angola. Although therefore relations with Britain in 1914 were also fragile, the two countries had long been allies, and the UK formed one of the most important markets for Portuguese products in the early 20<sup>th</sup> century. These factors soon brought Portugal into conflict with Germany who were attempting to blockade the UK with the use of submarines thereby affecting Portuguese shipping and trade, and by German aggression in Africa, alongside British requests that Portugal help defend its African colonies. Armed skirmishes broke out between Portuguese and German troops in Angola and Mozambique, but Portugal remained officially neutral at this point. It is during this period of apparent neutrality that the SS Brisbane was interned in the Portuguese-controlled port of Mormugao in western India.

Despite these tensions in their African provinces, throughout the early years of the war the Germans had been able to continue operating from the northern coast of Mozambique, a Portuguese territory. Frustrated by this, in 1916 the British made a request that German ships interned in Portuguese ports should be confiscated. In return for a loan the Portuguese decided to accept this request, and the SS Brisbane is likely to have been one of these ships that was subsequently seized. Germany reacted by declaring war on Portugal in March 1916, thus officially bringing them into the First World War. From the summer of 1916 onwards the Portuguese began to contribute naval support, with troops sent to the war in 1917, in both the European theatre and within the Portuguese-controlled territories of Africa. From the winter of 1916 German U-boats began to actively attack Portuguese shipping and ports. 96 Portuguese ships were sunk at sea (100,193 tons) by German U-boats, with a further 5 damaged.

**Portugal's entry into the war was to prove disastrous for their east African colonies,** result in strikes breaking out in Portugal, and caused a political crisis, leading the country to the verge of collapse in 1918. Severe shortages after the war were compounded by Britain cutting off credit, with inflation subsequently reaching 440%, and emigration to Brazil peaking in the years following the war. The republic did however survive this period of turmoil, with its African colonies intact for the time being.

##### U-Boats

Wreck sites in UK waters provide a high representation of cargo vessels, which were the type of vessel most commonly targeted by German U-boats. As the northeast of England was one of the most significant area of shipbuilding at this time, wrecks from that area are also well-represented in the wreck assemblage for this period. As an island nation Britain was greatly dependent on the import of foreign goods, which was vulnerable to disruption in times of war, which the Germans attempted to disrupt by launching a concentrated U-boat offensive against allied shipping. This marked a

distinctive and important change in international naval warfare. Until this time one of **the main objectives of naval warfare had been to capture an opponent's naval shipping**, the use of U-boats changed this. Not only did U-boats lack the ability to capture and subsequently man captured vessels, they also did not have the time to identify the legitimacy of their targets, which would expose them to attack, therefore they regularly flouted international law by attacking without warning. As the Germans placed greater emphasis on the ability of their U-boat fleets to disrupt British import they eventually abandoned any limitations they had imposed upon themselves and by 1917 were engaged in unrestricted submarine warfare against allied shipping, resulting in a dramatic rise in the number of merchant vessels sunk, including those of neutral countries. This dramatic increase can be seen in the wreck assemblage in UK waters.

In an attempt to counter the U-boat threat the British first concentrated on ambushing U-boats on the surface by using Q-ships - Admiralty vessels disguised as merchant ships. Improving anti-submarine measures brought losses to manageable levels in 1918, despite continued high numbers of losses. The most important of these new measures was the convoy system, which had become effective by the end of 1917 and became mandatory in 1918. Ultimately this convoy system brought the merchant ship loss rate down to just 2.4% (Watts 1994). Despite this, losses remained high, with 2.75 million tons of world shipping sunk in 1918 (Friel 2003).

Torpedoes had been developed in the late 19<sup>th</sup> century and were used widely in the First World War. This greatly increased the effectiveness of submarines, and is well represented in the wreck assemblage, with far more vessels being lost to torpedo than to surface guns.

The SS *Damão* was hit by U-91, a U 87 class U-boat launched in April 1917, under the command of Alfred von Glasenapp. U-91 spent approximately a year at combat, engaging in eight patrols as part of III Flotilla. During this period the U-91 was relatively prolific, sinking a total of 38 ships with a total tonnage of 87,228 tons, and damaging a further two ships. The U-boat survived to end of the war, eventually surrendering to the French on the 26 November 1918, and was subsequently broken up at Brest in 1921.

