

An Archival Assessment of World War I Wrecks in Northern Irish Waters



for

Department of Environment
Northern Ireland

CA Project: 770001

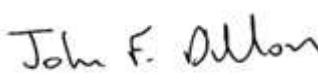
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SUMMARY

This project forms a desk-based study which sets out archival and other sources for fifteen shipwrecks within Northern Irish waters lost during World War I. The project has been undertaken by Cotswold Archaeology for the Department of Environment, Northern Ireland, as part of the *Heritage Assets in Relation to Marine Designation: Scottish, Welsh and Northern Irish Territorial Waters* contract. The study has been guided by Rory McNeary at the Department of Environment, Northern Ireland.

Archival holdings relating to WWI wrecks are extensive and complex. As part of this project documents have been accessed in repositories situated on the United Kingdom mainland, in addition to repositories abroad, in Germany and the USA. Research has shown that a range of wrecks are present within Northern Irish waters, including passenger liners, tankers, German submarines, hired trawlers and cargo ships.

Assessments of significance have been conducted, and have highlighted the many, varied, aspects of significance of the WWI wrecks within Northern Irish waters. In particular an over-arching component of significance has been identified in terms of the relationship of many of the wreck's with the unrestricted submarine warfare from the spring of 1917. The unrestricted submarine warfare has previously been identified as a key narrative of the period (Wessex Archaeology 2011).

CONTENTS

1.	PROJECT BACKGROUND	7
1.1.	Introduction	7
1.2.	Scope.....	7
2.	METHODOLOGY	9
2.2.	Sources: Existing databases	9
2.3.	Archival material	9
2.4.	Online resources.....	11
2.5.	Assessing Significance	11
3.	WORLD WAR I IN NORTHERN IRISH WATERS	14
4.	HIGH PRIORITY VESSEL: SANTA MARIA	16
4.1.	Introduction	16
4.2.	Location.....	16
4.3.	The wreck remains	16
4.4.	Archival holdings and documents relating to the construction of the vessel.....	16
4.5.	Documents relating to the use of the vessel.....	17
4.6.	Documents relating to the loss of the vessel	18
4.7.	Documents relating to the survival of the wreck	18
4.8.	Documents relating to the investigation of the wreck	19
4.9.	History of the Santa Maria	19
4.10.	Assessment of Significance of the <i>Santa Maria</i>	22
5.	HIGH PRIORITY VESSEL: ANDANIA	24
5.1.	Introduction	24
5.2.	Location.....	24
5.3.	The wreck remains	24
5.4.	Archival holdings and documents relating to the construction of the vessel.....	24
5.5.	Documents relating to the use of the vessel.....	26
5.6.	Documents relating to the loss of the vessel	26
5.7.	Documents relating to the survival of the wreck	27
5.8.	Documents relating to the investigation of the wreck	27
5.9.	The history of the <i>Andania</i>	27
5.10.	Assessment of Significance of the T.S.S. <i>Andania</i>	30
6.	HIGH PRIORITY VESSEL: UB85	33
6.1.	Introduction	33
6.2.	Location.....	33
6.3.	The wreck remains	33
6.4.	Archival holdings and documentary sources	33
6.5.	Documents relating to the construction of the vessel	33
6.6.	Documents relating to the use of the vessel.....	33
6.7.	Documents relating to the loss of the vessel	34
6.8.	Documents relating to the survival of the vessel	34
6.9.	Documents relating to the investigation of the vessel	34
6.10.	The History of the UB85.....	35
6.11.	Assessment of Significance of the UB85	38
7.	HIGH PRIORITY VESSEL: TIBERIA	39

7.1.	Introduction	39
7.2.	Location.....	39
7.3.	The wreck remains	39
7.4.	Archival holdings and documentary sources	39
7.5.	Documents relating to the construction of the vessel	39
7.6.	Documents relating to the use of the vessel.....	39
7.7.	Documents relating to the loss of the vessel	40
7.8.	Documents relating to the survival of the vessel	40
7.9.	Documents relating to the investigation of the vessel	40
7.10.	The History of the <i>Tiberia</i>	40
7.11.	Assessment of Significance of the <i>Tiberia</i>	43
8.	HIGH PRIORITY VESSEL: CHIRRIPO	45
8.1.	Introduction	45
8.2.	Location.....	45
8.3.	The wreck remains	45
8.4.	Archival holdings and documents relating to the construction of the vessel.....	45
8.5.	Documents relating to the use of the vessel.....	45
8.6.	Documents relating to the loss of the vessel	47
8.7.	Documents relating to the survival of the vessel	48
8.8.	Documents relating to the investigation of the vessel	48
8.9.	History of the <i>Chirripo</i>	48
8.10.	Assessment of Significance of the <i>Chirripo</i>	50
9.	HIGH PRIORITY VESSEL: ROSE II.....	51
9.1.	Introduction	51
9.2.	Location.....	51
9.3.	The wreck remains	51
9.4.	Archival holdings and documentary sources	51
9.5.	Documents relating to the construction of the vessel	51
9.6.	Documents relating to the use of the vessel.....	52
9.7.	Documents relating to the loss of the vessel	52
9.8.	Documents relating to the survival of the vessel	52
9.9.	Documents relating to the investigation of the vessel	52
9.10.	History of the <i>Rose II</i>	53
9.11.	Assessment of Significance of the <i>Rose II</i>	55
10.	LOW PRIORITY VESSEL: LUGANO.....	57
10.1.	Introduction	57
10.2.	Location.....	57
10.3.	The wreck remains	57
10.4.	Archival holdings and documents relating to the construction of the vessel.....	57
10.5.	Documents relating to the use of the vessel.....	57
10.6.	Documents relating to the loss of the vessel	58
10.7.	Documents relating to the survival of the vessel	58
10.8.	Documents relating to the investigation of the vessel	58
10.9.	History of the <i>Lugano</i>	58
11.	LOW PRIORITY VESSEL: SOLWAY QUEEN	61
11.1.	Introduction	61
11.2.	Location.....	61

11.3.	The wreck remains	61
11.4.	Archival holdings and documents relating to the construction of the vessel.....	61
11.5.	Documents relating to the use of the vessel.....	61
11.6.	Documents relating to the loss of the vessel	61
11.7.	Documents relating to the survival of the vessel	62
11.8.	Documents relating to the investigation of the vessel	62
11.9.	History of the Solway Queen.....	62
12.	LOW PRIORITY VESSEL: NEOTSFIELD	65
12.1.	Introduction	65
12.2.	Location.....	65
12.3.	The wreck remains	65
12.4.	Archival holdings and documents relating to the construction of the vessel.....	65
12.5.	Documents relating to the use of the vessel.....	65
12.6.	Documents relating to the loss of the vessel	66
12.7.	Documents relating to the survival of the vessel	66
12.8.	Documents relating to the investigation of the vessel	66
12.9.	History of the <i>Neotsfield</i>	67
13.	LOW PRIORITY VESSEL: AMBER.....	70
13.1.	Introduction	70
13.2.	Location.....	70
13.3.	The wreck remains	70
13.4.	Archival holdings and documentary sources	70
13.5.	Documents relating to the construction of the vessel	70
13.6.	Documents relating to the use of the vessel.....	70
13.7.	Documents relating to the loss of the vessel	70
13.8.	Documents relating to the survival of the vessel	71
13.9.	Documents relating to the investigation of the vessel	71
13.10.	History of the <i>Amber</i>	71
14.	LOW PRIORITY VESSEL: DAYBREAK	74
14.1.	Introduction	74
14.2.	Location.....	74
14.3.	The wreck remains	74
14.4.	Archival holdings and documents relating to the construction of the vessel.....	74
14.5.	Documents relating to the use of the vessel.....	74
14.6.	Documents relating to the loss of the vessel	75
14.7.	Documents relating to the survival of the vessel	75
14.8.	Documents relating to the investigation of the vessel	75
14.9.	History of the <i>Daybreak</i>	75
15.	LOW PRIORITY VESSEL: RFA INDUSTRY	78
15.1.	Introduction	78
15.2.	Location.....	78
15.3.	The wreck remains	78
15.4.	Archival holdings and documentary sources	78
15.5.	Documents relating to the construction of the vessel	78
15.6.	Documents relating to the use of the vessel.....	78
15.7.	Documents relating to the loss of the vessel	79
15.8.	Documents relating to the survival of the vessel	79

15.9.	Documents relating to the investigation of the vessel	79
15.10.	History of the RFA <i>Industry</i>	79
16.	LOW PRIORITY VESSEL: SAINT MUNGO	82
16.1.	Introduction	82
16.2.	Location.....	82
16.3.	The wreck remains	82
16.4.	Archival holdings and documentary sources	82
16.5.	Documents relating to the construction of the vessel	82
16.6.	Documents relating to the use of the vessel.....	82
16.7.	Documents relating to the loss of the vessel	83
16.8.	Documents relating to the survival of the vessel	83
16.9.	Documents relating to the investigation of the vessel	83
16.10.	History of the <i>Saint Mungo</i>	83
17.	LOW PRIORITY VESSEL: CONARGO	85
17.1.	Introduction	85
17.2.	Location.....	85
17.3.	The wreck remains	85
17.4.	Archival holdings and documents relating to the construction of the vessel.....	85
17.5.	Documents relating to the use of the vessel.....	85
17.6.	Documents relating to the loss of the vessel	86
17.7.	Documents relating to the survival of the vessel	86
17.8.	Documents relating to the investigation of the vessel	86
17.9.	History of the <i>Conargo</i>	86
18.	LOW PRIORITY VESSEL: FLORRIESTON.....	89
18.1.	Introduction	89
18.2.	Location.....	89
18.3.	The wreck remains	89
18.4.	Archival holdings and documents relating to the construction of the vessel.....	89
18.5.	Documents relating to the use of the vessel.....	89
18.6.	Documents relating to the loss of the vessel	90
18.7.	Documents relating to the survival of the vessel	90
18.8.	Documents relating to the investigation of the vessel	90
18.9.	History of the <i>Florrieston</i>	90
19.	REFERENCES	93

ILLUSTRATIONS

- Figure 1: Location of Wreck Sites
- Figure 2: Sectional Profile of the *Andania*
- Figure 3: Section and Plan of the *Andania's* pumping arrangements showing the general form of the ship in plan
- Figure 4: Position of *Tiberia* in Convoy OB50
- Figure 5: Plan of the *Amber*

1. PROJECT BACKGROUND

1.1. Introduction

1.1.1. The overall aim of this project has been to undertake desk-based research into World War I (WWI) wrecks in Northern Irish waters. The work has been undertaken in support of the WWI centenary commemorations. It has been given impetus by the UNESCO report that highlighted the following issues associated with submerged WWI heritage (UNESCO 2014):

- the lack of comprehensive research;
- treasure-hunting and salvage;
- limited knowledge of this heritage by the general public; and
- the lack of site preservation and management strategies.

1.2. Scope

1.2.1. The main objectives were agreed in consultation with the Department of Environment, Northern Ireland and were detailed in a written brief (DoE 2014) and project proposal (CA 2014). The objectives of the project were to:

- Outline the location, nature and extent of archival holdings for WWI wrecks in NI waters.
- Provide historical information on each of the vessels listed in Appendix 1 of the brief (DoE 2014; see list below); to include: reportage on description and chronology; current and past ownership; salvage history (if any); manuscript sources; ship plans; historic photographs; paintings, etc.
- Compile a significance matrix re: national importance for these wrecks for the purposes of future designation; potential preservation objectives and the identification of any potential risks to these heritage assets.

1.2.2. The wrecks considered within this report are those outlined in the brief (DoE 2014), and represent a selection of known WWI wrecks within Northern Irish waters, of which there are 60 known wrecks overall. Some of the WWI wrecks within Northern Irish waters have already been subject to detailed assessment, such as the HMS *Drake* (Wessex Archaeology 2006; see figure 1), and therefore do not form a focus for this study.

1.2.3. The brief identified 15 wrecks for study (DoE 2014). Of these, six of the wrecks were defined as high priorities in terms of this research, and a further nine were low priorities. The work has been undertaken in order to support future preservation and management strategies for these wrecks. High priority wrecks were chosen for study by the Department of Environment due to their historical importance; current condition, and/or impact upon hydrodynamic and seabed processes. Low priority wrecks were also chosen on the basis of these factors, or were in some cases selected from areas where no recent survey has taken place (e.g. *Saint Mungo*). The high priority vessels comprise:

- *Santa Maria*;
- *Andania*;
- *UB85*;
- *Tiberia*;

- *Chirripo*; and
- *Rose II*

1.2.4. Low priority wrecks comprise:

- *Lugano*;
- *Solway Queen*;
- *Neotsfield*;
- *Amber*;
- *Daybreak*;
- *RFA Industry*;
- *Saint Mungo*;
- *Conargo*; and
- *Florrieston*

1.2.5. In order to address the project objectives the report has been structured to give an outline of the archival holdings for each vessel, in addition to details of relevant published materials. This is followed by an account of the history of each vessel, as evidenced in the archival and published materials. Focus has been on the six priority vessels, however, attempts have also been made to gather sufficient information for all vessels in order to understand the archival holdings and history of each wreck outlined in the brief. The report includes detail on archival material and the history of all 15 high and low priority wrecks outlined within the brief (DoE 2014). Assessments of significance have been conducted for high priority wrecks, however not enough data was available in order to conduct meaningful assessments of significance for the low priority wrecks and therefore no formal assessment of their significance has been undertaken.

2. METHODOLOGY

2.1.1. Archival holdings are extensive for shipwreck remains dating to the First World War. The holdings are also varied depending on the particular form, use and loss of the vessel in question. Due to the extent and complexity of the sources available, research which has been conducted for the production of this report has not been exhaustive and some sources have not been accessed. Rather, information has been sought in order to inform details of the built form, use, loss, survival and investigation for each vessel. Primary research was conducted for each of the wrecks stipulated within the brief (DoE 2014). Archival material for each vessel is listed in the respective sections for each wreck within this report. This information was supplemented by details from published material and diver accounts of the wreck sites (available online), however the primary focus has been the archival holdings.

2.2. Sources: Existing databases

2.2.1. In order to scope archival holdings it was first necessary to establish a baseline of known information for each wreck from readily available sources. These sources included the existing data held by the Centre for Maritime Archaeology (CMA) and the United Kingdom Hydrographic Office (UKHO). Searches for the data held by these repositories were conducted in December 2014. The data was supplied as GIS shapefiles and, from the UKHO, a Microsoft Access database. The shapefiles were accessed via an ArcMap 10 workspace set up to use the WGS84 coordinate system.

2.2.2. It should be noted that positional information and wreck identities presented in this report have been taken directly from the CMA and UKHO records. Further research may be necessary to confirm identities and positions of some wreck remains. Where information relating to these characteristics has been found during research conducted by this project, this is represented in the report. However, there has been no systematic effort to assess the positional information or basis for identification of the wreck remains as part of this project, as these issues are beyond the project scope.

2.3. Archival material

2.3.1. From these sources it was possible to collate a number of key details about each of the vessels. The name of the vessels were supplied within the CMA dataset, however former names of the vessels had to be ascertained as did Official Numbers. Additionally basic details of the vessels including their type, and build and loss dates were also collated. These details are of importance when searching archive catalogues.

2.3.2. The primary archival sources considered were those held by:

- The National Archives (Kew);
- The National Maritime Museum;
- Deutsches U-Boot-Museum;
- Glasgow University Archives; and
- Merseyside Maritime Museum Library and Archive.

2.3.3. Additionally attempts were made to identify the shipbuilder responsible for the construction of each vessel, with a view to establishing whether any archives may survive with details of the vessels as built. This included archives of individual shipbuilders, and wider collections of archival material of this type (such as the shipbuilding collections held

by the Glasgow University Archive and Merseyside Maritime Museum). Contact was also made with other institutions including the Royal Navy Submarine Museum, and, for the *Santa Maria*, with individual researchers from other countries who provided advice on archival material and sources for that vessel (Lewis, W. *pers. comm.*, 2015).

2.3.4. These repositories hold a wide range of archival material and documentation relating to WWI vessels. As the National Maritime Museum (NMM 2011) note, there can be extensive archival collections relating to merchant vessels, and this information can be scattered between many repositories dependant on the particulars of the vessel in question. Key sources include:

- Certificates of Registry compiled by the Board of Trade and containing detailed information on the built-form of the vessels, in addition to later alterations. The Merchant Shipping Act of 1854 gave powers to the Board of Trade relating to merchant ships, and necessitated the registration of all British Ships. Certificates of Registry stemmed from this and are held at the National Archives, Kew;
- Lloyd's Registers, kept since 1760. These registers give details of the vessels as built in addition to information relating to the owners of the vessel. Copies of the Lloyds Registers are held in numerous archives;
- Lloyd's Survey Reports. Dating from between 1834-1968 these records include physical details of the ships, including plans for some vessels. These surveys led to the classification of ships referred to within the Lloyds Register. Thus where the Lloyd's Register includes a classification, this is an indication that the ship has been surveyed. Indexes and survey reports are held at the National Maritime Museum. The indexes are available as paper catalogues at the National Maritime Museum. These catalogues were accessed and the references for all surveys undertaken on each of the ships (with the exception of a small, illegible, few) are detailed within this report. The indexes contain information on the name of the ship, its tonnage, year of build and place of build. Staff at the National Maritime Museum indicated that for the majority of vessels only one survey was archived, and this was usually the first survey;
- Company/ Fleet history. Histories of shipping companies often exist, with details of specific vessels;
- *Service List: List of vessels engaged for Naval, Military and Commercial purposes with details as to dates of entry and discharged, rates of hire etc.* compiled by the Shipping Intelligence Section of the Ministry of Shipping (1921) comprises a list of all vessels engaged for military, naval and commercial purposes, including British and Foreign merchant vessels, during WWI (Shipping Intelligence Section 1921). This list was accessed at the Caird Library at the National Maritime Museum.
- Convoy Records: *The System of Convoys for Merchant Shipping in 1917 and 1918* (bound with *Atlantic Trade Convoy Committee's Report, 6 June 1917*), published by the Admiralty and Ministry of Shipping and held by the National Maritime Museum. The National Archives at Kew also hold the surviving records of Allied convoys of the First World War.
- Ships logs, crew Lists and agreements. Agreements and crew lists often also contain integral logs giving details of ships and voyages (some are available online via the access to archives website supported by the National Archives at <http://discovery.nationalarchives.gov.uk/>), and ships logs for some vessels were accessed at the National Archives, Kew;

- *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918*. A facsimile of these records is held by the National Maritime Museum and provides information on the cause and circumstances of loss; and
- Lloyd's List. These lists detail movements of ships and any casualties or news, from 1734. Copies from 1779 are held at repositories including the National Maritime Museum and Merseyside Maritime Museum. During the period between 1917-1918 the *Overseas Shipping Intelligence* recorded the movements and casualties of vessels (not accessed).

2.3.5. For individual vessels there have also been found to be other sources in existence, dependant on the particular history of that vessel. Documentation relating to the War Risks Insurance of the *Florrieston*, for example, has been accessed at the National Archives Kew. Details of the archival material for each wreck are given in this report, on a wreck by wreck basis.

2.4. Online resources

2.4.1. There are also numerous online sources, many of which have been digitised from archival material, including the Lloyds Registers of which digital copies have been published online between the years 1764- 1901, and 1930-1945 (Lloyds Register 2014). The Lloyds Registers produced during WWI have not been digitised but copies are available at many records offices (e.g. the National Maritime Museum and Glasgow University Archives).

2.4.2. Records relating to German U-boats have also been made available online at u.boat.net (Helgason 1995-2015). While detailed archival holdings of many of the U-boats are held at the Deutsches U-Boot-Museum, details of the submarines and the ships sunk are all available on this website. The use of this website is advised by members of Deutsches U-Boot-Museum, in addition to their own website at www.dubm.de (P. Monte, *pers. comm.*, 2015).

2.4.3. The Mercantile Navy List is also available online. This List was published annually from 1849-1977 and includes details of British registered vessels in addition to summaries of the ship's details, owner, their ports of registry and official numbers. This information has been digitised on the CLIP website: <http://www.crewlist.org.uk/data/viewimages.php> (Owens 2005-2015).

2.4.4. Online databases for specific shipbuilding areas also exist, with details relating to the built form, use and loss of vessels built within that area. The websites <http://www.clydesite.co.uk/> and <http://www.clydeships.co.uk/> have, for example, been of particular use for informing understanding of Clyde-built vessels, of which there are numerous examples within the project dataset (Caledonian Maritime Research Trust 2015).