Von Glasenapp had been made Kapitänleutnant at the start of the war, having had, up until that point, a naval career of 11 years. From June 1916 he commanded the U-80, sinking 14 ships and damaging a further 4. In December 1917 he transferred to take command of the U-91, sinking a further 38 ships. Von Glasenapp therefore sank a total of 52 ships (122 552 tons), including one warship, with a further 6 ships damaged, making him one of the most prolific (within the top 30) U-boat commanders of the First World War. In recognition of his services he received the Royal House Order of Hohenzollern, an order of chivalry. 83 other U-boat commanders also received this award, with 320 naval officers in total receiving this award. Von Glasenapp survived the war, leaving naval service in November 1919, although he appears to have been recalled as a Korvettenkapitän in 1928. He also survived the Second World War, dying in 1958.

The U-91 was particularly prolific throughout the Irish Sea, along the west coast of France and in deeper waters off Portugal. On the 28<sup>th</sup> April, alongside the *Damão*, the U-91 also attacked and sank the *Oronsa*, a British passenger steamer carrying a general cargo, and the *Raymond*, a small French sailing vessel. Three casualties were

lost with the Oronsa, with the full complement of seven lost with Raymond, apparently being hit boarding the lifeboats as the U-91 continued to shell the vessel as it sank. It is not known if the loss of the Damão resulted in any casualties. These attacks were the culmination of eight days of operations by U-91, resulting in the sinking of 11 ships. The U-91 went on to sink a further 17 ships before the end of the war ([www.uboa.net](http://www.uboa.net)).

U 87 class U-boats were a relatively advanced U-boat design, with excellent seagoing abilities and good handling, although only six were ever made between 1915 and 1917. Many of the features of this U-boat were to be re-used in U-boats of the Second World War.

#### 4.3.5 Rarity

There appears to have been no systematic survey or comprehensive assessment of early-20<sup>th</sup> century wreck sites off the Welsh coast, therefore comparative analysis of the significance of this wreck site is difficult.

Within a 10km search area around the wreck of the SS Damão the National Monuments Record records a further 20 wreck sites. Five of these records come from documentary sources, and of the remaining sites four are of uncertain underwater obstructions. Alongside the Damão nine of these wrecks have been positively identified, and they include one 18<sup>th</sup> century wooden barque, six 19<sup>th</sup> century wooden vessels, one 19<sup>th</sup> century iron steamship, two steamships sunk during the Second World War, and one vessel sunk during the First World War. Similar to the Damão, this vessel, the Chelford (NPRN 271670) was a steel-hulled steamship powered by a triple-expansion engine, built in Northeast England, and torpedoed by a U-boat in 1918.

A brief examination of the NMR suggests there may be over 1000 wrecks of modern date in Welsh waters, of which 124 may have sunk in 1918. There are 208 records of wreck sites with triple-expansion steam engines. There are four other recorded wreck sites of ships built by Swan Hunter, these include the Zelo (NPRN 274173), a steamship built in 1917, the Thorold (PRN 240307), a steamship built in 1922, the Middlesex (NPRN 273722), a steam turbine ship built in 1920, and the Port Townsville (PRN 273242), a motor vessel built in 1935.

There are seven recorded wreck sites of Portuguese ships, of which two are 17<sup>th</sup> century, three are 19<sup>th</sup> century wooden vessels, one is an iron-hulled cargo ship built in 1885 (NPRN 274594), and one is a motorised schooner built in 1919 (NPRN 273188). There are 14 recorded wreck sites of German ships, of which seven are 19<sup>th</sup> century wooden vessels, five are iron or steel-hulled steamships of the 1890s to 1910s (NPRNs 240200, 273111, 274172, 274175 & 274545), one is a captured German vessel lost in the Second World War and one is a Second World War U-boat. There are no other records of wrecks operated by DAMS or TME within Welsh waters.

The SS Damão therefore appears to be of a type and period of vessel that is relatively well-represented in the wreck assemblage, although Portuguese-owned vessels of this date are very rare.

## 5 Assessment of Importance

In order to assess the significance of the wreck the key considerations given in **Historic England's Designation Selection Guide have been used (HE 2012)**. These key considerations are set out below.

### 5.1 Period

The SS Brisbane/Damão was built in 1911, and was torpedoed and sank to the west of Bardsey Island on 28<sup>th</sup> April 1918.

The 19<sup>th</sup> century and early 20<sup>th</sup> century was a period of rapid technological advancement and development in sea going vessels, with the development of steam-propulsion replacing the use of sail, and the change from wooden vessels to iron and later steel construction. The SS Brisbane/Damão was built towards the end of this period of development.

At the time of its construction, Northeast England was a dominant area in national and international shipbuilding, with large numbers of vessels, predominantly cargo vessels, being produced there. Swan, Hunter & Wigham Richardson Ltd were one of the largest shipbuilders of that area, renowned for large liners such as the RMS Mauretania, but also producing a large number of cargo vessels of a type similar to the SS Brisbane.

The SS Brisbane/Damão was one of a significant number of cargo vessels lost to U-boat attacks around the UK coastline during the First World War.

### 5.2 Rarity

Despite the predominance of ships built in the northeast of England during this period, this does not appear to be replicated in the surviving record (National Historic Ship Record). This is however likely to be well-represented in the wreck assemblage, and therefore is of little special interest as regards rarity, although it may be more significant in terms of its representation of a predominant shipbuilding area (see Group Value). Cargo ships built by Swan, Hunter & Wigham Richardson Ltd are likely to be well-represented in the wreck assemblage, although only five have been positively identified in Welsh waters. As a Portuguese-owned vessel the wreck has some rarity value in terms of foreign-owned vessels sunk in British waters during the First World War.

It is likely the SS Brisbane was a steel-built vessel, which was common by the time of its construction, and therefore of limited special value as regards rarity. Similarly, triple-expansion steam-engines had become well-established as the dominant form of propulsion by the time the SS Brisbane was constructed, and therefore it is of limited special value for its technological information. The ship stands towards the end of a period of peacetime innovation, and as a result represents some of the more common themes in terms of design construction and engineering, as well as place and method of manufacture. It also appears to be well-represented within the general wreck assemblage.

Due to their large numbers cargo vessels are unlikely to have special interest on the basis of their use in transporting cargoes alone. Tramp ships may have some rarity



value, but this class of vessel is largely unregistered in the records, and therefore the rarity value is unknown. It is also unknown if the SS Brisbane/Damão was involved in this trade.

Vessels sunk by German U-boats during the First World War are also generally well-represented in the wreck assemblage, the bulk of which are cargo vessels of a similar type to the SS Brisbane/Damão. The U-91, the U-boat involved in the sinking of the SS Damão, was relatively prolific, as was its commander. He can be regarded as amongst the top 30 commanders in terms of ships and tonnage sunk, but he was not a well-known or highly decorated commander. The crew of the SS Damão is unknown.

### 5.3 Documentation

There appears to be little surviving direct documentary evidence relating to the SS Brisbane/Damão. No photographs or illustrations of the vessel survive, its crew is unknown, and references to its period of operation are largely gained from secondary sources.

There is no distinct and tangible link to a significant person.

### 5.4 Group Value

The SS Brisbane/Damão, although foreign owned, represents the established dominance of Northeast England as a shipbuilding area by the early 20<sup>th</sup> century.

The method of construction and propulsion is of limited value in terms of its rarity, but the use of the steel-hull, triple-expansion steam-engine, and likely screw propeller, in cargo vessels represents the matured steamship design that facilitated the dramatic trade expansion in the late 19<sup>th</sup> and early 20<sup>th</sup> century.

The impact of the First World War is arguably one of the key narratives of the 20<sup>th</sup> century, and this wreck is therefore representative of the general U-boat offensive on cargo vessels supplying the UK, **and Germany's concerted efforts to** disrupt and strangle this trade. The loss of vessels to submarine warfare and torpedoes represent new features of 20<sup>th</sup> century naval warfare which may be of interest, as this came close to winning the war against Britain, and also influenced the conduct of the Second World War. The First World War was a major event in modern world history, the scale and geographical range of the war was the largest known to that point. Alongside the intense human suffering it inflicted it also had political and economic consequences on a global scale.

These groups are however very large, and would therefore require other significant contributory factors for an individual wreck to gain a high degree of special interest.

The significance of the wreck to both German and Portuguese maritime history is difficult to gauge from a British/Welsh perspective. In Germany the DAMS forms a significant part of a period of concerted German maritime trading expansion which was severely disrupted by the outbreak of the First World War. The SS Brisbane was one of a number of contemporary cargo vessels in a relatively large trading fleet, therefore of little rarity value, but of some group value in representing the activity of a company such as DAMS.