2.5. Assessing Significance

2.5.1. Significance of the shipwreck remains has been assessed with regard to the Protection of Wrecks Act (PWA), 1973, non-statutory criteria which takes account of the period, rarity, documentation, group value, survival/ condition, fragility/ vulnerability, diversity and potential of the wreck remains. Regard is also given to the Department of Environment's (Northern Ireland) Criteria for Scheduling Monuments, which includes the same headings as the PWA criteria.

2.5.2. The Build, Use, Loss, Survival, Investigation (BULSI) framework is also used as a baseline for which to offer observations regarding the significance of marine heritage assets

- (specifically shipwrecks), with reference to the PWA 1973 criteria. These details have been taken into consideration when conducting the assessments of significance, and have been used to structure the sections of the report which cover the history of each vessel/wreck.
- 2.5.3. In assessing significance reference has also been made within this report to specific studies which inform understanding of the particular importance of 20th-century shipwrecks. The dominance of mid-19th to mid-20th century wrecks within the archaeological record has been observed across Britain, and has formed the focus for the project *Assessing Boats and Ships 1860-1950*, which, while dealing specifically with wrecks in English waters (Wessex Archaeology 2011) can also provide contextual information for understanding wrecks elsewhere in the UK. This project has been used to aid understanding and assessment of the relative importance of shipwreck remains from a period of rapid change and development in the history of shipbuilding.
- 2.5.4. The project identified a series of specific criteria for consideration of the importance of wrecks of this period, which reflects the complexity of the wreck resource over this period (Wessex Archaeology 2011). *The special interest of boats and ships of 1860-1913 [...and 1914-1938...] is likely to be multi-faceted. 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** (emphasis added);*
 - *Represent a distinct and tangible link to significant persons or events, for example association with famous (or infamous) naval battles or campaigns;*
 - *Be representative of significant loss of life or related responses in seafaring safety;*
 - *Have made a distinct cultural contribution;*
 - *Have a current relevance or parallels (Wessex Archaeology 2011a-b:iii; 2011c:v)*
- 2.5.5. In addition to these factors, the rarity, representativeness, diversity, survival, setting and context of the wrecks are also noted as considerations (Wessex Archaeology 2011). These frameworks and studies have been used within the assessment of the significance of the WWI wrecks within Northern Irish waters.
- 2.5.6. The assessments of significance undertaken here represent the current understanding of the significance of the wreck remains. Due to the desk-based, archival, focus of this research numerous factors taken into account when assessing significance have not been the primary focus of this work (such as the survival and fragility of the wreck remains). Thus the assessments of significance given here represent the first step toward understanding the significance of the wrecks, to which more detail may be added, and a better understanding developed through further investigation of the wrecks.
- 2.5.7. Assessments of significance in terms of the PWA non-statutory criteria have been carried out for the high priority vessels. These wrecks have formed the focus for archival research and thus a greater body of evidence on which to base assessments of significance has been collated. The report has been structured in order to draw out the BULSI histories of each wreck. This structure has been adhered to for high and low priority wrecks alike, in order that even for low priority wrecks, significance, based on current evidence, can be

understood within the BULSI framework. The structure will also allow future assessments to build on the information presented here.

3. WORLD WAR I IN NORTHERN IRISH WATERS

- 3.1.1. *'The possibilities of the submarine as an offensive weapon came...as somewhat of a surprise to both sides after the commencement of the war in 1914'* (Jellicoe 2003: vii). The submarine had a major impact on WWI maritime warfare not only in terms of the vast numbers of ships lost, but also due to the influence these weapons had on naval tactics and strategy.
- 3.1.2. Many of the wrecks off the coast of Northern Ireland (and Britain as a whole) are testament to the impacts of submarine warfare during WWI, and large numbers comprise merchant vessels lost to Unrestricted Submarine Warfare (Jellicoe 2003). The unrestricted U-boat campaigns of 1915 and 1917 demonstrated the problems of defence of merchant shipping and the danger this posed to Britain (Lloyd 1975, 102). In April 1917, 'one out of every four vessels leaving the United Kingdom was sunk, the greatest loss rate in history' (*ibid*).
- 3.1.3. The U-boat threat was particularly felt in areas which saw concentrations of allied ships, such as the Western Approaches through which most of the shipping to and from the United Kingdom passed. Of particular relevance to the wrecks considered here were the north-western approaches, which saw movement to large shipping and shipbuilding centres such as the Clyde, Belfast and Liverpool, via the North Channel which passed between Northern Ireland and south-western Scotland. The large numbers of wrecks within this area, including 60 known WWI wrecks within Northern Irish waters and specifically those within the project dataset, demonstrate submarine activity and focus in this area.
- 3.1.4. 'Safe channels' were supplemented by use of the convoy system, which had been reinstated by the Royal Navy from 1914, and came into systematic and regular use from June 1917, following the resumption of unrestricted submarine warfare in spring of that year. A number of the wrecks under consideration within this report were travelling as part of convoys at the time of their loss. Other wrecks lost under such circumstances are known within Northern Irish waters such as the HMS Drake which had been escorting an inbound convoy HH24 from America (Wessex Archaeology 2006), and was lost off Rathlin Island. This wreck is associated with vessels within the dataset, such as the *Lugano* which had been travelling within the same convoy.
- 3.1.5. While convoy systems were used to great success, other anti-submarine activities were deployed, included minesweeping and the installations of booms and anti-submarine nets to protect harbours, in addition warship developments which included new weapons such as depth charges and sonar. For minesweeping activities many trawlers were requisitioned, and 'between 1914 and 1918 Great Britain... requisitioned about 1400 trawlers and 1000 drifters for minesweeping and antisubmarine duties' (Tucker 2014: 180). As these measures were developed, the Royal Navy relied on the use of small craft manned by local fishermen, the Royal Naval Reserve (RNR), Royal Naval Volunteer Reserve (RNVR) and Mercantile Navy for defence (Jellicoe 2003).
- 3.1.6. In addition to trawlers (such as the *Rose II*, discussed within this report) other vessels were also requisitioned by the Admiralty for wartime activities. Other ships which were not hired or requisitioned were subject to War Risks Insurance, also affected by the submarine warfare: 'the Board of Trade...state(d) that in August 1917 in consequence of the heavy losses sustained by the Government Insurance Scheme through the intensified submarine

campaign a radical alteration was made in the Government Insurance Scheme and a considerable increase made in the rates of premium payable in respect of all voyages within the danger zone' (National Archives, Kew, MT 9/1373).

- 3.1.7. The wrecks considered within this report can be understood in the context of these wider events, and in particular with reference to the events and developments associated with submarine warfare and the Unrestricted Submarine Warfare from 1917.

4. HIGH PRIORITY VESSEL: SANTA MARIA

4.1. Introduction

4.1.1. A wreck which lies at 55.23638, -6.1632 (WGS84 decimal degrees) has been identified as the remains of the *Santa Maria* (ex. *Minnetonka*), (Figure 1).

4.2. Location

4.2.1. The position given above reflects that given by the UKHO. The JIBS identified the probable remains of the *Santa Maria* at 55.23639, -6.163056. These positions correlate with one another, there being a sub 10m discrepancy which is not considered to be significant due to the dimensions of the recorded wreck remains, at 100m x 14m.

4.3. The wreck remains

4.3.1. The wreck remains lie at a depth of 60-64m and have been recorded as an anomaly measured at 100m x 14m x 10m. The wreck reportedly lies intact and on its side (UKHO 2014). The wreck may lie in two sections (JIBS, Irish Wrecks Online 1997).

4.4. Archival holdings and documents relating to the construction of the vessel

- 4.4.1. A number of different sources provide information on the details of the vessel as built:
- General Arrangement Plan. This plan is held at Bowling Green State University's Historical Collection of the Great Lakes (Lewis pers. comm., 2015). The plan shows the general arrangement of the *Santa Maria* (built as the *Minnetonka*), also published in the Marine Review (Cleveland, OH), 30 Jan 1902, p. 8;
 - Diagrams of the engines and boilers of the *Minnetonka* are published in the Marine Review (Cleveland, OH), 30 Jan 1902, p. 11;
 - Amidships section of the *Minnetonka* is published in the Marine Review (Cleveland, OH), 30 Jan 1902, p. 10;
 - The Marine Review, 1908. This journal reported on the details of the vessel prior to her launch;
 - American Marine Engineer, 1906. This note gives information relating to the conversion of the *Minnetonka* in 1906 to an oil tanker; and
 - American Marine Engineer, May 1906. This note gives information of the details of the conversion of the *Minnetonka*.
 - The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the *Minnetonka*. This list was accessed at the Caird Library.
 - Lloyds Surveys. A number of surveys were conducted on the *Minnetonka* (*Santa Maria*). Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Clv.6. (1273); Bos 419; NYK 4599; SF 0819; NYK 5385. These surveys had been conducted while the vessel was named *Minnetonka* (under index number LLY/IND/7). Following the renaming of the vessel to *Santa Maria* further surveys were conducted: Phil 1456; Bal 1175; PO 317, SFo1146, 1150, 1151, 1177, 1212, 1249, 1290, 1364, 1378, 1395, 1419, 1533, 1587, 1627, 1668, 1718, 1745, 1759, 1782; Sea 361; SFo1852, 1901, 2060, 2091, 2145, 2268, 2437; NNS 1184, 1691, NYK 1448 (under index number LLY/IND/8/1).

4.4.2. Additionally a number of online sources give details relating to the built form of the *Santa Maria*. These include the Great Lakes Maritime Database, Bowling Green State University Great Lakes Vessel Index Online and University of Detroit Mercy, Father Dowling Marine Historical Collection. Additionally an issue of *Marine Engineering* (volume VI) dated to November 1901 has an account of the launch of the *Minnetonka* (*Santa Maria*), as does the *Marine Review* (Vol XXIV) dated September 1901. The *Marine Record*, dated February 1902, also gives an account of the launch and splitting of the *Santa Maria*.

4.5. Documents relating to the use of the vessel

4.5.1. There numerous documents, primarily newspaper and journal articles, which provide information relating to the use of the *Santa Maria*. These include:

- *Marine Review* (16 October 1902) records the early life of the *Minnetonka*;
- *American Marine Engineer*, 1906. This note gives information relating to the conversion of the *Minnetonka* in 1906 to an oil tanker and gives details of the use of the *Minnetonka* prior to conversion;
- *San Luis Obispo Daily Telegram* (San Luis Obispo, CA), 2 October 1907, p. 8. This article gives an account of the departure of the *Santa Maria* from Port San Luis to San Francisco on October 2nd 1907;
- *San Francisco Chronicle*, 30 Nov 1907, p. 9. This article gives details of a fire which occurred on board the *Santa Maria* while carrying oil between the ports of Oleum and San Francisco in 1907;
- *San Francisco Chronicle*, 19 Feb. 1912, p. 13. This article gives details of storm damage incurred by the *Santa Maria* in 1912;
- *San Luis Obispo Daily Telegram* (San Luis Obispo, CA), 3 June 1912, p. 1. This article gives an account of an event in which the *Santa Maria* nearly beached, close to its anchorage;
- *San Francisco Chronicle*, 29 Jan. 1913, p.14. This article recounts that the *Santa Maria* ran aground in fog in 1913 off Port Townsend;
- *Seattle Daily Times*, 29 Nov. 1913, p. 2. This article gives details indicating that the *Santa Maria* ran aground on a Hawaiian Island in November 1913;
- *San Francisco Chronicle*, 20 Dec 1915, p. 13. This article details new ships working alongside the *Santa Maria* in 1915;
- *Seattle Daily Times*, 1 Jan 1917. This article indicates that the *Santa Maria* damaged her propeller in 1917 and underwent subsequent repairs;
- *San Francisco Chronicle*, 18 Jan 1917, p 15. This article is a short note indicating change in ownership of the *Santa Maria*; and
- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the wartime use of the *Minnetonka*. This list was accessed at the Caird Library.

4.6. Documents relating to the loss of the vessel

4.6.1. Short descriptions and details of the loss of the vessel can be found here:

- *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library);
- San Francisco Chronicle, 28 Feb 1918, p 4. This article recounts the loss of the *Santa Maria* off Ireland; and
- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the loss of the *Minnetonka*. This list was accessed at the Caird Library.

4.6.2. There are also web resources which provide information on the loss of the vessel, including online at uboat.net (Helgason 1995-2015). The circumstances of the loss of the *Santa Maria* can also be informed by records from the submarine responsible for the sinking of the vessel (U19). Additionally the UKHO gives details of the circumstances in which the vessel was lost. These details indicate that the *Santa Maria* had separated from a convoy in a gale when she was torpedoed by U19 in February 1918. Records of Atlantic Convoys between January- February 1918 were accessed in the National Archives (Kew), (Reference ADM 137/1428). Although a number of convoys were in operation during this period no specific reference to *Santa Maria* was found. However, convoy records are extensive and there was not time to review all of the records in detail from this period, thus further research into these records may prove fruitful.

4.7. Documents relating to the survival of the wreck

4.7.1. As with all wrecks the survival of the remains relates in part to the circumstances in which the vessel was lost, and thus documents relating to this matter (outlined above) inform the baseline for survival at the point of loss.

4.7.2. Other sources which provide information on surviving wreck remains include:

- The UKHO, which forms a key source of data for assessing the survival of the wreck, and details held within the Wrecks and Obstructions database are particularly relevant; and
- JIBS which records the seabed remains of the *Santa Maria*.

4.7.3. Other, post-loss factors affecting the survival of the vessel relate to the environment of the site, and although the full range of factors affecting the deterioration of metal wrecks, and interplay between these factors, is not properly understood, there are a number of elements known to affect their survival. These include the nature of the seabed (Muckelroy 1978: 162-163) and factors which specifically affect metal wrecks such as corrosion, related to physical and chemical parameters including water depth, tidal flow, water salinity and oxygen concentration. Information relating to these factors can be gathered from geological publications, geophysical surveys and diver accounts, and applied to specific wreck sites including the *Santa Maria*.

4.7.4. No salvage records are known, however divers have removed the builders plate which gave the name and details of the vessel (this is recorded by the UKHO). It is possible that further casual recoveries have been made by divers.

4.8. Documents relating to the investigation of the wreck

4.8.1. Documents relating to the investigation of the wreck comprise geophysical surveys conducted by the UKHO and JIBS. Divers are also known to have visited the wreck and the UKHO record information from some of these diver visits. Additionally information from divers is available online:

- Stevens, J. n.d. provides information on the wreck, available at: http://www.divernet.com/Travel_Features/157003/invasion_of_the_goody_snat_chers.html
- Irish Wrecks Online.net (1997) also provides details of the wreck, available at: <http://www.irishwrecksonline.net/details/SantaMaria684.htm>
- a video of the wreck site (published by Dr Charles W on 28 November 2012) is accessible at: <https://www.youtube.com/watch?v=3t70Bjcv9Ts>

4.9. History of the Santa Maria

4.9.1. **Build:** The *Minnetonka* (Official Number 93224, Hull Number 407), later to become the *Santa Maria*, was built by the American Shipbuilding Co. in Cleveland, Ohio. The vessel was launched in 1901 and reports indicate that the vessel was taken to the seaboard, via the Welland and St Lawrence river canals, in two parts (Marine Review 1901: 1; Marine Review 1902: 9) having been cut in two in one of the dry docks and her bulkheads adjusted (Marine Record 1902: 3). Her sister ship, *Minnewaska*, was to undergo the same treatment. At the time of her launch Charles E. and W. F. Peck of New York were the principal stakeholders in the American Navigation Co., the company who had ordered the vessel and were to own and operate the *Minnetonka* and her sister ship (Marine Review 1901: 1). The vessel was intended for transatlantic service (Marine Engineering 1901: 481).

4.9.2. The dimensions of the ship were 430ft x 43.58ft x 33ft (Great Lakes Maritime Database). The vessel had a capacity of 7000 tons dead weight (Marine Review 1902: 10), and was classified as a bulk freighter when built (Great Lakes Maritime Database).

4.9.3. *Machinery, propulsion and specifications:* The vessel was steel hulled, and propelled by a triple-expansion direct-acting vertical engine with three cylinders (Marine Review 1902; University of Detroit Mercy Father Dowling Marine Historical Collection). Plans of the engines and boilers are shown in the Marine Review article (Marine Review 1902: 11), and indicate that the vessel had 4 main Scotch boilers, in addition to a donkey boiler which powered the cargo winches (Marine Review 1902: 11). *Minnetonka* had two funnels (Marine Review 1902). The ship was fitted with a single cast iron propeller, 18ft 6inches in diameter with four, removable, blades (Marine Review 1902: 11). The ship was fitted with electric lighting.

4.9.4. *Internal arrangement:* The captain's accommodation within the ship was located within the deck house situated on the bridge deck and included a chart room, bed room, stairway and dining room (located on the upper deck). At the forward end of the bridge house on the upper deck were rooms for officers, engineers, stewards and petty officers. Other quarters were located on the main deck around the engine room.

4.9.5. *Equipment:* The ship was fitted with four steel pole masts fitted with derrick beams, and two shorter derrick masts. Nine double-cylinder steam winches are recorded in the specifications, fed by a large donkey boiler situated on the upper deck amidships in the bridge house (Marine Review 1902).

- 4.9.6. **Rebuilds:** In 1906 the name of the vessel was changed to the *Santa Maria*, and she was converted from a bulk to a tank vessel capable of carrying 55,000 barrels of oil. A special feature of the vessel's conversion is noted in the *American Marine Engineer*, which states that alterations were made such that the vessel could use oil as a fuel instead of coal, and that burners were fitted to this end (*American Marine Engineer* May 1906). A change in tonnage is also recorded in 1916 when the gross tonnage was increased from 5318 tons to 5383 tons (*Great Lakes Vessels Online Index*).
- 4.9.7. **Use:** *Minnetonka* was built as a tramp steamer, however at the time of her completion demand for use of such vessels was noted to be in decline, and there are reports that the *Minnetonka* lay unused for months at a time (*Marine Review* 16 October 1902). Suggestions were made that the steamer may have been used in the transportation of wheat, grain or flax, but it is unclear if the vessel was put to this use (*Marine Review* 16 October 1902). Indeed, it appears unlikely as a note in the *American Marine Engineer* which appeared in 1906 indicated that both the *Minnetonka* and her sister ship had been laid up in Brooklyn, New York, for two years as the overseas trade for which the tramp steamers were built was not profitable. The note also details the conversion of the ships to tankers intended for service on the Pacific coast. The *Minnetonka* was renamed *Santa Maria* in this year.
- 4.9.8. Over her lifetime the ship had a number of owners. The changes in ownership reflect the dates of rebuild and change to tonnage noted above:
- American Navigation Co., New York (1902-1905) (registered USA, Port Duluth);
 - American Shipbuilding Co. (1905-1906) (registered USA, Port Duluth);
 - Union Oil Co. (1906- 1917) (registered USA, San Francisco and from 1908 New York); and
 - Sun Oil Co. (1918) (registered USA, Philadelphia).
- 4.9.9. In 1907 the San Luis Obispo Daily Telegram reported that the ship, owned by the Union Oil Company at that time, had departed Port San Luis for San Francisco with 50,000 barrels of oil. Later that year a fire is reported to have taken place on board the vessel, while en route from Honolulu to San Francisco. Reports suggest that one of the burners back-fired causing the ignition of oil in the fireroom bilges. Details suggest the boilers were leaking and the condenser in need of repair prior to this incident, and repair works were undertaken at sea (*San Francisco Chronicle* 1907). Further damage to the ship is reported in 1912, when she was caught in a storm this time en route to Honolulu. The storm caused damage to the decks, destroyed two lifeboats, carried away two ventilators, smashed windows in the wireless house and brought the aerial masts down. A report from June of that year suggests the ship almost beached, near to its point of anchorage (*San Luis Obispo Daily Telegram* 1912), and in January 1913 the vessel did run aground in thick fog. The vessel was carrying 52,560 barrels of oil at the time, and 5000 had to be removed for the vessel to be re-floated (*San Francisco Chronicle* 1913). The tanker ran ashore again in November 1913, and it was necessary to jettison cargo (*Seattle Daily Times* 1913).
- 4.9.10. Between 25th February 1915 and the 30th January 1918 the vessel was used as an Expeditionary Force Transport ship (No. C. 1680), and transported troops to the Mediterranean and Mesopotamia. The Service List indicates that during this time the *Minnetonka* was associated with the Atlantic Transport Company Ltd (*Shipping Intelligence Section* 1921).
- 4.9.11. A newspaper article dated to 1917 indicates that the Mexican Petroleum Company had purchased the *Santa Maria* as part of an expansion of their fleet of tankers (*Seattle Daily*

- Times 1917). However, other sources do not record this ownership and it is possible that the sale did not occur as in 1918 an article indicates the Union Oil Company sold the tanker to the Sun Oil Company (San Francisco Chronicle 1917).
- 4.9.12. A repair also appears to have been necessary for damage caused to the ship's propeller in 1917. A newspaper article noted that the vessel struck submerged wreckage and that one of the removable blades would have to be replaced (Seattle Daily Times 1917).
- 4.9.13. **Loss:** Lloyds War Losses 1914-1918 indicate that the *Santa Maria* was en-route from Philadelphia to Glasgow in 1918 with a cargo of oil fuel (the UKHO indicate the route was Chester-Clyde), and online sources record that on this voyage she was torpedoed by U19 off Loch Swilly, North Channel at 55° 14'N, 6° 19'W, on 25th February (Helgason 1995-2015). This position is in accordance with that recorded in Lloyds War Losses. The UKHO indicate that she may have been part of a convoy at that time, but became separated from the other vessels during a gale, however no corroborating evidence for this has been located. Newspaper reports indicate that the crew were saved (San Francisco Chronicle 1918). The UKHO indicate that the cargo of the *Santa Maria* was 6597 tons of oil.
- 4.9.14. A point of particular interest as regards the loss of the *Santa Maria* was that the same German submarine responsible for the sinking of that vessel (U19), also sunk the *Tiberia* a day later. The *Tiberia* is discussed in detail below.
- 4.9.15. **Survival:** The *Santa Maria*, lost by torpedo fire, is likely to exhibit some associated damage. The UKHO indicates that the wreck survives intact, lying on its side. There is no scour reported around the wreck. Some diver sources indicate that the wreck lies in two sections (Irish Wrecks Online 1997), one of which lies at 30m and the other at 60m at the bottom of a cliff. The JIBS also indicates that the vessel is broken in two, and lies on its side. It is possible that this represents the torpedo damage to the vessel.
- 4.9.16. Diver accounts indicate that the vessel is largely intact and features such as the propeller survive on the wreck site (Stevens n.d.). Video on wreck site shows substantial remains surviving (DrCharlesW 2012), and debris, hull structure, plating and individual rivets are visible, relatively uncorroded.
- 4.9.17. The builder's plate, with the name and details 'American Ship Building Co., Cleveland, Ohio, No 407, 1901' has been recovered.
- 4.9.18. **Investigation:** The investigation of the wreck of the *Santa Maria* has thus far included geophysical survey and recreational diver visits. Surveys by the UKHO have been conducted and the surveying details give the following detail:
- A note dated 26.02.1918 reports the sinking of the vessel abreast of Albacarry Head, position 551400N, 060920W (approximate). In 27.04.1918 it was noted that the UKHO did not know whether the wreck was a danger to navigation.
 - A survey dated 03.03.1964 found no evidence of the wreck during a general sonar search of the area
 - A note dated to 16.10.1974 records a position reported by Risdon Beazley Marine as 551400N, 060900W
 - A note dated to 29.01.1985 indicates that the wreck was not found;
 - In 28.10.1987 the wreck was located at 541412N, 060942W using Decca. The least echosounder depth was approximately 45m. The vessel reportedly lies on her side, and her builders plate giving name and detailed 'American Shipbuilding Co. Cleveland, Ohio, no 407, 1901' was recorded.