There appears to be a relative sparsity of records associated with the Transporte Maritimos do Estado in Portugal. However, the seizure and requisitioning of German ships in 1916, which includes the SS Brisbane/Damão, is an important moment in the history of the new republic of Portugal, which led directly to their abandonment of neutrality and active participation in the First World War.

#### 5.5 Survival/Condition

The wreck was last reported in 1981, described as intact. The condition of the wreck has not been ascertained however, there appears to have been some salvage work undertaken on the wreck in the 1950s, and it is unlikely that a wreck of this age survives in good condition.

#### 5.6 Fragility/vulnerability

The site lies in a relatively stable condition. It still appears to contain a cargo of value to salvage operations, as is currently the case.

#### 5.7 Diversity

The design of the vessel does not appear to have incorporated unique characteristics that have been worthy of special mention. It appears relatively representative of the period and type of vessel. The ship was built at the end of a period of rapid development in shipbuilding technology, but would appear to incorporate well-established technologies by the time of its construction (Donohue 2011a).

#### 5.8 Potential

As a wreck site that would appear to be relatively common in terms of the type and design of the vessel, as well as the date and manner of its sinking, the potential likely lies in its ability to be a representative example of the dominance of Northeast England as a shipbuilding area, the global extent of early-20<sup>th</sup> century maritime trading activity, established maritime technologies after a century of rapid development, and the impact of the First World War on the seas off the coast of Wales.

The ship is of potential significance in terms of its links to both German maritime expansion of the early-20<sup>th</sup> century, and the Portuguese participation in the First World War.

The current condition, and potential for loss of lives associated with the SS Brisbane/Damão is not known.

## 6 Conclusions

6.1 The studies by Wessex Archaeology (Wessex Archaeology 2008, Donohue 2011a & b) highlights the difficulty in assessing wrecks of this era due to an absence of any agreed corpus of work upon which the assessment of individual wrecks can be based and the complicated nature of this period. They do however highlight a number of distinctive features of significance for wrecks in English waters. The work states that for a wreck of this period to be of special interest it is likely to have to make a distinctive contribution in respect of one or more of the following:

- Illustrate a key narrative of the period, for example intermediate or final stages in important technological transitions, or the unrestricted submarine war of 1917-18;
- Represent a distinct and tangible link to significant persons or events, for example association with famous naval battles or campaigns;
- Be representative of significant loss of life or related responses in seafaring safety;
- Have made a distinct cultural contribution;
- Have current relevance or parallels.

The ship can be compared with similar wrecks to determine whether its interest is **indeed 'special'**. **This factors have been used as the basis for the framework used in assessing designated wrecks in England (HE 2012)**, the main categories of which are illustrated within this report.

6.2 The SS Brisbane/Damão is a relatively common type of vessel, it was built in Northeast England when that area was at the height of its shipbuilding activity, by one of the larger shipbuilding companies of that area. The ship incorporated technologies that had gone through a period of rapid development in the preceding century, but had become well-established by the time they were incorporated into the ship. Cargo ships of this era were particularly common, and due to the effects of the First World War, are also particularly well-represented in the wreck assemblage. This lack of rarity however indicates the vessel may be of some representative value in illustrating the dominance of Northeast England in shipbuilding, the established use of these technologies, and the frequency of cargo vessels and maritime trade in the waters off the coast of Wales. Similarly its wartime value lies in it being a representative example of the huge numbers of cargo vessels that were **vital to Britain's war effort, and were** lost to enemy action in the waters around the coast. The sinking represents the closing stages of the unrestricted U-boat activity within the Irish Sea.

6.3 The wreck may be of some international interest. It originally formed part of a fleet of cargo vessels operated by the Deutsche Australische Dampfschiffs Gesellschaft. Again, the vessel has little rarity value as one of a large number of similar cargo ships, and one of many that were lost during the war, but it may have some value as a representative example of German attempts to extend their maritime trading network and influence in the early 20<sup>th</sup> century. When the ship was requisitioned by the Portuguese state-owned Transporte Maritimos do Estado in 1916, and renamed as the SS Damão, it was again one of a relatively large number of such vessels. This is

however representative of an important moment in Portuguese history which directly drew them into the conflict of the First World War.