- A note dated to 14.06.2009 indicates that the wreck was located at 5514.183N, 0609.792W [WGD] using dGPS. The least depth over the wreck, recorded by Multibeam, was recorded as 46.63m in a general depth of 62m. No scour was observed. The length of the anomaly is recorded as 141.4m, width 22m and height 15.04m. The wreck reportedly lies at 099/279 degrees and is a strong magnetic anomaly representing an intact wreck.

4.10. Assessment of Significance of the *Santa Maria*

- 4.10.1. **Period:** The *Santa Maria* was built as a tramp steamer. While providing an assessment of wrecks in English waters the project *Assessing Boats and Ships 1860-1950* provides a point of comparison for assessing wrecks of this period within UK waters. This project identified tramp steamers as representative for the period 1860-1913 (Wessex Archaeology 2011: iv). Thus in terms of its built form the *Santa Maria* holds period value.
- 4.10.2. The loss of the vessel, due to submarine action, is also of relevance for understanding the period value of this wreck in terms of its historic and military contexts. The vessel was lost on the 25 February 1918, after the resumption of unrestricted submarine warfare in spring 1917. Association with the unrestricted submarine warfare has been highlighted as a particular facet of interest for wrecks of this period (Wessex Archaeology 2011 a, b), and thus in this regard the *Santa Maria* also holds period value.
- 4.10.3. **Rarity:** Steamships are not rare, and tramp steamers are considered representative. The vessel dates to the 20th century, and large numbers of wrecks date from this period. *Assessing Boats and Ships 1860-1950* records 332 cargo ships and 3 tankers from the period 1860-1913 and thus in the latter category the *Santa Maria* may represent a relative rarity (Wessex Archaeology 2011).
- 4.10.4. **Documentation:** There are a relatively large number of sources detailing particularly the built-form (including plans of the ship and internal machinery, as might be expected for a vessel of this type) and use of the vessel, and documentation also records the loss of the *Santa Maria*. Survival and investigation are less well documented, but still sufficient to understand the wreck remains in part. Additionally the loss of the vessel during World War I places it within a very well documented context.
- 4.10.5. **Group Value:** The *Santa Maria* can be considered to fall within a number of different groups. Geographically the wreck lies close to Rathlin Island, where numerous wrecks, including other wartime wrecks such as HMS *Drake*, are known. However, the *Santa Maria* has no specific relationship to these wrecks, although like the HMS *Drake* and *Andania* nearby, the vessel was sunk by submarine action.
- 4.10.6. Other vessels lost within WWI form part of the wider group in which the *Santa Maria* sits.
- 4.10.7. **Survival/Condition:** Sources indicate the wreck is largely intact (although may be extant in two sections). Diver footage of the wreck indicates little corrosion, however more detailed assessments would be necessary to confirm this as the video to which is referred (DrCharlesW 2012) gives only close-up shots of the wreck from which it is difficult to understand the overall picture in terms of survival/ condition. Debris and twisted wreckage is visible in the footage, although geophysical surveys indicate the vessel is largely intact suggesting that the break up may be relatively superficial. Overall it appears that the wreck of the *Santa Maria* may survive in good condition.
- 4.10.8. **Fragility/Vulnerability:** Natural decay is likely to affect the wreck remains, however from diver footage of the wreck this decay may be minimal at present (although, as noted

above, more detailed assessments would be necessary to confirm this). Additionally divers are known to visit the site, and in the past have recovered objects from the ship, including the maker's plate (important for the identification of the wreck). However, the site is relatively deep and is known to be a dangerous dive on which there have been diver fatalities (BBC 10 July 2004). Thus, on the basis of present knowledge, it appears that the wreck remains may not be particularly fragile or vulnerable. However, more research is needed to better inform this category, and divers report strong currents in the area which may affect the remains.

- 4.10.9. **Diversity:** Built as a tramp steamer the *Santa Maria* is considered representative of the period in which it was constructed. The wreck may have additional value in terms of its diversity due to its conversion from tramp steamer to an oil tanker (rarer in the resource). These factors have been considered in the rarity and period sections and thus should not be counted again here. In terms of the hull material, engines, boilers and methods of propulsion the ship falls within the typical patterns of wider trends. Steel became a common hull material in the 1880s (Wessex Archaeology 2011: 38), the triple-expansion engine came into use in 1874 and the Scotch boiler in 1862, and propellers had been used since the 1830's (English Heritage 2012; Robins 2014; Wessex Archaeology 2011: 36). However, there may be additional aspects of the vessel's form which indicate diversity value with regard to technological innovation. The conversion of the vessel to use oil as a fuel in 1906 represents a relatively early example of this feature. Although the idea was first raised in the 19th century it was not feasible at that time, and only became common during the First World War, and following the adoption of the fuel type by the British Admiralty for its military vessels in 1913. This facilitated a supply system which could then be used commercially at the close of the war (Sheard 1998:144). The *Santa Maria* therefore represents an early example of the use of oil as fuel.
- 4.10.10. **Potential:** If features such as the oil fuel systems are present on the wreck site this may be of value, however their existence is not yet proven in the seabed remains. The site also has potential to improve understanding of wreck formation and preservation processes. At present the state of the oil cargo which the *Santa Maria* is thought to have been carrying is unknown, further research and on-site investigation may throw light on this.

5. HIGH PRIORITY VESSEL: ANDANIA

5.1. Introduction

5.1.1. A wreck which lies at 55.32588, -6.21345 (WGS84 lat. Long, decimal degrees) has been identified as the probable remains of the *Andania* (Figure 1).

5.2. Location

5.2.1. The position given above reflects that recorded by the UKHO, and the Joint Irish Bathymetry Survey (JIBS). The remains of the wreck, thought to be the *Andania*, are reported as being clearly visible on the JIBS multibeam data.

5.3. The wreck remains

5.3.1. The wreck remains lie at a depth of 189m and have been recorded as an anomaly measured at 160 X 39 X 13.3m. The wreck is thought to be intact.

5.4. Archival holdings and documents relating to the construction of the vessel

5.4.1. A number of different archival sources provide information on the details of the vessel as built (e.g. Figures 2-3). These include records of the shipbuilding company, in this case Scott's Shipbuilding and Engineering Co. Ltd, held at Glasgow University Archives. The ships owners, Cunard Line, also had ships plans, now held at the Maritime Archives and Library at Merseyside Maritime Museum. These records include a series of detailed drawings and plans of the ship's hull:

- General arrangement. This comprises a plan showing the general layout of the T.S.S *Andania* and *Alaunia*, with vertical and horizontal sections (Reference: GD319/16/40/1) held at Glasgow University Archives;
- Midships section. This shows details of the midships section of the ship including detailed construction details relating to rivets, framing, plating etc., and includes information relating to equipment such as anchors and chains (Reference: GD319/16/40/2) held at Glasgow University Archives;
- Ships lines. The plan of the lines of the ship contains information relating to the frames, lines of tank, rise of the floor line, deck lines, bilge diagonal etc. along a series of planes which intersect the ships hull (Reference: GD319/16/40/3) held at Glasgow University Archives. A plan showing the ships lines is also held at Merseyside Maritime Archive (Reference B/CUN/8/1913.5/4/1);
- Details of pumping and drainage. This holding contains a large plan and section of the ship showing the layout of the pumping and drainage systems as they relate to the internal layout of the ship. The plans also contain details of ballast and tonnage (Reference: GD319/16/40/4) held at Glasgow University Archives. A plan showing the pumping arrangement is also held at Merseyside Maritime Archive (Reference B/CUN/8/1913.5/3/3, see Figure 3);
- Capacity profile. This shows a section of the ship with details of its capacity, and showing internal arrangements (Reference: GD319/16/40/5) held at Glasgow University Archives;
- DW scales. Shows scales and waterlines (Reference: GD319/16/40/6) held at Glasgow University Archives;

- Hydrostatics. Trim and stability. This plan shows the layout of the ship with notes relating to the tonnage of different material (including food and coal stores, passengers, cargo etc.) held in different compartments. Reference is also made to the conditions on departure and arrival (Reference: GD319/16/40/7) held at Glasgow University Archives. A plan showing the trim and stability details is also held at Merseyside Maritime Archive (Reference B/CUN/8/1913.5/3/5);
 - Displacement scales. Shows the displacement scales for *Andania* and *Alaunia* (Reference: GD319/16/40/8) held at Glasgow University Archives;
 - Sectional Profile. Shows a detailed section of the length of the ship, including internal layout (Reference B/CUN/8/1913.5/3/2) held at Merseyside Maritime Archive (Figure 2);
 - Shell expansion. Shows detailed plans relating to the construction of the hull with details of the plating and connections (Reference B/CUN/8/1913.5/3/1 and B/CUN/8/1913.5/1/1) held at Merseyside Maritime Archive;
 - Metacentric diagram. Details of load of the ship in different conditions (e.g. departure in ballast), (Reference B/CUN/8/1913.5/3/4) held at Merseyside Maritime Archive;
 - Deck plans. Plans of A-F decks (References B/CUN/8/1913.5/2/1, B/CUN/8/1913.5/2/3, B/CUN/8/1913.5/2/6, B/CUN/8/1913.5/2/1, B/CUN/8/1913.5/2/10, B/CUN/8/1913.5/2/9, B/CUN/8/1913.5/2/8 respectively), including a plan of C deck and WT Flat Aft (B/CUN/8/1913.5/25), the boat deck and flying bridge (B/CUN/8/1913.5/2/2) and the hold (B/CUN/8/1913.5/2/4) all held at Merseyside Maritime Archive;
 - Double bottom. Plan of the double bottom of the ship (B/CUN/8/1913.5/2/7) held at Merseyside Maritime Archive; and
 - Lloyds Surveys. A number of surveys were conducted on the *Andania*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Sld 18969; Rot 2071; Nwc 33465; Eba 501; Liv 46084; Syd 969, 1065, 1079, 1204; Hul 14504, QNS 2692, Rot 3524a (under index number LLY/IND/5).
- 5.4.2. Also held at Glasgow University Archive were detailed specifications and agreements between the Cunard Line Steamship Co. and Scott's Shipbuilding and Engineering Co. Ltd for the commission and construction of the *T.S.S Andania* and her sister ship, the *Alaunia* under the reference GD319/13/60. These specifications and agreements provide a complex insight into the contract commissioning the construction of the ship, and also the specifications to which she was required to be built.
- 5.4.3. The Glasgow University Archive also holds photographs of the *Andania*, under the references GD319/19/2/22/1; GD323/3/12/16/38-47; GD323/3/13/1/446. These photographs could inform understanding of the details of the *Andania* as constructed and could also provide information relating to the use of the vessel. Numerous photographs of the ship are also available online, for example at <http://www.clydesite.co.uk/clydebuilt/viewgal.asp?id=487>.
- 5.4.4. Other archives also hold information relating to the details of the *Andania* as built. The particulars of the ship are listed on the Certificate of British Registry, held at the National

Archives, Kew, (Reference BT 110/239/8) and the Lloyds registers also hold information relating to the construction of the ship.

5.5. Documents relating to the use of the vessel

- 5.5.1. There are fewer sources which deal with the use of the vessel. However, a number of those detailed above do have the potential to inform this aspect of the ship's history. In particular, plans detailing the general arrangement of the ship, the capacity profile, the sectional profile, hydrostatic plans and pumping and drainage plans all give indications as to the anticipated internal functions of the ship. Details such as where the linen was stored, and provisions for second and third class passengers all inform the use history of the ship. Additionally the registered details of the ship give an indication as to its ownership, and stamps on the reverse of the certificate record the ship's masters.
- 5.5.2. The major source which relates to the use of the vessel are the ships logs. The National Archives, Kew, hold the official log books of the *Andania* from 1916-1917, under the reference BT 165/1729. These records give details of the vessel's voyages across the North Atlantic in these years.
- 5.5.3. Southampton Archives also hold crew lists and ships agreements relating to the *Andania* for voyages passing through Southampton (for example from London to Montreal via Southampton) under reference DCrew/135481. Passenger lists, held at the National Archives, Kew, also relate to the use of the vessel (e.g. BT 26/633/14, 26, 57) and date to 1916. They detail the passengers embarking, for example at New York on the 2nd June 1916, having travelled from London.
- 5.5.4. The records of the shipping company, the Cunard Line, who owned the *Andania*, and were responsible for its operation from its construction to its loss, also hold records relating to the use of the vessel. In addition to archival sources Archibald Spicer Hurd's *A Merchant Fleet at War*, published in 1920, gives information relating to the wartime uses of the vessel. The publication by Duncan Haw (1979), *The Ships of the Cunard, American, Red Star, Inman, Leyland, Dominion, Atlantic Transport and White Star Lines* also provides detail relating to the *Andania*.
- 5.5.5. The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the wartime uses of the *Andania*. This list was accessed at the Caird Library.

5.6. Documents relating to the loss of the vessel

- 5.6.1. Short descriptions and details of the loss of the vessel can be found in numerous places:
 - *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library); and
 - on the Certificate of Registry (National Archives, Kew, Reference BT 110/239/8);
- 5.6.2. More detailed documents exist in some cases. A newspaper article, published in the New York Times on February 14th 1918, reported on the sinking of the *Andania*, and provides contemporary details relating to the loss of the vessel. A Merchant Fleet at War also gives an account of the loss of the *Andania* (Hurd 1920).
- 5.6.3. The circumstances of the loss of the *Andania* can also be informed by records from the submarine responsible for the sinking of the vessel, and as the *Andania* was lost after she was struck by a torpedo fired by the U46, details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). War diaries may also be

available from the U46, and may be held by the Deutsches U-Boot-Museum, however this has not been verified.

5.7. Documents relating to the survival of the wreck

- 5.7.1. To some extent the survival of the vessel relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. Other, post-loss factors affecting the survival of the vessel relate to the environment of the site. Details regarding the environment of the *Andania* can be gleaned from geophysical surveys undertaken by the UKHO and JIBS.
- 5.7.2. In some cases salvage records exist, however no records of such activities have been located relating to the *Andania*.

5.8. Documents relating to the investigation of the wreck

- 5.8.1. Documents relating to the investigation of the wreck, in the case of the *Andania*, comprise geophysical surveys conducted by the UKHO and JIBS. The depth of the wreck, at 189m, means that any other form of investigation is unlikely to have occurred and no documents relating to the investigation of this wreck, other than using geophysical surveys, have been located.

5.9. The history of the *Andania*

- 5.9.1. **Build:** The *Andania* was built in 1913 at Greenock by Scott's Shipbuilding and Engineering Company at yard 446, along with her sister ship, the *Alaunia*, to the commission of the Cunard Line Steam Ship Company. Specifications for the *Andania* and *Alaunia*, were laid out in document dating to December 1911, from the Naval Architects Office at Cunard. The following January a contract was drawn up stipulating that Scotts Shipbuilding and Engineering Company would build, launch and complete the ships for Cunard Steam Ship Company, and deliver them to the Canada or Huskisson Docks, Liverpool, 18 months from that date. The *Andania* was to be a Lloyds class 100A.1. Its ship hull number was 446 and its official number is 135481.
- 5.9.2. *Machinery, propulsion and specifications:* The specifications were for twin screw steamers for North Atlantic service, and indicated that the hull and machinery were to be built under special survey. The vessels were to be steel hulled, using steel of British manufacture, and their twin screws driven by two reciprocating quadruple expansion engines. The ship also had five steel cylindrical boilers. Both the boilers and the engines were of British manufacture. The Certificate of Registry also indicates that the *Andania* had two masts, fore and aft rigged. The steel hull was of clinker construction, and the stern was elliptical (BT 110/239/8). The overall tonnage of the ship is recorded as 13405 grt and the length is recorded as 520.3 ft., and breadth 64ft.
- 5.9.3. *Internal arrangement:* The *Andania* was constructed as a passenger-cargo liner, with provisions for 2nd and 3rd class passengers only. The specifications state that 'while sound materials and workmanship are essential, no elaboration is required' (GD319/13/60). These details are reflected in the ships plans and capacity profile (GD319/16/40/1 and 5) which show 2nd class accommodation areas on the shelter deck and bridge deck and provisions for 3rd class passengers below.
- 5.9.4. The ship included a boat deck, promenade deck, bridge deck, shelter deck, upper deck, main deck and lower deck, in addition to fore peak and after peak water ballast tanks. The ship had 21 water ballast tanks overall (BT 110/239/8). Coal stores, the engine room and boiler room are depicted on plans low down within the hull of the ship, with refrigeration

areas above. Stores and cargo holds are also depicted on plans situated around these areas, and the hospital area is depicted toward the stern of the ship (GD319/16/40/5).

- 5.9.5. *Fittings*: Internal wooden plating and wooden deck plating are depicted on plans (GD319/16/40/2), and a detailed description of the plumbing, interior fittings, panelling, rivets etc are given in the specifications (GD319/13/60).
- 5.9.6. *Equipment*: Particulars of the ship's equipment are detailed on a plan of the midships section. The equipment of the *Andania* was to include 2 stockless Bower anchors at 105 CWT, 1 stockless Bower anchor at 85 CWT, 1 Stream Anchor ex. Stock at 29 ½ CWT, 330 fathoms of 2 12/16" stud chain cable, 120 fathoms 6" stream wire, 130 fathoms 7" steel wire tow rope, 4 warps and hawsers of 120 fathoms each 8".
- 5.9.7. **Use**: The Cunard Line Steam Ship Company owned the *Andania* throughout her lifetime. The vessel was constructed as a passenger-cargo liner for North Atlantic service, and it was in this capacity that the *Andania* was primarily used. The vessel was registered to the Port of Liverpool, where the Cunard Line were based, and from this port the *Andania* carried 2nd and 3rd class passengers across the North Atlantic, to New York and to Canada, also travelling from other British ports including London and Plymouth.
- 5.9.8. Insights into these journeys, and the level of organisation behind them, can be gleaned from plans of the trim and stability (GD319/16/40/7). The departure and arrival conditions stipulate the following:

Condition on departure		Condition on arrival
Coal (permanent)	1665	The condition on arrival corresponds to that of departure with the exception that 200 tons of coal remain on arrival, and around ¾ of the stores and fresh water would have been consumed.
Coal (reserve)	1017	
Ships cold stores	100	
Deck	20	
Engineers stores	30	
Passenger and crew	150	
Baggage in rooms	30	
Baggage in holds	80	
Linen, upholstery, glass etc.	100	
Fresh water tanks	171	
...in double bottom	308	
Feed water tanks in double bottom	685	
Cargo forward and aft	500	
Total	4856 tons	

- 5.9.9. On her maiden voyage, on 14th July 1913, the *Andania* sailed from Liverpool to Southampton, then to Quebec and Montreal. During 1914 the vessel undertook 3 voyages on the Liverpool-Boston run. In March 1918 the *Andania* sailed alongside the *Alaunia* on the London-New York route.

- 5.9.10. For the majority of its life the *Andania* conducted North Atlantic journeys such as this. However, the Service List indicates that between 26 September 1914 and 27 October 1914 the vessel was used in Canadian Expeditionary Force Transport, which involved the transportation of Canadian troops. From 28th October 1914 to 23rd February 1915 the vessel was also used as a prison and accommodation ship (Shipping Intelligence Section 1921). The ship was one of a number of Cunard vessels which were briefly used to hold German Prisoners of War in the Thames. The others included *Ascania*, *Ivernia* and *Saxonia* (Hurd 1920: 41). The ships housed around 2000 prisoners each during this period. From 24th February 1915 to 26 March 1916 the *Andania* was used in Expeditionary Force Transport (Shipping Intelligence Section 1921).
- 5.9.11. Online sources also indicate that during 1915 the ship was also used to transport the Royal Inniskilling Fusiliers and Royal Dublin Fusiliers to Cape Hellers to Suvla as part of the Gallipoli campaign, however, it has not been possible to verify this piece of information (Wikipedia 2014).
- 5.9.12. The double bottom of the *Andania*, and a series of other Cunard ships, was put to use during the war and adapted for carrying oil instead of the water ballast for which the double bottom had been intended. It is recorded that the ships brought 2000 tons of oil each across the Atlantic, and that the Cunard Company were responsible for transporting 100,000 tons of oil in just over a year (Hurd 1920).
- 5.9.13. The ships logs give details relating to the use of the vessel. Those dating from between 1917 and 1918 indicate that the *Andania* had been returned to passenger service and operated with a crew of over 200 while passing between the ports of Liverpool, London, Halifax, New York and Malis (BT 165/1729).
- 5.9.14. **Loss:** The *Andania* set out from Liverpool on 26th January 1918, en route to New York on what was to be her last voyage. She carried general cargo, a crew of around 200 and 40 passengers, although some sources cite only 23 passengers (Lloyds War Losses; The New York Times 1918). The New York Times reports that at the time the *Andania* had been part of a convoy (The New York Times 1918). On 27th January 1918 the ship was hit by a torpedo from a German submarine, the U46, 2 miles NNE of Rathlin Island, North Channel at 55° 20'N, 6° 12'W. Lloyds War losses give the position '3 to 4 miles NNE (mag) of Altacarry LV' (Light Vessel).
- 5.9.15. Seven crew members were lost with the vessel, however all of the passengers and the ship's captain were safely rescued. The New York Times published an article on 14th February 1918, following the arrival of a British liner carrying 107 passengers from the *Andania* at an Atlantic port on the 13th February. The article gives insights into life aboard the vessel just prior to her sinking, and reports that the passengers were, at the time the torpedo struck, 'preparing for religious services'.
- 5.9.16. The newspaper report indicates that the torpedo struck the *Andania* around her midships section, causing the vessel to list to that side. The sea was smooth at the time, and following this event other ships within the convoy passed a line to the *Andania* and attempted to tow her to the coast. However, after some hours the ship sunk. During this period the passengers and crew had made their way on to lifeboats, and were later picked up by a patrol boat and taken to Larne.
- 5.9.17. Some of those passengers who continued their journey to America reported that the ship which had carried them picked up S.O.S calls from the *Tuscania* (The New York Times 1918), which was sunk by a torpedo fired by the UB-77 on the 5th February 1918. The *Tuscania* represents a major war time loss, and had been carrying American troops to Europe when she was torpedoed. Two hundred and ten people lost their lives.

- 5.9.18. At 13,405 tons the *Andania* was one of the largest ships hit by submarine torpedo fire in the war. The submarine responsible for sinking the *Andania*, the U46, conducted 11 patrols over its lifetime, and sunk 52 ships overall between 1916 and 1918. In 1918 the submarine surrendered to Japanese forces, and was taken into service as the Japanese O2 between 1920 and 1921. The submarine was finally lost in 1925 following a storm.
- 5.9.19. **Survival:** The *Andania*, lost by torpedo fire, is likely to exhibit some associated damage and the article in The New York Times (1918) indicates that this damage may be restricted to one side of the hull, around the midships section. Additionally, that the majority of crew and passengers were rescued safely indicates that the damage caused by the torpedo may have been restricted.
- 5.9.20. Relatively little investigation has been conducted on the *Andania*, and thus little is known at this point about her survival. However, geophysical survey results indicate that the wreck thought to be that of the *Andania* is intact.
- 5.9.21. The depth of the vessel, at 189 metres, also puts her beyond the reach of those marine biological processes which form the major stimulants for deterioration to wreck remains at shallower depths. Thus it is possible that the steel hulled vessel and associated organic remains including wooden plating and perhaps some of the cargo and stores, (linen is mentioned in the sources) has the potential to survive in a good state of preservation.
- 5.9.22. **Investigation:** The investigation of the wreck thought to be the *Andania* has been thus far limited to geophysical surveys. The UKHO surveying details (for HO Identifier 73508) indicate that:
- In 1918 the sinking position was given as 552000N 061200W, 2 miles NNE from Rathlin Island Light House.
 - In 14.06.2008 an anomaly was reported in 5519.553N, 0612.807W [WGD] using dGPS. The least Multibeam depth was recorded as 175.72m in a general depth of 189m. No scour was recorded, and the anomaly was reported to have a length of 160m, width 39m and height 13.3m. The wreck reportedly lies at 085/265 degrees, intact, and with no debris.
- 5.9.23. A more recent survey, conducted as part of the JIBS in 2007, however shows an anomaly considered to be the wreck of the *Andania*.
- 5.9.24. It must be noted that other anomalies identified as the possible remains of the *Andania* have been identified by the UKHO, one at 55.33333, -6.2 has been recorded as a dead position (HO Identifier 3639), and another at 55.31526, -5.97739 (HO Identifier 4011). The latter is a live position and the UKHO have named this position, and the one reported on by the CMA, as the probable remains of the *Andania*.

5.10. Assessment of Significance of the T.S.S. *Andania*.

- 5.10.1. **Period:** The *Andania* falls under the category of early-20th century passenger-cargo liner steamships. The vessel was built in a period when large numbers of transatlantic liners, of varied specifications (in terms of size, tonnage, propulsion and speed) were in use, associated with the burgeoning North Atlantic trade. The North Atlantic trade was responsible for rapid technological developments, particularly during the latter part of the 19th century, as the key players, including Cunard Steamship Company, competed for speed, capacity and luxury (English Heritage 2012). At the time she was built *Andania* was not exceptional in any of these respects, and was not a headline ship, unlike the *Lusitania*, also lost off the coast of Ireland in 1915 (English Heritage 2012: 11), however she does

- represent the general trade and movement of passengers across the North Atlantic in this period.
- 5.10.2. The *Andania* also represents a wartime loss, sunk in World War I by a German submarine. In this respect the vessel is of note, being one of the larger ships sunk toward the end of the war. The sinking of passenger liners due to submarine action is likely to have had particular resonance with the global community following the loss of *Lusitania* in an unrestricted submarine attack on May 7th 1915. This vessel, and 1,198 passengers and crew, were lost off the coast of Ireland. The loss of the 128 American passengers on board in particular placed pressure on Germany to end the Atlantic U-boat campaigns, and for a time German submarine attentions were refocused on the Mediterranean (Lavery 2005). Unrestricted submarine warfare, however, resumed in the Atlantic in spring of 1917 and on the 27 January 1918 *Andania* was lost, with seven of her crew members. The remainder of those on board survived. By 1918 the allied forces had developed better defences against submarine attack, such as the convoy system, and fewer vessels were lost during this year than 1917. These details allow the loss of the *Andania* to be understood in context. Of particular importance for understanding the period value of the wreck are the loss of the *Andania* to unrestricted submarine warfare (Wessex Archaeology 2011 a, b), and the loss of the vessel, as a passenger liner, which may have evoked earlier wartime memories.
 - 5.10.3. **Rarity:** Vessels comparable to the *Andania*, as a transatlantic liner are not common in Northern Irish waters, and in this respect the *Andania* is of interest. However as a ship type the *Andania* was not rare, and many other transatlantic liners are known from a wider area, some of which are important wreck sites.
 - 5.10.4. The *Tuscania* is an important, roughly contemporary, example, comparable in terms of her tonnage and North Atlantic use. However this ship was lost while en route from America to Europe, carrying American troops, with considerable loss of life. The wreck lies off the Scottish island of Islay. The *Lusitania*, a much larger transatlantic liner, was torpedoed off the southern coast of Ireland, with a high death toll.
 - 5.10.5. Other passenger liners include the *Exmouth*, sunk off the Antrim coast, Northern Ireland in 1847 while en route from Londonderry to Quebec, with the loss of over 200 lives. The RMS *Carpathia* was also lost in 1918, torpedoed off the coast of Ireland with the loss of 5 lives. This transatlantic steam liner, at 13500 tons is directly comparable to the *Andania*. However this vessel was involved in the loss of the *Titanic*, rescuing 712 people, and is thus important in terms of her use. Other examples include the RMS *Empress of Britain*, a liner which worked between ports in Britain and Canada. The vessel, which was later, larger and faster than the *Andania*, was sunk in 1940 by German submarine, with 45 casualties, and lost along west coast of Ireland.
 - 5.10.6. **Documentation:** The documentation relating to the *Andania*, and in particular relating to her build and use is relatively rich. There are fewer sources which deal with the loss of the vessel, although sufficient detail is known. Survival and investigation are less well documented.
 - 5.10.7. **Group Value:** The *Andania* can be considered to fall within a number of different groups. Geographically the wreck lies close to Rathlin Island, where numerous wrecks, including other wartime wrecks such as HMS Drake, are known. However, the *Andania* has no specific relationship to these wrecks.
 - 5.10.8. A slightly tenuous connection can also be made to the *Tuscania*, lost days after the *Andania*, by passengers who had previously been travelling on the *Andania* prior to sinking, and are reported to have known of the S.O.S calls from the *Tuscania* prior to her loss.

Other World War I wrecks and wrecks of early 20th-century passenger-cargo liners can also be considered to form part of a wider group in which the *Andania* can be understood.

- 5.10.9. The *Andania* has no particular connection to other wrecks, although she can be considered to fall within numerous groups.
- 5.10.10. **Survival/Condition:** At present there is little information on the survival of this wreck, however on the basis of geophysical survey results it is possible that the wreck lies intact. Further investigation is necessary to comment further on this characteristic.
- 5.10.11. **Fragility/Vulnerability:** As for survival/condition more information is needed to fully understand the fragility or vulnerability of the wreck remains.
- 5.10.12. **Diversity:** In terms of decoration and craftsmanship, while the specifications indicate that *Andania* was to be of 'sound materials and workmanship' there was to be no elaboration, reflecting the provision of the ship for 2nd and 3rd class passengers only. Therefore, in her decoration and craftsmanship *Andania* is not likely to be exceptional.
- 5.10.13. As regards technological innovation Transatlantic liners powered by compound engines became increasingly common from around the 1860's onward, followed by the advent of the triple-expansion engine in 1874 and the quadruple-expansion engine in 1884 (English Heritage 2012: 9). Parson's steam turbine engines outstripped those using compound engines by the 1890's, and in 1904 the first turbine-driven steam liner came into use (English Heritage 2012: 11).
- 5.10.14. **Potential:** As with other wreck sites, the remains of the *Andania* have the potential to improve understanding of wreck formation and preservation processes.

6. HIGH PRIORITY VESSEL: UB85

6.1. Introduction

6.1.1. A wreck which lies at 54.78353, -5.49098 (WGS84 decimal degrees) has been identified as the probable remains of the German submarine UB85 (Figure 1).

6.2. Location

6.2.1. The position given above reflects that recorded by the UKHO, and the RN/ AFBI (2013). The remains of the wreck, thought to be the UB85, are reported as being clearly visible on the RN/AFBI multibeam data.

6.3. The wreck remains

6.3.1. The wreck remains lie at a depth of 92m and have been recorded as an anomaly measured at 45.7m in length. The remains are thought to represent the entire wreck, broken or bent.

6.4. Archival holdings and documentary sources

6.4.1. Sources dealing with German submarines in the First World War are outlined and discussed in Innes McCartney's publication, *Lost Patrols: Submarine Wrecks of the English Channel*. The Deutsches U-Boot-Museum is known to hold extensive archival material relating to U-boats. This archive was contacted and holdings relating to the UB85 were ascertained and copies ordered. Additionally the Royal Navy Submarine Museum was contacted, however, the repository holds no information about the World War I submarine UB85.

6.4.2. The following publications contain information relating to U-boats in the First World War and information relevant to researching these vessels:

- *U-boats Destroyed or U-boat intelligence: 1914-1918* both by Robert Grant
- *The German Submarine War 1914-1918* By R.H. Gibson, Maurice Prendergast
- *Lost Patrols: Submarine Wrecks of the English Channel* by Innes McCartney

6.4.3. There are many other publications (including a large number in German) which deal with German submarines. Online sources are also useful for researching U-boats, and in particular uboat.net includes large amounts of detailed information relating to these vessels.

6.5. Documents relating to the construction of the vessel

6.5.1. Details providing information upon the built-form of this submarine include:

- Blue-prints of the Type UB III held by the Deutsches U-Boot-Museum (UB85 was of this type. Published in a book by Eberhard Rössler);
- Photographs of the submarine are held by the Deutsches U-Boot-Museum, giving indications of its built form;
- The UKHO give details relating to the built form of the UB 85;
- The website u-boat.net also gives details of the vessel as a type UB III submarine, and details of the built-form of type III submarines.

6.6. Documents relating to the use of the vessel

6.6.1. The career of the UB85 was short. The Deutsches U-Boot-Museum hold the primary sources which relate to the use of the vessel, these include:

- War diaries of UB85 from its commissioning on 24 Nov 1917 to its loss in April 1918;
- technical data and a short service history of UB-85 as published in a book by Harald Bendert; and
- a short service biography of the Commanding Officer of UB85, Kapitänleutnant (Lieutenant) Günter Krech.

6.6.2. Additionally uboat.net holds details of the career of the submarine, including details of her commander, patrols and successes.

6.7. Documents relating to the loss of the vessel

6.7.1. The Deutsches U-Boot-Museum hold:

- data sheets, which show the narrative of the sinking of UB85 as published in the official book about the War at Sea 1914-1918 compiled by the Historic Branch of the German Admiralty; and
- Interrogation records from prisoners taken from the UB85.

6.7.2. The UKHO record details of the loss of the vessel within their Wrecks and Obstructions database in the 'circumstances of loss' section. This section indicates that the loss was associated with 'Drifter HMS *Coreopsis*'. Published sources also suggest the *Coreopsis* was responsible for the loss of UB85. The log of the HMS *Coreopsis* was accessed in the National Archives, Kew (ADM 53/38581) in order to obtain any details relating to the sinking of the UB85. However, the log for this vessel suggests she was off Gibraltar on the day the UB85 was reportedly sunk. The HMS *Coreopsis* appears to have been a sloop, listed under ships of the Royal Navy, and constructed in 1917 as an Anchusa class (Colledge and Warlow 2010:90).

6.7.3. A drifter by the name of *Coreopsis* was also in existence at this time. This vessel, constructed as a steam herring drifter, had been built in 1911, and requisitioned for war service between 1915-1919, and from 1917 the vessel had been known as *Coreopsis II* (coinciding with the build date of the HMS *Coreopsis*). Online records indicate that it was this vessel which was associated with the loss of UB85 (Aberdeen City Council 2013).

6.7.4. Accounts of the loss are reproduced in the publication *Verschollen: World War I U-Boat Losses*, by D. R. Messimer (2002) which gives details of the known facts relating to the loss in addition to an account by the commander of the submarine and others involved.

6.7.5. The National Maritime Museum (NMM) hold a painting reported to depict the sinking of UB85, however the NMM note that this is incorrect (UB85 had not been built at the time of the painting). Catalogue searches and discussions with staff indicate that this repository have no other holdings which relate to the UB85.

6.8. Documents relating to the survival of the vessel

6.8.1. Remains thought to represent the UB85 have been recorded by the UKHO and by RN/AFBI multibeam. These are the primary sources of information relating to the survival of the vessel. No salvage records have been located.

6.9. Documents relating to the investigation of the vessel

6.9.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO, and multibeam

bathymetry are the principal sources. The depth of the wreck makes diver accounts unlikely, and none have been located.

6.10. The History of the UB85

6.10.1. **Build:** The UB85 was launched in 1917. The UKHO record UB85 as a type III submarine. This class are reported to be a coastal torpedo attack boat. The specifications for this vessel type are available online (Helgason 1995-2015) and are as follows:

Displacement	516 tons (on the surface); 651 tons (submerged); 730 tons (total)
Speed	13.6 knots (on the surface) 8.0 knots (submerged)
Length	55.3m (overall); 40.1m (pressure hull)
Beam	5.8m (overall); 3.9m (pressure hull)
Draught	3.68m
Height	8.25m
Power	1100hp (on the surface); 788 (submerged)
Range	9040/6 miles/ knots (on the surface); 55/4 miles/knots (submerged)
Torpedoes	10; 4/1 (bow/ stern tubes)
Mines	None
Deck gun	88mm, 160 rounds
Crew	34 men
Maximum depth	c. 75m
<i>Table showing specifications of the type II coastal torpedo attack submarine</i>	

6.10.2. Plans of this type of submarine are also published in *Geschichte des Deutschen U-Bootbaus* (Rössler 1996). Ninety-six submarines of this type were commissioned. The UB85 was built by A. G. Weser, Bremen (Werk 285), who during the First World War focused on the construction of U-boats and small cruisers (Helgason 1995-2015).

6.10.3. **Use:** The UB85 had a short career. She was launched in 1917, and commissioned on the 24th November in that year (Helgason 1995-2015). The UB85 undertook 2 patrols from 10 February 1918 to the 30th April 1918 as part of V Flotilla, under the command of Kapitänleutnant Günther Krech. The first patrol took the vessel from Cuxhaven on 26th February 1918, through the Kiel Canal, and through the Little Belt, northward to Stavanger, then west to Dogger Bank, and back through Kattegat to Germany. The purpose of this cruise was to allow the inexperienced crew chance to practice handling the submarine (information from Prisoner Interrogation records held by the Deutsches U-Boot-Museum for UB85, dated May 1918). The submarine did not sink any vessels during this, or its second, and last, patrol (Helgason 1995-2015).