## 7 Sources

- Allington, P & Greenhill, B 1997 *The First Atlantic Liners: Seamanship in the age of paddle wheel, sail and screw*. London: Conway Maritime Press.
- Donohue, D 2011a *Assessing Boats and Ships 1860-1913: Archaeological Desk-Based Assessment* Wessex Archaeology Report 70861.01
- Donohue, D 2011b *Assessing Boats and Ships 1914-1938: Archaeological Desk-Based Assessment* Wessex Archaeology Report 70861.02
- Dufeil, Y 2011 *Kaiserliche Marine U-Boote 1914-1918*
- Firth, A & Rowe, P 2016 *The National Importance of Cargo Vessels. Tees Pilot. Fjordr*, Marine and Historic Environment Consulting Report for Historic England. Ref 16261
- Friel, I 2003 *Maritime History of Britain and Ireland* London: The British Museum Press
- Groner, E 1991 *German Warships 1815-1945, vol 2: U-boats and mine warfare vessels*
- Henderson, W.O 1975 *The Rise of German Industrial Power 1834-1914* University of California Press
- Historic England 2008 *Protected Wreck Sites at Risk: A Risk Management Handbook*
- Historic England 2012 *Designation Selection Guide. Ships and Boats: Prehistory to Present*
- Historic England 2012 *Ships and Boats: 1840-1950. Introductions to Heritage Assets*
- Historic England 2015 *Accessing England's Protected Wreck Sites: Guidance Notes for Divers and Archaeologists*
- Jane 1919 *Janes Fighting Ships*
- Knibbs, G.H 1913 *Official yearbook of the Commonwealth of Australia 1910-12* Commonwealth Bureau of Census & Statistics
- Larn, R. and Larn, B. 1995-2000 *Shipwreck Index of the British Isles*, 5 vols.
- Lyon, D. and Winfield, R. (eds.) 2004 *The Sail and Steam Navy List: All Ships of the Royal Navy 1815-1889* London: Chatham Publishing
- Martin, R & Craigie-Halkett 2006 *Risdon Beazley Marine Salvor* Brook House Books, Southampton
- Moffatt, A & Rosie, G 2006 *Tyneside: a history of Newcastle and Gateshead from Earliest Times* Edinburgh and London, Mainstream Publishing
- Nautilus Group 2016 *SS Damão: History* Unpublished research

- Natural Resources Wales 2015 *National Seascape Assessment for Wales*
- UK Hydrographic Office 2017 *Hydrographic Report: Wreck No.9984 (UKHO ID)*
- UNESCO 2001 *The UNESCO Convention of the of the Protection of Underwater Cultural Heritage*
- Ville, S 1993 *Shipbuilding in the United Kingdom in the Nineteenth Century: A Regional Approach. Research in Maritime History No. 4.* Canada: Maritime Studies Research Unit pp1-44
- Watts, A. J 1994 *The Royal Navy: An Illustrated History* London: Arms & Armour Press
- Wessex Archaeology 2008 *Selection Guide: Boats and Ships in Archaeological Contexts.* Wessex Archaeology Unpublished Report.

### *Websites*

- <http://nationalhistoricships.org.uk>
- [http://ads.ahds.ac.uk/catalogue/projArch/alsf/search\\_maritime.cfm](http://ads.ahds.ac.uk/catalogue/projArch/alsf/search_maritime.cfm)
- [www.wrecksite.eu](http://www.wrecksite.eu)
- <http://uboat.net/>
- <http://www.gracesguide.co.uk>
- <http://www.anmm.gov.au/>
- <http://www.naval-history.net>
- <http://www.convoyweb.org.uk>
- <http://www.coflein.gov.uk/>
- <http://www.theshipslist.com>
- <http://www.naval-history.net>

### *Newspaper/Magazine Articles*

- The Engineer
- March-August 2011
- November-December 2011
- The Evening Telegraph (Australia)
- 17/6/11 Article p5
- Daily Commercial News and Shipping List (Sydney, Australia)
- 25/9/11 Article p4
- 24/10/11 Article p13
- 28/10/11 Advertising p4
- 30/10/11 Advertising p4

8/8/12 Article p4

13/8/12 Article p16

The Daily News (Perth, Australia)

13/10/11 Article p3

Cairns Post (Australia)

22/6/14 Article p4

Warrnambool Standard (Australia)