6.10.4. Copies of Prisoner Interrogation records held by the Deutsches U-Boot-Museum for UB85, dated May 1918, give details of the last days of the UB85:

- 'About 10 am on **11th April** 1918 UB85 proceeded from Bremerhaven on her second and last cruise. The day was spent in carrying out diving and engine trials, gun and torpedo practice off Heligoland, after which the boat proceeded into Heligoland Harbour, about 9pm. The next two days were spent at rest, as a large part of the crew developed a mild form of ptomaine poisoning, ascribed to some bad food...it was also stated that some of them simulated this complaint in order to secure a rest, as they had had to work till late on the preceding days, getting stores, ammunition etc. on board and making preparations for the cruise. The following submarines were then in the harbour:- U60, U105 and UB34.
 - On the **14th April** the boat again proceeded to sea, and the day was spent in trials similar to those on the first day with the exception of running torpedoes.
 - On **April 15th** the boat remained in harbour.
 - On **16th April**, after a preliminary diving trail, UB 85 finally left Heligoland about noon, in company with UB34 and escorted by 6 torpedo boats. The latter continued with the submarines till...**17th April** when the UB34 shaped course apparently for the NE coast of England...and the escorting vessels turned back.
 - [UB85] passed about 2 miles to the southward of Fair Isle at noon on **20th April** and had to dive shortly afterwards on account of hostile aircraft; the latter dropped one or more bombs, which were heard to explode some distance off.
 - ...On **21st April** a torpedo was fired at a vessel whose actions seemed suspicious and which prisoners believed to be a 'submarine trap'. The torpedo exploded, however, before it reached the vessel...On approaching the Butt of Lewis UB85 again submerged...in order to avoid being sighted by aircraft. She then passed outside the Hebrides and continued on the surface till she made the North Coast of Ireland.
 - ...On **22nd April**, when SW of Skerryvore, UB85 saw what she took to be the wakes of two torpedoes fired at her by another submarine to seaward of her, and she therefore altered course toward the land.
 - She afterwards headed for Innistrathull and arrived off it at 10am on **23rd April**. At noon she dived and then carried out a slow patrol submerged off the mouth of Lough Foyle until about 10pm. Shortly after coming to the surface, a 3-funnelled destroyer was sighted, apparently stopped.
 - The next day [**24th April**] ... was similarly spent patrolling submerged off Lough Foyle.
- 6.10.5. The detailed records provided by the Deutsches U-Boot-Museum stop at this point and skip ahead to the loss of the vessel following the attack by the *Coreopsis*.
- 6.10.6. The war diaries of the UB85 span the period from the launch of the vessel in 1917 to its loss in 1918. These diaries are in German and have not been transcribed here, however copies of the documents (supplied by the Deutsches U-Boot-Museum) form part of the project archive.
- 6.10.7. **Loss:** On the 16th April 1918 UB85 left Heligoland and headed toward the Irish Sea where she was to undertake operations. The submarine was in the Irish Sea on the 30th April, and at 4am on that day the drifter *Coreopsis*, a requisitioned steam herring drifter, spotted UB85 on the surface and opened fire (U-boat Data Sheet UB-85 Deutsches U-Boot-Museum; Messimer 2002: 209). The prisoner interrogation records show that '*The Coreopsis opened fire and fired 4 rounds, one of which penetrated the submarine's forward*

ballast tanks. She then circled round the submarine, apparently to satisfy herself that there was no trap. On being reassured by the crew shouting together: We surrender, and by the fact that the submarine's gun was not cleared away, the Coreopsis hove to about 50 yds. off, lowered her boat, and began ferrying the submarine's crew on board. About 20 minutes later another drifter arrived on the scene and likewise sent her boat to help take the crew off the submarine. The engineer officer was among the last to leave, having previously opened the vents of the ballast tanks to ensure the submarine sinking. The two drifters, in company with other vessels, then proceeded to Larne and landed the prisoners there.'

- 6.10.8. Kapitänleutnant Günther Krech also described the incident in which the submarine was lost. The UB85 had apparently tried to dive, but the Kapitänleutnant's account indicates that the conning hatch was not properly closed and the vessel began to flood:
- 6.10.9. *'The water flow was so powerful that it was impossible to close the conning tower hatch or the lower hatch into the control room. There was a strong build-up of chlorine gas and the bilge pumps failed. We blew the tanks and surfaced, down sharply by the bow. Enemy patrol boats fired on us, but we could not return fire because our ammunition was under water and the water was rising in the boat. The crew was taken off in rowboats. The UB-85 along with all secret documents and codebooks sank...'* (Kapitänleutnant Günther Krech cited in Messimer 2002: 209).
- 6.10.10. The *Coreopsis* took the entire crew of 34 men off the UB85 before the submarine sank. The loss position recorded by the UKHO, from German records and loss books, was 545700N, 054500W, however the UKHO indicates the loss position from 'official records' as 544700N, 052700W.
- 6.10.11. **Survival:** The UKHO surveying details indicate that the wreck lies bent and broken on the seafloor at a depth of 89-100m. No scour has been observed. The wreck, recorded by geophysical surveys, is reportedly around 150ft in length. The damage represented by the bending and break to the vessel occurs one third of the way down the length of the wreck, toward the southern end.
- 6.10.12. **Investigation:** The wreck is known to have been investigated by the UKHO and multibeam echo-sounder (RN/AFBI multibeam). The UKHO indicate that the vessel was owned at the time of loss by the German Navy. The UKHO surveying details are as follows:
- An undated entry indicates the vessel was sunk in 544700N, 052700W (approximately, from 'official records'). Other undated entries give the position as 545700N, 054500W (cited as being information from various German records and loss books').
 - A note dated to 10.08.1972 indicates that the wreck lay in depths of 90m.
 - A note dated to 19.07.1972 indicates the wreck was examined in 544700N, 052942W [OGB] using Hi-Fix. The least echosounder depth was recorded as 92m in general depths of 100m. No scour was reported, and the anomaly was noted to be 150ft in length and apparently broken and bent about one third of its length from southern end. The wreck lies on smooth sand just SW of area of ripples.
 - A note, dated 05.01.2004 indicates the position supplied by Geodesy as 5447.004N, 0529.463W.
 - The wreck was examined in 2008 in 5447.012N, 0529.459W [WGD], using dGPS. The least Multibeam depth was recorded as 89.47m, and the anomaly was reported to have a length of 44.3m.

6.11. Assessment of Significance of the UB85

- 6.11.1. **Period:** The UB85, as a Type UB III submarine in use during WWI is relatively representative in terms of its class. Its role as a submarine in WWI; launch and commission in 1917 following the resumption of unrestricted submarine warfare; and loss in 1918, during a period where submarine losses were high due to improved defensive strategies by allied forces represents a key narrative of the period relating to the use and reactions to unrestricted submarine warfare (Wessex Archaeology 2011 a, b). These elements reflect an important aspect of military history connected with the U-boat Campaign (WWI).
- 6.11.2. Two type UB III class submarines are protected in UK waters: UB81, a Controlled Place under the Protection of Military Remains Act, and UB65, a Protected Place under the Protection of Military Remains Act. There are differences between these wrecks and the UB85. In particular the loss of life associated with the wrecks differentiates them. On the UB81 29 lives were lost, and on the UB65 37 lives were lost. No lives were lost on the UB85.
- 6.11.3. **Rarity:** The UB85 is not rare in terms of its specific type (UB III class), and in a wider context large numbers of German submarines were constructed during this period. From 1906 to 1918 the Imperial German Navy ordered 811 U-boats, of which 343 were commissioned. Protected examples of this vessel class exist. The large numbers of allied ships lost to submarine attack during the First World War highlights the effectiveness of this weapon, and represents the underlying success of many of the individual submarines. UB85 had no successes and her crew survived. While these factors are unusual, thus indicating rarity, comparable circumstances are known, and the UB26, for example, was lost after 2 unsuccessful patrols, and with the survival of her 21 crew (Helgason 1995-2015). However, unsuccessful German submarines lie outside the narratives usually associated with WWI German submarine warfare, and from this perspective the UB85 may represent something of a rarity.
- 6.11.4. **Documentation:** Primary documentation relating to this submarine has been accessed, including technical history, interrogation records and war diaries. These records give detailed information relating to the Build, Use and Loss of the vessel.
- 6.11.5. **Group value:** The UB85 is not known to be associated geographically with any other vessels and no others were reported lost at the time of the UB85. However, wartime losses in general, many of which were associated with submarine warfare, form part of the wider group of the UB85. Additionally a sub-group may be represented by other wrecks of the UB III class, such as UB81 and UB65, both of which are protected.
- 6.11.6. **Survival/Condition:** The sources which provide information on the survival and condition of the wreck indicate that it may be bent and broken for a third of its length. Although damaged it is possible that substantial remains survive, however further investigation is necessary to comment further on this characteristic.
- 6.11.7. **Fragility/Vulnerability:** As for survival/condition more information is needed to fully understand the fragility or vulnerability of the wreck remains. However, the depth of the wreck may afford some protection from factors such as casual salvage by recreational divers.
- 6.11.8. **Diversity:** The UB85 is one of a class of submarine of which nearly 100 others were constructed, and of which other wrecks are known to survive. At present there are no known features of the UB85 which indicate value in terms of diversity.
- 6.11.9. **Potential:** As with other wreck sites it is possible that the remains may be able to throw light on wreck site formation and preservation processes.

7. HIGH PRIORITY VESSEL: TIBERIA

7.1. Introduction

7.1.1. A wreck which lies at 54.77545, -5.645 (WGS84 decimal degrees) has been identified as the probable remains of the SS *Tiberia* (Figure 1).

7.2. Location

7.2.1. The position given above reflects that recorded by the UKHO, and CMA (on the basis of multibeam from the RN/AFBI (2013)). The remains of the wreck, thought to be the *Tiberia*, are reported as being clearly visible on the RN/AFBI multibeam data.

7.3. The wreck remains

7.3.1. The wreck remains lie on the seabed at a depth of 58m. The UKHO survey indicates that the surveyed depth is 41m. The anomaly thought to represent the *Tiberia* is reported to be visible on side-scan sonar with a length of 136.8m. The wreck is thought to be upright and intact, with a collapsed bridge and masts upright.

7.4. Archival holdings and documentary sources

7.4.1. Records relating to the *Tiberia* were accessed at the National Archives, Kew. Additionally catalogues for the Tyne and Wear Archives were searched, and although this repository has some holdings for the Northumberland Shipbuilding Company no records relating to the *Tiberia* were identified. Hull University Archive (Hull History Centre) online catalogue was also searched, however, although this repository holds records for some ships constructed by the Northumberland Shipbuilding Company the *Tiberia* is not among them.

7.5. Documents relating to the construction of the vessel

7.5.1. A number of sources which relate to the construction of the vessel are in existence:

- The particulars of the ship are listed on the Certificate of British Registry, held at the National Archives, Kew, (Reference BT 110/425);
- An entry in the Marine Engineer and Naval Architect was published in 1914 following the launch of the vessel, and providing details of the built form of *Tiberia*;
- The Northumberland Shipbuilding Company also have records online relating to this vessel (<http://www.tynebuiltships.co.uk/F-Ships/frimley1913.html>); and
- the Lloyds Registers also hold information relating to the construction of the ship. However, no survey records (under either *Tiberia* or *Frimley*) could be located in the Lloyds Survey record indexes held at the National Maritime Museum. The indexes are hand-written archives and although are generally in alphabetical order some ships are recorded out of order. It is possible that the indexed records for this ship have been written out of order, and could not be located.

7.6. Documents relating to the use of the vessel

7.6.1. Sources which give details relating to the use of the vessel comprise:

- Ownership details, listed on the Certificate of British Registry, held at the National Archives, Kew, (Reference BT 110/425);
- Owner history is also given online at <http://www.tynebuiltships.co.uk/F-Ships/frimley1913.html>;
- the Lloyds registers also hold information relating to the use of the ship; and

- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the use of the *Tiberia*. This list was accessed at the Caird Library.

7.7. Documents relating to the loss of the vessel

7.7.1. Sources which give details relating to the loss of the vessel comprise:

- Convoy records giving details of Convoy OB50 of which the *Tiberia* formed part when lost, held at the National Archives, Kew, (Reference ADM 137/ 2610, see Figure 4);
- Details recorded by the Ministry of Shipping in their report on the *System of Convoys for Merchant Shipping in 1917 and 1918* (accessed at the Caird Library);
- *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library);
- A summary of the cause of loss is given on the Certificate of British Registry, held at the National Archives, Kew, (Reference BT 110/425);
- As with other wrecks the 'circumstances of loss' section in the UKHO wrecks database also gives details of the loss of the *Tiberia*. Details are also given online at the website uboat.net (Helgason 1995-2015); and
- The Service List also gives a note of the loss of the *Tiberia*.

7.8. Documents relating to the survival of the vessel

7.8.1. Remains thought to represent the *Tiberia* have been recorded by the UKHO and by RN/AFBI multibeam bathymetry. Diver accounts also inform the surviving condition of the wreck and numerous websites detailing diver reports have been located (e.g. Irish Wrecks Online 2008). These are the primary sources of information relating to the survival of the vessel. No salvage records have been located.

7.9. Documents relating to the investigation of the vessel

7.9.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO, geophysical survey and diver reports are the principal sources.

7.10. The History of the *Tiberia*

7.10.1. **Build:** The *Tiberia* (formerly known as the *Frimley*) was launched on 19 June 1913. The vessel was constructed by The Northumberland Shipbuilding Company, Howdon-on-Tyne. The *Tiberia* was to be a Lloyds class 100A.1. Its ship hull number was 446 and its official number was 135266.

7.10.2. *Machinery, propulsion and specifications:* The *Tiberia* was constructed as a steel-hulled clinker-built vessel. The dimensions of the ship were as follows: 404.9 x 53.1 x 27.2ft. *Tiberia* was powered by a single propeller, and was schooner rigged with two masts. She had a single triple-compound direct-acting engine with inverted cylinders and a single cylindrical multi-tubular boiler made of steel (BT 110/425).

7.10.3. The *Tiberia* was constructed with a tonnage of 4880grt and a registered tonnage of 3141.18. However, in 1917 the registered tonnage of the vessel was altered to 3145.26. The name of the vessel had been changed a year previously, from *Frimley* to *Tiberia*.

- 7.10.4. *Internal arrangement: Tiberia* had two decks. No galleries or heads are reported on the Board of Trade Certificate of Registration.
- 7.10.5. The entry in the 1914 edition of the Marine Engineer and Naval Architect which described the vessel when she was launched reads as follows:
- 7.10.6. *Frimley*. — On June 19th, the Northumberland Shipbuilding Co., Ltd., launched from their yard at Howdon-on-Tyne, a finely-moulded steamer built to the order of Messrs. Houlder, Middleton & Co., London, to augment their fleet of fine steamers. The vessel is over 415 ft. long by 53 ft. in. beam by 29 ft. 9 in. deep, and has been built under special survey to the highest class at Lloyd's, with extra strengthening for special freeboard. She is fitted with long poop, long bridge, topgallant forecastle, the accommodation, which is very ample, being placed in steel houses on the bridge deck. The 'tween decks are lofty and so arranged that cattle, troops or emigrants may be carried if necessary. The loading and discharging facilities are most complete, the steamer having ten winches by Messrs. Clarke, Chapman & Co., Ltd., Gates-head-on-Tyne, and a large number of cargo derricks to ensure the expeditious handling of cargoes. She is fitted with the usual water-ballast arrangements for light passages. The machinery will be supplied by Messrs. Richardsons, West-garth & Co., Ltd., Sunderland, consisting of engines with cylinders 26 in., 42 in. and 72 in. by 48 in. stroke, three large steel boilers 15 ft. 6 in. by 11 ft. 9 in., 180 lbs. pressure. The vessel will carry about 8,300 tons deadweight on the light draught of 24 ft. 3 in., and steam about 10 knots loaded at sea. During construction the vessel has been superintended by Captain Gray on behalf of Messrs. Houlder, Middleton and Co., Ltd.
- 7.10.7. **Use:** Following her launch the *Tiberia* was operated by The Mitre Shipping Company who managed tramp steamers (Finch 2012). The vessel stayed under this ownership and was used as a cargo vessel until 1916 when Anchor Line, a Scottish steamship company, purchased the ship, and renamed her *Tiberia*.
- 7.10.8. The *Tiberia* was hired out while under the ownership of Anchor Line, for wartime activities. Between 3 August 1916 and 7 October 1916, and again between 14 December 1916 to 3 March 1917, the vessel was employed in wartime activities, associated with the Commercial Branch for Military Account, and was used for the transportation of nitrates (Shipping Intelligence Section 1921). From the 4th March 1917 to 21 April 1917 the Service List indicates the vessel was used as a collier (No. 1495), (Shipping Intelligence Section 1921).
- 7.10.9. During the time the vessel operated under the name *Tiberia* she was registered to Glasgow and details of her final voyage indicate that she was employed on transatlantic routes. It has not been possible to ascertain whether the ship was used for troop transport (as the entry in The Marine Engineer and Naval Architect indicate was possible owing to the *Tiberia's* built form). Uboat.net indicates that the vessel had a general cargo when lost (Helgason 1995-2015).
- 7.10.10. **Loss:** The UKHO indicate that the vessel was owned at the time of her loss by Anchor Line Ltd, and that she was en route from Glasgow to New York with a general cargo when lost between Gobbin's Buoy and Black Head (Lloyds War Losses).
- 7.10.11. On February 26th 1918 Convoy OB50 left Lamlash (ADM 137/2610). The mercantile convoy had a destroyer escort with 6 destroyers and 4 sweepers, which included the HMS *Portia*, *Moresby*, *Savage*, *Beagle*, *Pincher*, *Delphinium*, *Daffodil*, *Primrose* and *Laburnum*. Along with *Tiberia* (en route to New York) the other ships in the convoy were the *City of Karachi* (en route to Port Natal), the *Nicets de Larrinaga* (en route to New Orleans), the *Chinese Prince* (en route to Baltimore), the *Explorer* (en route to Bermuda), the *Corinthian* (en route to St Johns), the *Crown of Cadiz* (en route to Demerara), the *Mercian* (en route to

- Boston) and the *Montcalm* (en route to St Johns). The destroyers were arranged so as to form a submarine screen (Figure 4).
- 7.10.12. The convoy received orders to proceed to Belfast for shelter from poor weather. On approaching Belfast the convoy were travelling in a line. They moved along the swept channel. The *Tiberia* is reported to have been straggling. This can be seen in Figure 4. The account of the loss of *Tiberia* by the Lieutenant-commander is as follows: *'At about 6:15pm just as the leading ship had reached the Gate Buoys, my attention was drawn to an explosion at the rear of the convoy. I proceeded to the scene and found SS Tiberia, the rear ship of the convoy had been torpedoed in a position about 2 miles East from Black Head. She was hit on the port side, HMS Laburnum, who was about 1000 yards off ship when she was struck, saw nothing of torpedo or submarine, nor did any other of Escort vessels. The SS Tiberia sank at 6:40pm.'* (National Archives, Kew ADM 137/ 2610; Figure 4). The sinking occurred on 26th February 1918.
- 7.10.13. Chief Officer Anderson gave further information about the loss. *'Chief Officer Anderson was Officer of the watch when at about 6:10pm 26th February SS 'Tiberia' being rearmost ship of convoy, orders were received for convoy to reduce speed. This was done, but 'Tiberia' falling slightly astern of station, speed was increased to 'half speed' (i.e. about 6 knots) at about 6:15pm to regain station. At about 6:20pm – position of SS 'Tiberia' then being approximately 2 miles N.E. from Black Head; Ship's Head S. 3 deg. W. magnetic; speed 5 to 5 knots - Chief Officer Anderson observed the track of a torpedo coming towards the ship from a direction 4 to 5 points abaft port beam, distant about 400 yards. Engine helm put hard-a-port. Before these measures could take effect, torpedo struck ship in No. 1 hold. Efforts were made to beach the ship, but owing to light condition of ship, propeller came out of the water, this making it impossible to keep any way. The vessel eventually sank at about 6: 40 pm'* (National Archives, Kew ADM 137/ 2610). No lives are known to have been lost with this vessel (Helgason 1995-2015).
- 7.10.14. The submarine responsible for sinking the *Tiberia* was the U19, commanded by Johannes Spieß. This U-boat sunk 58 ships overall, damaged a further 3 and took one as a prize. U19 had sunk the *Santa Maria* (see Section 4) a day earlier. The submarine surrendered on 24 November 1918 (Helgason 1995-2015).
- 7.10.15. **Survival:** The *Tiberia* is reported to be visible on side-scan sonar and multibeam bathymetry with a length of 136.8m in length. The wreck is thought to be upright (extending to a height of 14.01m) and intact, with a collapsed bridge and masts upright. Scour pits are also noted.
- 7.10.16. Information from divers regarding the condition of the site indicate that it is largely intact and has been identified as the *Tiberia* from the builder's plate (Irish Wrecks Online 2008). The wreck sits in a north-east to south-west direction. The bridge has collapsed, however, the mast and some rigging reportedly survives. Divers note that the wreck site is associated with strong tidal currents. Reports on the website wrecksite.eu indicate that the site is artefact rich (Lettens 2007).
- 7.10.17. **Investigation:** The CMA indicate that the wreck has been investigated by divers, the UKHO and multibeam bathymetry conducted by RN/ AFBI in 2011.
- 7.10.18. The UKHO give details of their surveys which have recorded the wreck:
- The position 544642N, 053842W was logged in relation to this wreck. No date is given for this entry.

- On 24th February 1940 a survey located a wreck at 544636N, 053846W. The minimum depth over this wreck was recorded as 19 fathoms, 1.5 miles from Black Head.
- On 7th March 1961 an echo-sounder survey recorded the general depth in this area at 32 fathoms and the minimum depth at this position (indicating the position of the wreck) at 24 fathoms.
- On 4th January 1962 the UKHO report that the area was swept clear at 13 fathoms. The record goes on to state that the least echo-sounder depth was recorded as 26 fathoms, in a general depth of 32 fathoms, with scour to 33 fathoms.
- A note was added on 10.08.1972 to indicate that a wire sweep was carried out due to the presence of the wreck. The area was swept to 24 metres (13 fathoms).
- On 24.08.1979 a note (authority unknown) indicates that the wreck lies 1.5 miles east of Blackhead and sits upright on the seabed, oriented north-south (bow north). The hull was reportedly completed, but the bridge had collapsed.
- On 08.09.1980 a note attributed to R V Barr suggests that the wreck was intact and upright, lying approximately NE/SW, with the bow to the NE. Both the fore and main masts were still standing and extended to 120ft below the surface at low water. Identification of these remains as the *Tiberia* was confirmed by the builder's place. The bridge was reportedly collapsed.
- On 16.11.1982 it was reported that the wreck was shown at 544638N, 053759W on a Kingfisher Trawling Plot (a-Plot 21).
- On 24.09.2010 it was reported that the wreck had been examined in 2008 at 5446.527N, 0538.700W [WGD] using dGPS. The least multibeam depth was given as 41m. The length of the wreck was recorded as 136.8m and height 14.01m.

7.10.19. Divers have also investigated the site and give reports online (e.g. Irish Wrecks Online 2008).

7.11. Assessment of Significance of the *Tiberia*

7.11.1. **Period:** The *Tiberia* was constructed just prior to the outbreak of war, and used as a tramp steamer, a type representative of this period (Wessex Archaeology 2011: iv). Thus in terms of its built form the *Tiberia* holds period value.

7.11.2. The loss of the vessel, following the resumption of unrestricted submarine warfare and whilst part of a convoy (one of the strategic methods of dealing with the submarine threat at this time) is of particular relevance for understanding the period value of this vessel. Convoys were, in 1918, having great success as a defensive strategy and had significantly reduced numbers of vessels lost to German U-boat attacks. The *Tiberia*, however, shows the continued presence of the submarine threat in this period. Association with the unrestricted submarine warfare has been highlighted as a facet of particular interest for wrecks of this period (Wessex Archaeology 2011 a, b), and thus in this regard the *Tiberia* also holds period value.

7.11.3. **Rarity:** Steamships are not rare, and tramp steamers are considered representative. The vessel dates to the 20th century, and large numbers of wrecks date from this period (Wessex Archaeology 2011).

- 7.11.4. **Documentation:** Documentation dealing with the built form, use and in particular loss of the vessel is sufficient to understand these elements of the *Tiberia's* life. Additionally the loss of the vessel during World War I places it within a very well documented context, and the convoy records are particularly important for understanding the WWI context of the loss. Survival and investigation are sufficient to understand the wreck remains in part.
- 7.11.5. **Group value:** Wartime losses in general, many of which were associated with submarine warfare, form part of the wider group of the *Tiberia*. Additionally *Tiberia* lies in an area approaching Belfast Harbour where numerous other WWI wrecks are located, such as the *Rose II* and *Chirripo*, which also represent submarine activities in this area.
- 7.11.6. **Survival/Condition:** The sources which provide information on the survival and condition of the wreck indicate that it survives well, although reports of the collapsed bridge do indicate some deterioration on site. However, further investigation is necessary to comment further on this characteristic.
- 7.11.7. **Fragility/Vulnerability:** As for survival/condition more information is needed to fully understand the fragility or vulnerability of the wreck remains. However, the site is noted to be artefact rich and as such may be vulnerable to casual salvage by divers visiting the site, however this activity has not been confirmed on site.
- 7.11.8. **Diversity:** At present there is not sufficient evidence to assess this characteristic. However, on current evidence there are no known features of the *Tiberia* which indicate value in terms of diversity.
- 7.11.9. **Potential:** As with other wreck sites it is possible that the remains may be able to throw light on wreck site formation and preservation processes.

8. HIGH PRIORITY VESSEL: CHIRRIPO

8.1. Introduction

8.1.1. A wreck which lies at 54.76578, -5.67925 (WGS84, decimal degrees) has been identified as the probable remains of the *Chirripo* (Figure 1).

8.2. Location

8.2.1. The position given above reflects that recorded by the UKHO. The CMA record the wreck of the *Chirripo* approximately 40m to the south-east of the UKHO position. The remains of the wreck, thought to be the *Chirripo* are reported as being clearly visible on the RN/AFBI multibeam.

8.3. The wreck remains

8.3.1. The wreck remains lie at a depth of 24m (according to the CMA) and have been recorded as an anomaly measured at: length 114m, beam 14.6m and 12m in height. The wreck is thought to be largely intact, although the propeller has been removed and scour has been noted on the site.

8.4. Archival holdings and documents relating to the construction of the vessel

8.4.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these include:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/272/32);
- Lloyds Registers; and
- Lloyds Surveys. A number of surveys were conducted on the *Chirripo*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Bel 601; Mch 1564, 1585, 1694, 1815, 1926, 2050, 2151, 2286, 2307, 2342; BTS 8502, 8521; Mch 2408; Brs 8813, 8925, 8957, 9173, 9107; Rot 9089; Rot 2184, 9276, 9405; Liv 72000; BTy 14701; BTS 9958, 9581, 9670; Liv 75204, 75657, 76041, 76398, 76559 (detailed within index number LLY/IND/5).

8.4.2. There are also records of the shipbuilding company, Workman, Clark and Company of Belfast Shipyard, Belfast. Workman, Clark & Co Ltd formed as a limited company in 1880 and were in the business of shipbuilding and engine building for medium-sized passenger and cargo vessels (Ritchie 1992: 160). The Public Record Office of Northern Ireland hold records of this company including an estimate book from 1904-7, covering the period when *Chirripo* was constructed in 1906. Ulster Folk and Transport Museum also hold records from this shipbuilder including ships plans and photographs from the period 1928-1934 (after *Chirripo* was constructed). Other repositories including the Business Record Centre, Glasgow University Archives also hold information relating to this shipbuilder. These were not accessed.

8.5. Documents relating to the use of the vessel

8.5.1. Sources which give details relating to the use of the vessel comprise:

- Extracted ship's logs, 23 June 1906 to 29 July 1906 (National Archives, Kew, reference BT 165/252) and 8 January 1910 to 13 February 1910 (National Archives, Kew, reference BT 165/462);
- Records of vessels registered at Manchester, held at Manchester Archives and Local Studies Library (Reference, *Chirripo*- M110/119598);

- the website uboat.net also gives details which relate to the final voyage of the *Chirripo* (Helgason 1995-2015);
- Crew lists are also held at the National Maritime Museum (e.g. BT 400/3734); and
- Board of Trade, Lists of Passengers. There are numerous such lists of passengers held at the National Archives, Kew, which give indications not only of the individuals travelling on board the SS *Chirripo*, but also of the ports between which the ship operated (National Archives, Kew, references given in brackets):

1908

13 January 1908 Port Limon – Manchester (BT 26/ 349/35)

6 April 1908 Port Limon – Manchester (BT 26/ 349/49)

5 July 1908 Port Limon – Manchester (BT 26/349/61)

8 August 1908 Port Limon – Manchester (BT 26/349/65)

8 November 1908 Port Limon – Manchester (BT 26/349/86)

1909

23 February 1909 Port Limon- Manchester (BT 26/394/114)

30 May 1909 Port Limon- Manchester (BT 26/395/51)

19 October 1909 Santa Marta – Manchester (BT 26/395/86)

25 November 1909 Santa Marta – Manchester (BT 26/395/91)

1910

13 February 1910 Santa Marta – Manchester (BT 26/443/89)

8 May 1910 Santa Marta – Manchester (BT 26/444/10)

22 June 1910 Puerto Limón – Bristol (BT 26/407/58)

3 August 1910 Puerto Limón – Bristol (BT 26/407/75)

26 October 1910 Puerto Limón – Bristol (BT 26/408/11)

1911

11 March 1911 Puerto Limón – Bristol (BT 26/455/49)

9 July 1911 Santa Marta – Bristol (BT 26/456/20)

16 April 1911 Kingston- Bristol (BT 26/455/52)

28 May 1911 Kingston- Bristol (BT 26/456/7)

23 July 1911 Kingston- Bristol (BT 26/457/6)

20 August 1911 Santa Marta - Bristol (BT 26/456/28)

11 October 1911 Kingston- Bristol (BT 26/456/48)

1912

25 January 1912 Puerto Limón - Bristol (BT 26/511/12)

14 March 1912 Kingston- Bristol (BT 26/511/26)

24 April 1912 Puerto Limón – Bristol (BT 26/511/29)

- 5 June 1912 Puerto Limón – Bristol (BT 26/511/49)
11 July 1912 Puerto Limón – Bristol (BT 26/511/60)
28 August 1912 Puerto Limón – Bristol (BT 26/511/62)
9 October 1912 Puerto Limón – Bristol (BT 26/511/92)
29 December 1912 Santa Marta – Liverpool (BT 26/524/21)
- 1913**
- 23 July 1913 Puerto Limón - Bristol (BT 26/544/83)
10 September 1913 Puerto Limón - Bristol (BT 26/544/97)
7 December 1913 Puerto Limón - Bristol (BT 26/544/118)
- 1914**
- 25 January 1914 Puerto Limón - Bristol (BT 26/573/ 58)
8 September 1914 Kingston - Liverpool (BT 26/582/74)
13 December 1914 Santa Marta – Liverpool (BT 26/585/44)
- 1915**
- 31 January 1915 Santa Marta to Liverpool (BT 26/603/42)
2 May 1915 Kingston- Bristol (BT 26/601/58)
25 July 1915 Puerto Limón to Bristol (BT 26/601/75)
5 September 1915 Puerto Limón to Bristol (BT 26/601/92)
12 December 1915 Puerto Limón to Liverpool (BT 26/612/80)
- 1916**
- 24 January 1916 Puerto Limón - Liverpool (BT 26/620/95)
20 March 1916 Puerto Limón - Liverpool (BT 26/622/16)
24 July 1916 Puerto Limón - Liverpool (BT 26/625/8)
16 October 1916 Santa Marta – Liverpool (BT 26/627/15)
- 1917**
- 1 May 1917 Santa Marta - Liverpool (BT 26/636/7)
10 June 1917 Santa Marta - Liverpool (BT 26/ 636/27)
28 July 1917 Kingston - Liverpool (BT 26/636/62)
5 September 1917 Kingston - Liverpool (BT 26/637/61)
22 October 1917 Jamaica – Liverpool (BT 26/638/3)
15 December 1917 Kingston - Liverpool (BT 26/639/31)

8.6. Documents relating to the loss of the vessel

- 8.6.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) gives details of the loss of the vessel. Additionally a note of the loss is given on the Board of Trade Certificate of Registration. The

UKHO also gives a brief description of the loss of the vessel. As the *Chirripo* was lost after she struck a mine laid by the UC 75 details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015).

8.7. Documents relating to the survival of the vessel

8.7.1. Remains thought to represent the *Chirripo* have been recorded by the UKHO and by RN/AFBI multibeam echo sounder (2011). Diver accounts also inform the surviving condition of the wreck and numerous websites detailing diver reports have been located (e.g. Irish Wreck Online 2008b). These are the primary sources of information relating to the survival of the vessel. No salvage records have been located however the propeller is thought to have been raised in 1970 (Irish Underwater Council 2015).

8.8. Documents relating to the investigation of the vessel

8.8.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO, geophysical survey and diver reports are the principal sources.

8.9. History of the *Chirripo*

8.9.1. **Build:** The *Chirripo* was built in 1906 by Workman, Clark & Co., Ltd., Belfast and owned by Elders & Fyffes, Ltd., Liverpool. The vessel was a British ship, registered to Manchester (BT 110/272/32 and M110/119598). *Chirripo* was a cargo vessel and archival sources indicate it also carried passengers. The ship was built to special survey and was to be a Lloyds class 100A.1. The note LMC which appears against this vessel in the Lloyds Register from 1917-1918 indicates that the boilers and machinery were certified by the engineer surveyors to Lloyd's Register. Its official number is 119598.

8.9.2. **Machinery, propulsion and specifications:** The certificate of registration (BT 110/272/32) indicates that the vessel was a steel-hulled steamship with screw propulsion. *Chirripo* had a single propeller, two masts and was schooner rigged. The vessel had one three cylinder triple-expansion condensing engine with four cylindrical multi-tubular boilers of steel all made by Workman, Clark & Co., Ltd., Belfast. The ship had a round stern and was clinker built. The overall tonnage of the ship was 4041 (gross tonnage) and 2574 (registered tonnage). In 1911 the tonnage was changed to 4049 (gross tonnage) and 2584 (registered tonnage).

8.9.3. **Internal arrangement:** Four decks are recorded on the certificate of registration (BT 110/272/32) which also records that there were four bulkheads and seven water ballast tanks. The vessel had no galleries.

8.9.4. **Fittings and equipment:** *Chirripo* had electric lighting. An online transcript of *British Vessels Lost at Sea, 1914-1918*, originally published in 1919, indicates that *Chirripo* was defensively armed when lost (Smith n.d.).

8.9.5. **Use:** The vessel was registered to Manchester in 1906, and owned by Elders & Fyffes, Ltd., Liverpool. The passenger lists indicate that from 1908 until the loss of the vessel in 1917 *Chirripo* conducted transatlantic voyages to and from the West Indies (including Port Limon/Puerto Limón, Kingston, Jamaica) and South America (Santa Marta). On her final voyage the website uboat.net indicates that the vessel was carrying a general cargo, and was en route to Kingston, Jamaica (Helgason 1995-2015). Information on the ship owner, Elders & Fyffes, Ltd indicate that they were involved in the banana trade, specifically from Jamaica to Britain. Prior to 1911 the company had carried small numbers of passengers, but after this date they were increasingly involved in passenger transport, along with the

- banana trade (Swiggum and Kohli, 2007). This may account for the lack of passenger lists held by archives, prior to 1908: it is possible that during its early life the ship was used solely for the purposes of banana transportation.
- 8.9.6. In the circumstances of loss section within the UKHO Wrecks and Obstructions database, the Hydrographic Office indicate that the vessel was owned at the time of loss by the Ministry of Shipping. However, it has not been possible to verify this and the certificate of registry (including the summary of ownership contained on the certificate) makes no reference to a change in ownership (BT 110/272/32). The Lloyds Register for 1917-1918 indicates that the vessel was owned by Elders & Fyffes, Ltd, and the latter are named as the owners in the publication *British Merchant Ships Sunk by U-Boats in the 1914-1918 War* (Tennent 1990: 74). The vessel may have been armed with lost (Smith n.d.). The Service List produced by the Shipping Intelligence Section of the Ministry of Shipping does not record the *Chirripo* among the list of vessels engaged for naval, military and commercial purposes during WWI (Shipping Intelligence Section 1921).
- 8.9.7. **Loss:** The certificate of registry indicates that the '*Registry [was] closed 4th January 1918. Vessel struck a mine in Irish Sea and sank on 28 December 1917. Certificate lost with vessel. Advice received from owners*'. The UKHO indicate that the loss of the *Chirripo* was not associated with any loss of life.
- 8.9.8. The vessel had been en route from Garston to Kingston, Jamaica, with a general cargo (Lloyds War Losses) when she struck a mine laid by UC-75 on 27 December 1917, 0.5 nautical miles from Black Head, Belfast. UC-75 was a coastal minelayer class, and was responsible for sinking 58 other vessels between 25th March 1917 and 31 May 1918 (Helgason 1995-2015). Further details, such as war log books, may be held by the Deutsches U-Boot-Museum however any such material has not been accessed.
- 8.9.9. **Survival:** The vessel is described as being largely intact although the superstructure is reported to have gone, and divers indicate that the wreck lies on its starboard side and oriented north-west to south-east (Irish Wrecks Online 2008b). The propeller has been raised from the site (Irish Underwater Council 2015). Features noted on site include handrails (Irish Underwater Council 2015).
- 8.9.10. **Investigation:** The CMA indicate that the wreck has been investigated by divers, the UKHO and multibeam bathymetry conducted by RN/ AFBI in 2011. The UKHO give details of their surveys which have recorded the wreck:
- On 11.4.1918 it was reported that the vessel was sunk at 544545N, 054030W and had been marked by a flag.
 - On 03.08.1920 the least depth over the wreck was recorded to be 8 fathoms.
 - On 07.03.1961 the least echo-sounder depth was recorded as 44ft, in a general depth of 14 fathoms.
 - On 04.01.1962 the area was swept clear at 38ft, and a foul was noted at 39ft. The least echo-sounder depth was recorded as 44ft in general depth of 88ft. The survey vessel also noted that the remains at this location were those of a large wreck, still in one piece.
 - On 10.08.1972 the UKHO amended their record to show that a sweep had been conducted over the wreck in 11.6 metres.
 - On 21.12.1972 the UKHO reports a diver record which indicates that the wreck was intact but the propeller had been removed in 1970.

- On 23.09.2010 an entry was made into the database indicating that the wreck was examined in 2008 at 5445.947N, 0540.755W [WGD] using dGPS. The least multibeam depth was recorded as 7.85 metres, and the wreck was recorded as lying along a north-west to south-east orientation with a length of 117.4m, a width of 17m and height of 17.13m.

8.10. Assessment of Significance of the *Chirripo*

- 8.10.1. **Period:** The vessel struck a mine on 27 December 1917, laid by a German submarine. Minelayer submarines had been at work around British coastlines since June 1915, and many vessels were lost due to their activities. The *Chirripo* represents one of the vessels lost in this manner. Wider aspects of period value relate to its loss in WWI.
- 8.10.2. **Rarity:** The vessel dates to the 20th century, and large numbers of wrecks date from this period. *Assessing Boats and Ships 1860-1950* records 332 cargo ships from the period 1860-1913 and thus *Chirripo* cannot be seen as a rarity (Wessex Archaeology 2011).
- 8.10.3. **Documentation:** Documentation dealing with the built form, use and loss of the vessel is sufficient to understand these elements of *Chirripo's* life. In particular the activities in which *Chirripo* was involved, and thus her use history, are particularly well documented. Additionally the loss of the vessel during World War I places it within a very well documented context. Survival and investigation are sufficient to understand the wreck remains, and recreational divers may be able to provide more detailed information on this wreck site.
- 8.10.4. **Group value:** Wartime losses in general, many of which were associated with submarine activities, form part of the wider group of the *Chirripo*. Additionally *Chirripo* lies in an area approaching Belfast Harbour where a number of other WWI wrecks are located, such as the *Rose II* (see section 9), lost during minesweeping activities. Both vessels are representative of the problems caused by minelaying in the area.
- 8.10.5. **Survival/Condition:** The sources which provide information on the survival and condition of the wreck indicate that it survives well, although the superstructure is no longer intact, indicating some deterioration on site. The propeller has also been removed. However, further investigation is necessary to comment further on this characteristic.
- 8.10.6. **Fragility/Vulnerability:** As for survival/condition more information is needed to fully understand the fragility or vulnerability of the wreck remains. However, the site is known to be visited by divers and the propeller has been raised. These factors suggest that the wreck may be vulnerable to salvage by recreational divers.
- 8.10.7. **Diversity:** At present there is not sufficient evidence to assess this characteristic. However, on current evidence there are no known features of the *Chirripo* which indicate value in terms of diversity.
- 8.10.8. **Potential:** As with other wreck sites it is possible that the remains may be able to throw light on wreck site formation and preservation processes.

9. HIGH PRIORITY VESSEL: ROSE II

9.1. Introduction

9.1.1. A wreck which lies at 54.73785, -5.64715 (WGS84, decimal degrees) has been identified as the remains of the *Rose II* (Figure 1).

9.2. Location

9.2.1. The position given above reflects that recorded by the UKHO. Although this position is problematic as the UKHO indicate that it is a dead record, they note that the wreck is considered to be now covered with silts. The CMA record the wreck of the *Rose II* approximately 25m to the west-north-west of the UKHO position. This has been confirmed by diver reports. The remains of the wreck, thought to be the *Rose II* are reported as being clearly visible on the RN/AFBI multibeam (2011), in contrast to the UKHO records (dated to 2008).

9.3. The wreck remains

9.3.1. The wreck remains lie at a depth of 20m (according to the CMA) and have been recorded as an anomaly measured at: length 35m and beam 6.5m. The wreck is thought to be upright and mainly intact, although the bow has collapsed. The remains were identified as those of the *Rose II* by the recovery of the ship's bell in 1980 (Irish Wrecks Online 2008c).

9.4. Archival holdings and documentary sources

9.4.1. *Rose II* was built as a trawler, and in 1914 was hired as a minesweeper. The history of the vessel highlights a number of avenues for locating possible archival records.

9.4.2. The Royal Naval Reserve (RNR) had a section specifically focused on the deployment of trawlers for minesweeping and patrol duties in coastal waters: the Royal Naval Reserve Trawler Section. Guidance to these records indicates that the service records of those who served in the RNR trawler section are held at the National Maritime Museum (in the ADM 377 section). Fleet Air Museum also holds records of the Royal Naval Reserve from 1909-1955.