13/6/14 Article p4

*Archives*

National Archives

BT 365/19/71: First World War Claim Settlements, Vol.19 –Damão 1918

BT 365/19/50,58: First World War Claim Settlements, Vol.19 –Damão 1918

Tyne & Wear Archives

DS.SWH/1/1/3: Memorandum and Articles of Association, Swan Hunter & Wigham Richardson Ltd, 1903 - 19

DS.SWH/1/23: Formation of Swan Hunter & Wigham Richardson Ltd, 1903 – 06

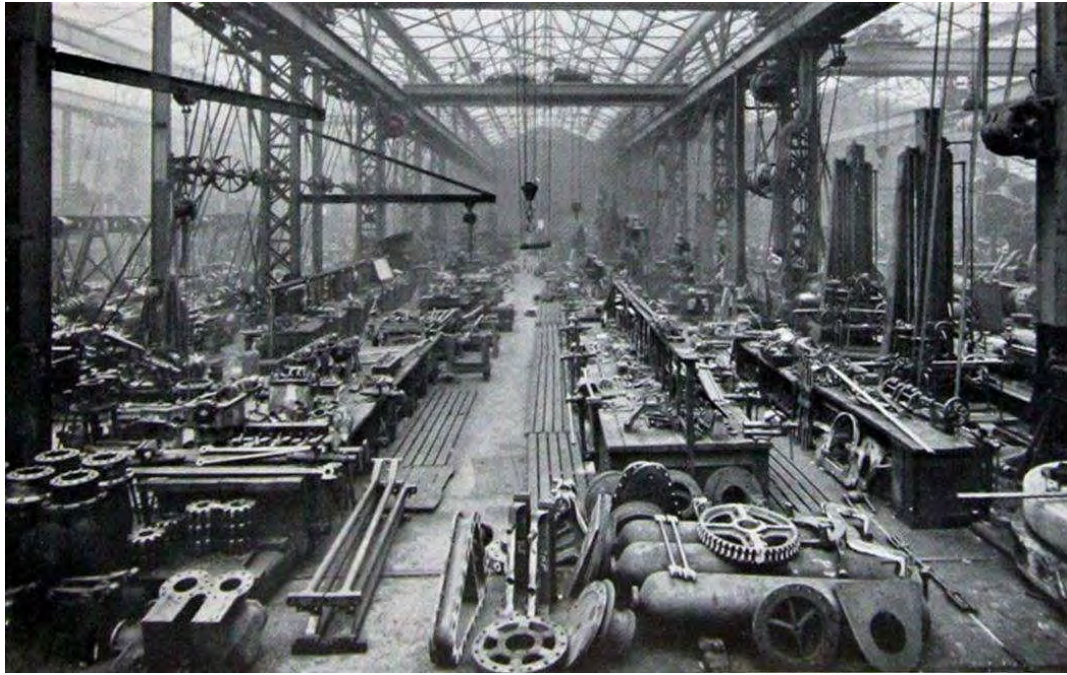
L/4388: Swan Hunter Wigham Richardson Ltd



- 17 SANDWELL
- 18 DUDLEY
- 19 BIRMINGHAM
- 20 SOLIHULL
- 21 COVENTRY



Figure 1: Site location map.



Plates 1 – 3: Various views of the Swan, Hunter & Wigham Richardson shipbuilding works.  
Photos courtesy of [www.wrecksite.eu](http://www.wrecksite.eu)



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Plate 4: Advert for the Swan, Hunter & Wigham Richardson shipbuilding works, shortly after the construction of the SS Brisbane.



Plate 5: Late 19<sup>th</sup> century advert for the Deutsche Australische Dampfschiffs Gesellschaft, who operated the SS Brisbane until 1916.



Plate 6: Alfred von Glasenapp, commander of the U-boat U-91, responsible for the sinking of the SS Damão.

# ARCHIVE COVER SHEET

## SS Damao, Historic Wreck Site

Site Name:	SS Damao
Site Code:	DKE/17/DBA
PRN:	-
NPRN:	271669
SAM:	-
Other Ref No:	-
NGR:	NGR SG 90156 22093
Site Type:	Historic Wreck (20 <sup>th</sup> century)
Project Type:	Desk-based assessment
Project Manager:	Philip Poucher
Project Dates:	February/March 2017
Categories Present:	Modern
Location of Original Archive:	AW
Location of duplicate Archives:	RCAHMW, Aberystwyth
Number of Finds Boxes:	0
Location of Finds:	N/A
Museum Reference:	
Copyright:	AW
Restrictions to access:	None

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