9.4.3. Although documentation relating to the individuals involved with the RNR appears to be relatively extensive (documents are primarily held by the National Archives, Kew and the National Maritime Museum), documents relating to the *Rose II* were found to be few. Online catalogues for the National Maritime Museum and National Archives were searched (using search terms including the name of the vessel and official number), and the only records found relating to this vessel were the certificate of registry (National Archives, Kew, BT 110/400/31) and the Court of Enquiry documents produced following the loss of the HM armed trawler *Rose II* (National Archives, Kew, ADM 137/3275).

9.5. Documents relating to the construction of the vessel

9.5.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/400/31: Not accessed);
- Lloyds Registers; and
- Lloyds Surveys. A number of surveys were conducted on the *Rose II*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Hul 19587; Gms 6279, 7970, 8131, 8823, 9564 (detailed within index number LLY/IND/8/1).

9.5.2. Further information is likely to be held in the archives of the shipbuilding company responsible for the construction of *Rose II*: Cochrane & Sons, Selby. The archives for this company are held by the North Yorkshire County Records Office. However, cataloguing for this archive is on-going and it is unclear whether the Record Office hold any documents which relate to the *Rose II*. Additionally Hull Maritime Museum also hold archives from Cochranes Shipyard (HMM1), including photographs, brochures and specifications etc., however, no records relating to the *Rose II* could be located using online catalogues.

9.6. Documents relating to the use of the vessel

9.6.1. Sources which give details relating to the use of the vessel comprise:

- Lloyds Registers, which indicate the owner of the vessel;
- Court of Enquiry documents produced following the loss of the HM armed trawler *Rose II* (National Archives, Kew, ADM 137/3275), which, although focused on the loss of the vessel, also give details relevant for understanding the use of the armed trawler, and its use context.

9.7. Documents relating to the loss of the vessel

9.7.1. The primary source which gives information on the loss of the vessel are the Court of Enquiry documents produced following the loss of the HM armed trawler *Rose II* (National Archives, Kew, ADM 137/3275).

9.7.2. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) also give details of the loss. Additionally the UKHO also gives a brief description of the loss of the vessel. As the *Rose II* was lost after she struck a mine laid by the UC 66, details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). Details of the loss of the vessel are also likely to be given on the Board of Trade Certificate of Registration, however this was not accessed.

9.8. Documents relating to the survival of the vessel

9.8.1. Remains identified as the *Rose II* have been recorded by RN/AFBI multibeam echo sounder (2011). The UKHO have also previously recorded this wreck, but their records indicate that they now believe it to be covered by silts. Diver accounts also inform the surviving condition of the wreck and numerous websites detailing diver reports have been located (e.g. Irish Wreck Online 2008c). These are the primary sources of information relating to the survival of the vessel. No salvage records have been located.

9.8.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. Other, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Rose II* can be gleaned from geophysical surveys undertaken by RN/ AFBI (2011) and from diver accounts.

9.9. Documents relating to the investigation of the vessel

9.9.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO, geophysical survey and diver reports are the principal sources.

9.10. History of the *Rose II*

- 9.10.1. **Build:** The *Rose II* was built (as *Rose*) in 1907 by Cochrane & Sons, Selby, Yard 415. The vessel was a British steam trawler built as Lloyds class 100A1, under special survey. The boilers and machinery were certified by the engineer surveyors to Lloyd's Register. The vessel's official number was 125081.
- 9.10.2. **Machinery, propulsion and specifications:** The Lloyds Register for 1917-1918 indicates that the vessel was a steel-hulled steam trawler with screw propulsion and ketch rigging. The vessel had one triple-expansion three-cylinder engine, with a single ended boiler and 2 plain furnaces. The machinery was made by C. D. Holmes & Co. Hull. The vessel had 4 bulkheads. *Rose II* had a gross tonnage of 213, with an under-deck tonnage of 198 and net tonnage of 102
- 9.10.3. **Internal arrangement:** The trawler had one deck. According to accounts detailed within the Court of Enquiry documents (ADM 137/3275), the engine room appears to have been situated below, with a ladder leading upward and out onto deck. The presence of a kitchen can also be assumed from the cook's account of the sinking of the *Rose II*.
- 9.10.4. **Fittings and equipment:** The *Rose II* was constructed as a trawler and in 1914 was converted for minesweeping activities. As for other trawlers used for minesweeping, a single 6 pound deck gun was mounted on to the vessel (Dittmar & Colledge 1972). Accounts within the Court of Enquiry document make reference to details of the vessel (ADM 137/3275). Features mentioned include the winch and anchor.
- 9.10.5. **Use:** The vessel was constructed as a steam trawler, and was registered to Grimsby under the ownership of A & R Osborne. Little is known of the vessel during its time as a trawler.
- 9.10.6. In 1914 the vessel was hired by the Admiralty (Admiralty No. 592) and converted for use as a minesweeper, a use to which a great many trawlers were put during WWI. According to *British Warships 1914-1919* there were 1456 hired trawlers during this period (Dittmar & Colledge 1972). The Court of Enquiry documents indicate that the vessel was stationed at Larne Naval Base and was conducting minesweeping operations from that location alongside other trawlers (ADM 137/3275).
- 9.10.7. **Loss:** On 23rd April 1917 while in Admiralty service in Belfast Lough the *Rose II* was sunk (Lloyds War Losses) by a mine which had been laid by the coastal minelayer submarine UC 66. This submarine was responsible for the loss of 33 vessels over its lifetime (Helgason 1995-2015).
- 9.10.8. During the sinking of the *Rose II* six of the crew lost their lives. Those lost were:
- Adam, Samuel S, Trimmer, RNR
 - Buchan, John, 2nd Hand, RNR
 - Buchan, William, Trimmer, RNR
 - Mcateer, James, Deck Hand, RNR
 - Steven, William, Leading Seaman, RNR (Shetland Section)
 - Wright, James, Ty/Skipper, RNR (information from Kindell 2011)
- 9.10.9. The Court of Enquiry documents give detailed information about the loss of this vessel. A report written by the Lieutenant on board a nearby vessel, the *Nellie Braddock*, recounts the event:

- 9.10.10. *'...at 6.20am, GMT, April 23rd, I weighed anchor in Belfast Lough and proceeded in company with trawlers "Vera", "Rose II" and "Earl Lennox" under my orders, to 1 ½ miles SE + S of Black Head to sweep entrance to Belfast Lough. I passed sweeps at 6.40am, steering SSE mag.*
- 9.10.11. *I regret to report that at 6.50am, the trawler "Rose II" who was sweeping with me, struck a mine and sank. I immediately stopped and sent a boat and rescued four men. The "Earl Lennox", who also sent a boat, picked up two others. The boats remained on the spot for about half an hour, but, unfortunately, we found no other survivors.*
- 9.10.12. *I ...(illegible writing)... this loss through Black Head at once, and returned to Base with all survivors, two of whom were injured. I arrived alongside in Larne at 8.50am and landed the rescued men, the injured being sent straight to hospital'.*
- 9.10.13. Accounts from members of the crew on board *Rose II* were also collected by the Court of Enquiry. These accounts generally corroborate the detail given from the *Nellie Braddock*, however can, in some cases, add to the detail. An account from seaman Thomas George RNR indicates that he *'was called about 6.30 and the Deck Hand shouted down "Everyone to deck", to begin to pass the sweep wire, the "Nellie Braddock" took in wire. We had just finished paying out sweep wire and had just blown whistle to inform "Nellie Braddock" that the wire was all out when the explosion took place amidships. I was standing by the fore part of the winch and I do not remember anything more until I found myself in the water, when I saw a broken Dan Buoy and I swam to it. Afterwards I swam to a grating and the first man I recognised was the winchman. I saw the winchman, Edward Farrow, swimming, with his face cut. I was in the water altogether about ten minutes and was picked up by a boat from the "Nellie Braddock"'* (ADM 137/3275).
- 9.10.14. Further understanding of the context of the loss can be gleaned from a note within the Court of Enquiry file made by Commodore RNR Cuming, which states that *'it would be a great advantage, and far less risky, if a pair of paddle-sweepers could be allocated to this Base. Such craft, with their speed and small draught, could rapidly (and comparatively safely) cover the area of any suspected minefield, which would appear to be a better method than using these deep-draught Trawlers, if this could be arranged'* (ADM 137/3275). This quote serves to illustrate wider concerns and discussions about the suitability of different vessel types to different wartime activities.
- 9.10.15. **Survival:** The vessel is reported by the CMA to be upright (extending up to 6m above the seabed) and mainly intact, with the exception of the bow, which is collapsed. In previous surveys the UKHO have recorded the wreck, however the most recent entry in the 'surveying details' field of the Wrecks and Obstructions database indicates that the wreck was not located by a multibeam survey conducted in 2008, and the wreck is considered to now be covered. The surveying details also indicate that prior to this date the wreck may have been dispersed and the area had been swept. However, diving websites, also updated in 2008, give details of the wreck, including its position and descriptions relevant to understanding its condition. The bow reportedly does not survive, and there are records of unexploded spigot mortars on the site (Irish Underwater Council 2015). That the vessel was mined may relate to the poor condition of the bow, which reports indicate has been 'blown off' (Irish Wreck Online 2008c), however further information may be needed to confirm this as accounts of those on board the *Rose II* when it struck the mine indicate the explosion occurred amidships (see extract above, ADM 137/3275).

9.10.16. **Investigation:** The CMA indicate that the wreck has been investigated by divers, the UKHO and multibeam bathymetry conducted by RN/ AFBI in 2011. The UKHO give details of their surveys which have recorded the wreck:

- An undated entry indicates that the wreck at 544409N, 053818W had been dispersed.
- A survey reported on 24.02.1940 indicates that the wreck had been recorded in 9 fathoms and 4 feet of water. This was corroborated by a survey in 1961, which added that the general depth around the wreck was 11 fathoms.
- A report on 04.01.1962 indicates that the wreck was examined and swept clear at 54ft. The foul (assumed to be the wreck) lay at a depth of 56ft. The least echosounder depth was recorded as 59ft in a general depth of 80ft. The record was then amended to 'wreck, least depth 9 fathoms, in 544416N, 053846W or 140DEGS, 2.27M from Black Head'.
- A report from 24.08.1979 gives details of a diver visit to the site: 'Dived on July 1979. Apart from the bow, which is a tangled mass of wreckage, it is still in one piece. Sits upright on a western heading. Heavily silted. Least depth 60ft in general depth of 70ft (LWS). Large scour at stern' (R. V. Barr 16.8.1979).
- A second diver record dated 08.09.1980 indicates that the identification was confirmed by the ship's bell.
- A note dated 23.09.2010 indicates the area was examined in 2008, but was not located by multibeam. The wreck is now considered to be covered, and the record has been amended to dead.

9.10.17. A diver website also indicates that the vessel had been sold by the Board of Trade to an unknown party, however it has not been possible to verify this (Irish Wreck Online 2008c).

9.11. Assessment of Significance of the *Rose II*

9.11.1. **Period:** The vessel struck a mine on 23 April 1917, laid by a German submarine. Minelayer submarines had been at work around British coastlines since June 1915, and many vessels were lost due to their activities. In order to counter the minelaying activities minesweepers were employed, many of which were requisitioned fishing vessels (Wessex Archaeology 2001 b: 55). The *Rose II* represents one such vessel, lost while conducting minesweeping duties. Wider aspects of period value relate to its loss in WWI.

9.11.2. **Rarity:** The vessel represents a hired trawler built in 1907. Dittmar & Colledge (1972) record that of the 1456 listed hired trawlers, 10 were built in the 1880's, 178 in the 1890's, 550 in the 1900's and 718 from 1910. Falling within the group from the 1900's it can be seen that the *Rose II* is not rare. In terms of wreck remains *Assessing Boats and Ships from 1860-1950*, for the period 1914-1938, indicated that a total of 73 wrecks of fishing vessels requisitioned by the Royal Navy to act as auxiliary military vessels (including minesweeping) have been identified. A breakdown of this number shows 19 vessels were used for minesweeping and patrol and a further 7 were involved solely in minesweeping (Wessex Archaeology 2001 b: 55). These numbers are not particularly high and suggest that the wreck of the *Rose II*, as a trawler used as a minesweeper, is not especially common.

9.11.3. **Documentation:** Documentation dealing with the built-form, use and particularly the loss of the vessel is sufficient to understand these elements of *Rose II*'s life. In particular the Court of Enquiry documents produced following the loss of the armed trawler *Rose II* give

contextual detail and factual evidence pertaining to the loss of the vessel. Additionally the loss of the vessel during World War I places it within a very well documented context. Survival and investigation are less easy to assess. On present knowledge UKHO and diver reports appear contradictory and documentation is not considered to be sufficient to understand the survival and investigation of the wreck remains.

- 9.11.4. **Group value:** Wartime losses in general, many of which were associated with submarine activities, form part of the wider group of the *Rose II*. Additionally *Rose II* lies in an area approaching Belfast Harbour where numerous other WWI wrecks are located, such as the *Chirripo*, lost after she struck a mine. Both vessels are representative of the problems caused by minelaying in the area.
- 9.11.5. **Survival/Condition:** The sources which report on the survival and condition of the wreck appear to be contradictory. The UKHO reports that the wreck was probably covered in 2008, while divers give detail of the condition of the wreck in the same year, indicating that it was still accessible. Further investigation is therefore necessary to comment further on this characteristic.
- 9.11.6. **Fragility/Vulnerability:** As for survival/condition more information is needed to fully understand the fragility or vulnerability of the wreck remains.
- 9.11.7. **Diversity:** At present there is not sufficient evidence to assess this characteristic. However, on current evidence there are no known features of the *Rose II* which indicate value in terms of diversity.
- 9.11.8. **Potential:** As with other wreck sites it is possible that the remains may be able to throw light on wreck site formation and preservation processes. Further investigation also has the potential to clarify the situation with regards to the wreck remains and to explore contradictory accounts given in 2008 from the UKHO and diving community.

10. LOW PRIORITY VESSEL: LUGANO

10.1. Introduction

10.1.1. A wreck which lies at 55.28023, -6.2933 (WGS84, decimal degrees) has been identified as the probable remains of the *Lugano* (Figure 1).

10.2. Location

10.2.1. The position given above reflects that recorded by the UKHO, and is in agreement with the CMA position. The remains of the wreck, thought to be the *Lugano* are reported as being clearly visible on JIBS multibeam (2008).

10.3. The wreck remains

10.3.1. The wreck remains lie at a depth of 83m (according to the CMA) and have been recorded as an anomaly measured at: length 106.7m and beam 15.6m. The wreck is thought to be upright and intact. The basis for identification is uncertain, but may include the loss position and dimensions of the wreck.

10.4. Archival holdings and documents relating to the construction of the vessel

10.4.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/355/4);
- Lloyds Registers.

10.4.2. Further information is likely to be held in the archives of the shipbuilding company responsible for the construction of *Lugano*: Irvine's Shipbuilding & Drydocks Co., West Hartlepool. However, these archives have not been located. No Lloyds Survey records could be located within the index held within the National Maritime Museum, and discussion with the staff indicated that this may be due to the fact that the *Lugano* was built during wartime.

10.5. Documents relating to the use of the vessel

10.5.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/355/4);
- Details of the last convoy of which the *Lugano* was part, before being mined (these details are given within the Undesignated Site Assessment for the HMS Drake [Wessex Archaeology 2006]);
- Lloyds Registers, which indicate the owner of the vessel;
- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the wartime use of the *Lugano*. This list was accessed at the Caird Library; and
- the website uboat.net also gives details which relate to the final voyage of the *Lugano* (Helgason 1995-2015).

10.6. Documents relating to the loss of the vessel

- 10.6.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) give details of the loss of the *Lugano*.
- 10.6.2. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration. The UKHO also gives a brief description of the loss of the vessel. As the *Lugano* was lost after she struck a mine laid by the U79, details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015), as are details recorded by the Ministry of Shipping in their report on the *System of Convoys for Merchant Shipping in 1917 and 1918* (accessed at the Caird Library).
- 10.6.3. Additionally the Undesignated Site Assessment for the HMS Drake gives details of the loss of the *Lugano*, from the perspective of the HMS Drake (Wessex Archaeology 2006).

10.7. Documents relating to the survival of the vessel

- 10.7.1. Remains identified as the *Lugano* have been recorded by JIBS multibeam (CMA reference this, 2008). The UKHO have also conducted surveys of the wreck. Diver accounts also inform the surviving condition of the wreck and numerous websites detailing diver reports have been located (e.g. Irish Wreck Online 2008d; Dr Charles W, 2012). These are the primary sources of information relating to the survival of the vessel. No salvage records have been located.
- 10.7.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Lugano* can be gleaned from geophysical surveys undertaken by JIBS (2008). There are also diver accounts of this wreck.

10.8. Documents relating to the investigation of the vessel

- 10.8.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO, geophysical survey and diver reports are the principal sources.

10.9. History of the *Lugano*

- 10.9.1. **Build:** The *Lugano* was built in 1917 by Irvine's Shipbuilding and Drydocks Co Ltd., West Hartlepool. The vessel was a British cargo-carrying steamship. The vessel's official number was 137545.
- 10.9.2. **Machinery, propulsion and specifications:** *Lugano* was a steel-hulled cargo vessel, built with an elliptical stern and of clinker construction. The vessel was screw-propelled and schooner rigged. *Lugano* was fitted with a single three-cylinder triple-expansion inverted, direct-acting surface-condensing engine, and with two multi-tubular boilers, of steel. Both the engines and boilers were built in 1917 by Richardsons Westgarth and Co. Ltd., Hartlepool. The vessel had six bulkheads and eight water ballast tanks. The gross tonnage of the vessel is recorded as 3810.18, and the registered tonnage is recorded as 2372.32. The dimensions are recorded as 350ft x 51.1ft x 24ft.
- 10.9.3. **Internal arrangement:** The steamship had one deck. The certificate of registration gives some details of the internal arrangements of the ship, and indicates the presence of deck houses and a poop deck, master's accommodation, boatswains store, chart space and water ballast spaces. The forecastle and bridge space are also noted.

- 10.9.4. **Fittings and equipment:** The vessel had electric lighting.
- 10.9.5. **Use:** The vessel had a very short life. The certificate of registry is dated March 1917, and the vessel was lost in October of the same year. The Lloyds Register for 1917-1918 indicates that the *Lugano* had been owned by Furness, Withy & Co. Ltd., however this had been crossed out and replaced with Gulf Line Ltd. The latter are also noted on the certificate of registry (BT 110/355/4).
- 10.9.6. Furness, Withy & Co. Ltd are named as the owners of the vessel in the Service List compiled by the Shipping Intelligence Section (1921). The Service List also indicates that between 4 April 1917 and 10 May 1917 the *Lugano* was hired and used as a collier (No. 1533), and between 11 May 1917 and 13 July 1917 the vessel was used in the transportation of wheat and other goods for the Royal Commission (Shipping Intelligence Section 1921).
- 10.9.7. **Loss:** The certificate of registry contains the following note on the loss of the *Lugano*:
- 10.9.8. *'Registry closed 24th October 1917. Ship mined or torpedoed off the North East coast of Ireland on 2nd October 1917. Certificate lost with the vessel. Advice received from the manager'* (BT 110/355/4).
- 10.9.9. The UKHO indicates that the vessel had been inbound, travelling from Newport News, Virginia to Liverpool with a cargo of steel and cotton when lost (Lloyds War Losses). She formed part of inbound convoy HH24, which saw a series of losses on 2nd October 1917. The HMS *Drake*, also lost off Rathlin Island, had been involved in escorting the inbound convoy from America. HMS *Drake* was torpedoed on 2nd October 1917, after issuing orders for the convoy to disperse and for the ships to make their way to their designated ports. Following this event the HMS *Drake* collided with the merchant cargo vessel, the *Mendip Range*. Shortly after, HMS *Brisk* is thought to have struck a mine and sustained damage. The *Lugano* is also thought to have suffered the same fate, leading to the loss of the vessel. The Signal Log from the HMS *Drake* indicates that the *Portia* had sent a message to HMS *Drake* at 10:55 indicating the *Lugano* had been lost 5 miles off Rathlin Bay, and that the men were in boats (Wessex Archaeology 2006). No lives were lost with this ship.
- 10.9.10. The *Lugano* was lost off Rathlin Island. The area around the island has large numbers of shipwrecks, including 2 others discussed within this report: the *Andania* and *Santa Maria*. The HMS *Drake* also lies off Rathlin Island. Rathlin Island lies in the area defined during WWI, and WWII, as the North Western Approaches. This area was frequently patrolled by German submarines aiming to launch attacks on convoys or marshalled ships. It was the U79, an ocean minelayer, which was responsible for the loss of both *Lugano* and HMS *Drake*. The submarine had laid 11 mines across the channel from Bull Point on the western tip of Rathlin Island, to the south-west on the 29th November, and later on the 2nd October torpedoed HMS *Drake* (information from war diaries of the U79 cited in Wessex Archaeology 2006). *Lugano* is thought to have struck the mines laid by U79. This submarine was responsible for sinking 24 ships, and damaging a further three, between 1916 and 1918 (Helgason 1995-2015).
- 10.9.11. **Survival:** The UKHO indicate that the wreck is intact and upright, with the bow facing westward. Diver reports also suggest that the wreck lies upright in the tidal stream, which runs north-west. There is reported to be a large hole in the starboard side of the wreck and the forward bridge has collapsed (Irish Wrecks Online 2008d). Diver videos show extensive and well preserved wreckage and include features such as railings, the stern gun, winches and hull remains (Dr Charles W, 2012). The vessel lies on a rocky seabed.

10.9.12. **Investigation:** The CMA indicate that the wreck has been investigated by divers, the UKHO and multibeam bathymetry conducted by JIBS in 2008. The UKHO give details of their surveys which have investigated the wreck:

- An undated entry into the Wrecks and Obstructions database indicates that the Lugano was sunk 2 miles off Bull Point, Rathlin Island, at 551600N, 061830W
- Records dated to 11.10.1972 and 31.10.1972 indicates that this was amended to a wreck (PA/ USC PA) in 11 fathoms, and in 1973 this was updated to 20metres.
- On 16.10.1974 the position was reported as 551600N, 061830W (Ridson Beazley Marine is given as the authority)
- On 25.04.1980 the wreck was reportedly located earlier in the year (6.3.80) at 551648N, 061742W. This position was derived from radar and compass bearing, and was considered to have an accuracy of 50 yards. The least echosounder depth was recorded as 75m, in general depths of 86m.
- On 10.10.1985 the wreck was reported to lie at 200 degrees.
- On 20.11.2004 the vessel was stated to be upright and standing 10m off the seabed.
- On 13.05.2009 a report was made that that vessel had been located at 16.06.2008, in 5516.814N, 0617.598W, using dGPS. The least multibeam depth was recorded as 73.72m in a general depth of 83.8m. No scour was reported. The length of the wreck was reported to be 112m, the width 30m and the height 10.1m. It reportedly lies at 097/277 degrees, with the bow facing westward. The wreck is thought to be upright and intact, and is reported to be a moderate magnetic anomaly.

11. LOW PRIORITY VESSEL: SOLWAY QUEEN

11.1. Introduction

11.1.1. A wreck which lies at 54.83677, -5.46253 (WGS84, decimal degrees) has been identified as the possible remains of the *Solway Queen* (Figure 1).

11.2. Location

11.2.1. The position given above reflects that recorded by the UKHO, and lies approximately 22m to the east-south-east of the CMA position. The remains of the wreck, thought to be the *Solway Queen* are reported as being clearly visible on RN/AFBI multibeam (2011).

11.3. The wreck remains

11.3.1. The wreck remains lie at a depth of 130m (according to the CMA) and have been recorded as an anomaly measured at 44.2m x 7m. The anomaly is recorded as a small and intact wreck. The basis for identification is uncertain, but may include the loss position and dimensions of the wreck.

11.4. Archival holdings and documents relating to the construction of the vessel

11.4.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/414/7);
- Lloyds Registers; and
- Lloyds Surveys. A number of surveys were conducted on the *Solway Queen*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Liv 28881; Whn 13718; Mib 1715; Whn 3789, 3796; Liv 30989; Brw 58.77.145; Whn 3949; Brw 375; Cff 8807 (detailed within index number LLY/IND/4/2).

11.4.2. Further information is likely to be held in the archives of the shipbuilding company responsible for the construction of *Solway Queen*: R. Smith, Preston. However, these archives have not been located.

11.5. Documents relating to the use of the vessel

11.5.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/414/7);
- Lloyds Registers, which indicate the owner of the vessel;
- the website uboat.net also gives details which relate to the final voyage of the *Solway Queen* (Helgason 1995-2015); and
- Crew lists also exist, dating to 1915. These are held at the National Maritime Museum RSS/CL/1915/3400/95, RSS/CL/1915/3400/100.

11.6. Documents relating to the loss of the vessel

11.6.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) provide details on the loss of the *Solway Queen*. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration. The UKHO also gives a brief description of the loss of the vessel. As the *Solway Queen* was torpedoed fired by the U101 details of the submarine, held at uboat.net

are also of relevance for understanding the loss (Helgason 1995-2015). War diaries for this submarine have not been accessed, but may exist and may be able to provide further details on the sinking of the *Solway Queen*.

11.7. Documents relating to the survival of the vessel

- 11.7.1. Remains identified as the *Solway Queen* have been recorded by RN/AFBI multibeam (2011, cited by CMA). The UKHO have also conducted surveys of the wreck. These are the primary sources of information relating to the survival of the vessel. No salvage records have been located, and no diver accounts have been identified (probably owing to the depth and location of the wreck).
- 11.7.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Solway Queen* can be gleaned from geophysical surveys undertaken by RN/ AFBI multibeam (2011).

11.8. Documents relating to the investigation of the vessel

- 11.8.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO and geophysical survey are the principal sources.

11.9. History of the *Solway Queen*

- 11.9.1. **Build:** The *Solway Queen* was built in 1883 by Richard Smith & Co., Ashton Quay, Preston. This company was later to become Lytham Shipbuilding & Engineering Co Ltd, Lytham. From around 1860 the company began constructing sailing ships, cargo steamships, yachts and tugs. Later in the 19th century the company began the construction of coasters for the Irish Sea and other vessel types for further afield (Dakres 1992). *Solway Queen* was a British steamship. The vessel's official number was 84635, and Lloyds Registers indicate that the ship was a Lloyds class 100A1.
- 11.9.2. *Machinery, propulsion and specifications:* *Solway Queen* was an iron-hulled cargo vessel, built with an elliptical stern and of carvel construction. The vessel was screw-propelled and schooner rigged, with 3 masts. *Solway Queen* was constructed with a compound surface-condensing engine in 1883, built by R. Smith, Preston. The vessel also had 1 single ended boiler (Lloyds Register 1902-1903), replaced in 1887 with a boiler constructed under special survey (Lloyds Register 1902-1903). The engine appears to have been upgraded during the lifetime of the ship, and by the time the Lloyds Register for the years 1917-1918 was produced the *Solway Queen* had been fitted with a three-cylinder triple-expansion made by Hall, Russell & Co. Ltd, Aberdeen. This upgrade occurred during the 20th century, as the Lloyds Register for 1902-1903 indicates the vessel still had its original engine at that time. The vessel had three bulkheads (Lloyds Register 1889).
- 11.9.3. The gross tonnage of the vessel was recorded as 306.69, and the registered tonnage was recorded as 112.97 in 1898. The tonnage of the vessel was changed in 1914 under the provisions of the Merchant Shipping Act 1907. From 1914 the registered tonnage was altered to 115.18. The gross tonnage remained unchanged (BT 110/414/7). The dimensions are recorded as 145.0 ft x 23.1ft x 10.2ft (Lloyds Register 1889).

- 11.9.4. **Arrangement:** The steamship had one deck. The vessel had a well deck, break and houses amidships (BT 110/414/7). The certificate of registration gives some details of the internal arrangements of the ship, and indicates the presence of benching for officers and crew.
- 11.9.5. **Use:** The vessel had a relatively long life compared with others discussed within this report, and was in use for over three decades before the outbreak of WWI. The certificate of registry notes that the *Solway Queen* was originally registered to Whitehaven (from 1883), and from 1898 was registered to Aberdeen. A selection of Lloyds Registers were accessed in order to track the registration and ownership of the vessel:
- 1889: Whitehaven Registered, owned by Solway SS Company;
 - 1892-1893: Whitehaven Registered, owned by Solway SS Company. Burnyeat, Dalzell and Co are noted as the managers;
 - 1901-1902: Aberdeen Registered, owned by NE Shipping Co. Ltd. (G. Elsmie & Sons, managers);
 - 1902-1903: Aberdeen Registered, owned by NE Shipping Co. Ltd. (G. Elsmie & Sons, managers); and
 - 1917-1918: Aberdeen Registered, owned by Kynoch-Arklow Ltd.
- 11.9.6. The vessel was a steam coaster, used in coastal trade. Its last owner, Kynoch-Arklow Ltd. was involved in the explosives business, and their operations involved the production of cordite (History Ireland 2015). The *Solway Queen* may have been involved in the transportation of materials associated with this industry. On her last voyage the UKHO indicate she had a cargo of coal.
- 11.9.7. **Loss:** The certificate of registry contains the following note on the loss of the *Solway Queen*:
- 11.9.8. *Registry closed on this 29th April 1918. Vessel sunk by enemy submarine off Ayrshire coast on 2nd April 1918. Certificate lost with the vessel. Advice received from the owner 2.5.18' (BT 110/414/7).*
- 11.9.9. The loss of the vessel was reported in Lloyds List (April 1918), which indicated that the vessel had been torpedoed 7 miles west from Black Head (Rhiw n.d.), while Lloyds War Losses indicate the position as 7 miles east of Killantringan Lighthouse. The UKHO indicates that the vessel had been under the ownership of Kynoch-Arklow when lost, and Lloyds War Losses record that the *Solway Queen* had been en route from Ayr to Newry with a cargo of coal when torpedoed by the German submarine U101. The UKHO entry also indicates that 10 men and the captain of the vessel were lost with the ship. A telegram, apparently addressed to one of the crew's family members, and reporting the loss of one of the crew read '...*Solway Queen* lost on Tuesday and afraid Mr Thomas also lost' (Rhiw n.d.).
- 11.9.10. The U101 was an ocean-going diesel-powered torpedo attack boat. This submarine had been responsible for the sinking of 23 ships, and had caused damage to a further 3 between 1917-1918 (Helgason 1995-2015).
- 11.9.11. **Survival:** The UKHO indicate that the wreck is intact. The CMA report that the anomaly indicating the presence of the wreck measures 50m, and is clearly visible in the RN/AFBI multibeam data.
- 11.9.12. **Investigation:** The CMA indicate that the wreck has been investigated by the CMA, UKHO and multibeam bathymetry conducted by RN/AFBI in 2011. The UKHO give details of their surveys which have investigated the wreck:

- An entry dated to 23.04.1918 reports on the sinking of the vessel and indicates that the Solway Queen sank about 7 miles off Killantringan Blackhead Lighthouse, and sank at once.
- A note entered on 8.12.1961 indicates that the remains were considered a non-dangerous wreck.
- On 10.08.1972 this was amended such that the indicated that the position is that of an unsurveyed wreck with safe clearance depth, position approximate, depth 55m.
- On 20.2.1973 the wreck was located in 545012N, 052740W [OGB], using Hi-Fix 2 [LOP]. The least echosounder depth was recorded as 124m, in a general depth of 130m. No scour was recorded and the seabed was recorded as being of sand. This survey showed the presence of a small wreck, around 80ft in length, lying 100/250 degrees, on a slight rise. The wreck was reported to extend to a minimum depth of 68 fathoms (124m).
- On 23.1.2004 the European Terrestrial Reference System 1989 (ETRS) was given as 5450.204N, 0527.732W
- A report inputted in 24.9.2010 indicates that the wreck was examined in 2008, at 5450.206N, 0527.752W [WGD], using dGPS. The least multibeam depth was recorded as 122.74m. The dimensions of the anomaly were recorded as length, 54.7m and height 2.74m.

12. LOW PRIORITY VESSEL: NEOTSFIELD

12.1. Introduction

12.1.1. A wreck which lies at 54.52723,-5.38757 (WGS84, decimal degrees) has been identified as the possible remains of the *Neotsfield* (Figure 1).

12.2. Location

12.2.1. The position given above reflects that recorded by the UKHO, and lies approximately 32m to the south-east of the CMA position. The CMA indicate that this position is reasonable.

12.3. The wreck remains

12.3.1. The wreck remains lie at a depth of 45m (according to the CMA) and have been recorded as an anomaly measured at 103.6m x 14.3m. The anomaly is recorded as an intact and upright wreck, extending to 12m in height. The stern gun is noted to be in place and the bridge is now reported to be an open framework.

12.4. Archival holdings and documents relating to the construction of the vessel

12.4.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/372);
- Claims for damages dating to 1918 (National Archives, Kew, RAIL 1057/1332). Details of the damages provide information about the built-form of the ship;
- Lloyds Registers; and
- Lloyds Surveys. A number of surveys were conducted on the *Neotsfield (Ada)*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Hpl 13021, 13215; Bry 9790; Cff 30171; Bry 10653; Cff 31911; Bry 12029; Npt 16810; Cff 84257; Bal 1540; Bry 13166; Nwc 65265; PSd 19; Cff 36368; Cfl 2447; Nwc 66582; NN 8733; NYK 12554; Cff 38620; Brs 9793; Sws 14006; Liv 75614; Npt 18801; NNS 1073; Liv 760537; Cff 39441; Npt 18955; Liv 76447; MSL 4657 (detailed within index number LLY/IND/5). The above surveys were conducted while the vessel was named *Ada*. The following surveys were carried out on the vessel following the renaming to *Neotsfield*: Sws 14376; NOp 1549; B 10154 (detailed within index number LLY/IND/7).

12.4.2. Further information is likely to be held in the archives of the shipbuilding company responsible for the construction of *Neotsfield (formerly Ada)*: Furness, Withy & Co Ltd, West Hartlepool. These archives have not been located, however, online sources for ships built at Teesside, including for *Neotsfield*, are available. The UKHO also give details of the ship's specifications.

12.5. Documents relating to the use of the vessel

12.5.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/372);
- Claims for damages dating to 1918 (National Archives, Kew, RAIL 1057/1332);
- Lloyds Registers, which indicate the owner of the vessel;

- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the wartime use of the *Neotsfield*. This list was accessed at the Caird Library;
- the website uboat.net also gives details which relate to the final voyage of the *Neotsfield* (Helgason 1995-2015); and
- West Hartlepool Shipping Register (under the records of H.M Custom and Excise, Ports of Hartlepool, West Hartlepool, Middleburgh and Stockton) also holds details for the ship *Neotsfield*. Held at Teesside Archives. However, the reference for this detail was unavailable on the online catalogue and the date of the document is also unknown. It must be noted that there was a later ship named *Neotsfield*, as well as an earlier vessel built in 1889, and as the record is undated it has not been possible to verify whether this document relates to the ship under study or the other vessels.

12.6. Documents relating to the loss of the vessel

12.6.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) provide details on the loss of the *Neotsfield*. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration. The UKHO also gives a brief description of the loss of the vessel. As the *Neotsfield* was sunk following a torpedo strike by the UB 64 details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). War diaries for this submarine have not been accessed, but may exist and may be able to provide further details on the sinking of the *Neotsfield*.

12.7. Documents relating to the survival of the vessel

12.7.1. Remains identified as the *Neotsfield* have been recorded by divers and the CMA. The UKHO have also conducted surveys of the wreck. These are the primary sources of information relating to the survival of the vessel.

12.7.2. Details of the surviving features of the wreck are also available from diver websites, and divernet.com includes a wreck tour of the site with details of the surviving features and a plan ([Divernet.com](http://divernet.com) 2011).

12.7.3. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Neotsfield* can be gleaned from diver reports and UKHO survey details.

12.7.4. A document held in the Kent History and Library Centre, entitled 'The Neosfield-salvage' (reference CPw/AP/1916/1) may hold details relating to salvage attempts on the vessel, however the document is dated to 1916 and was therefore produced two years prior to the sinking of the vessel. Thus, it is unlikely that this document would illuminate surviving seabed remains, and it is possible that the document may not relate to this vessel. This document was not accessed.

12.8. Documents relating to the investigation of the vessel

12.8.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus divers and the UKHO are the principal sources.

12.9. History of the *Neotsfield*

- 12.9.1. **Build:** The *Ada* (later, *Neotsfield*) was built in 1906 by Furness, Withy & Co. Ltd., Middleton, Hartlepool, a company responsible for building ships including transatlantic tramp-steamers and liners. *Neotsfield* was a British steamship. The vessel's official number was 119896.
- 12.9.2. **Machinery, propulsion and specifications:** *Neotsfield* was a steel, cellular double-bottomed vessel, built with an elliptical stern and of clinker (clencher) construction. The vessel was screw-propelled and schooner rigged, with two masts. According to the certificate of registry *Neotsfield* was fitted with three inverted direct-acting triple-expansion condensing engines, with two boilers of steel. However, the UKHO and other online sources (e.g. teesbuiltships.co.uk maintained by The Shipping and Shipbuilding Research Trust, n.d.) indicate that the ship had one 3 cylinder triple-expansion engine. The engines and boilers were constructed by Richardson, Westgarth & Co. Ltd., Hartlepool.
- 12.9.3. The gross tonnage of the vessel was recorded as 3821.17 and the registered tonnage as 2488.30. The vessel had six bulkheads and six water ballast tanks. The dimensions of the vessel are recorded as 340ft x 47ft x 30ft.
- 12.9.4. **Arrangement:** The steamship had one deck. Other features of the ship's arrangement noted on the certificate of registry include the forecastle, round houses, side houses, bridge house, poop house, chart house, hatchways, master's room and bosun's store (BT 110/372).
- 12.9.5. The ship's name was changed from *Ada* to *Neotsfield* on 25th October 1917 (BT 110/372).
- 12.9.6. **Use:** The certificate of registry indicates that the master of the vessel was John A. Williams, and the vessel was owned by the Seaton Shipping Company Limited (managed by Sydney Hogg & Co.). The *Neotsfield* Ship Company, based in Jameson Street, Hull, are named as the owners from 24 October 1917 (BT 110/372).
- 12.9.7. The vessel was hired for wartime activities, and between 16 May 1917 and 30 June 1917, and 23 October 1917 to 25 December 1917 and again from 23 March 1918 to 14 September 1918, the vessel was used as a collier (No. 1612). In the intervening period the *Neotsfield* was used from 1 July 1917 to 22 October 1917, and 26 December 1917 to 22 March 1918 in the transportation of wheat and other goods (Shipping Intelligence Section 1921).
- 12.9.8. A claim for damages, dated to 1918, also gives some details as to the use of the vessel. The claim reports that the vessel was being loaded with coal at Queen Alexandra Dock, Cardiff, on 4th April 1918, when it was damaged by a coal box suspended by a crane under the ownership and operation of The Cardiff Railway Company. Damage was caused to the charthouse. An extract from an account of the event given by the topman working at the time to load the ship (under the employment of the Cardiff Railway Company) indicated that 'while hoisting up the coaling box after it had been lowered with the bunkers into the thwart-ship hatchway of the ship, the box turned slightly and the corner of it caught under the roof of the charthouse and lifted some planks'. Damage was thereby caused to the ceiling of the chart room (formed by the planking), the outer wooden casing around the Marconi house, and the attached handrails. The coal was being deposited through the hatchway situated in between the winch and the charthouse (RAIL 1057/1332).
- 12.9.9. While this document gives detail of the events which occurred around the accident, it also provides detail on the layout of the ship and its use. On the basis of this record, and the details of loss (see below) it appears that The *Neotsfield* Ship Company used the *Neotsfield*

as a coal carrier. It has not been possible to obtain further detail on the use to which the Seaton Shipping Company Limited put the vessel.

- 12.9.10. **Loss:** Lloyds War Losses indicate that the vessel was en route from Swansea to France with a cargo of coal when lost on 14th September 1918, 2½ miles south of Skulmartin lighthouse. The certificate of registry contains the following note on the loss of the *Neotsfield*:
- 12.9.11. *Registry closed this 20 September 1918. Vessel sunk by enemy action on the 14 September 1918. Certificate of Registry lost with the vessel. Advice received from manager (BT 110/372).*
- 12.9.12. The vessel was sunk by UB 64, a coastal torpedo attack boat (Helgason 1995-2015). The UB 64, under the command of a series of Kapitänleutnants, had been responsible for the sinking of 29 ships, caused damage to a further 4 ships and took 1 ship as a prize between 1917 and 1918 (Helgason 1995-2015).
- 12.9.13. **Survival:** The UKHO indicate that the remains comprise an entire wreck. The CMA report that the wreck is intact and upright and sits up to 12m above the seabed. The dimensions of the wreck are 103.6m x 14.3m. The stern gun is reportedly in place and the bridge survives as an open framework.
- 12.9.14. Details from divernet.com indicate that hull form has in places deteriorated, and the torpedo damage is reportedly visible. Other surviving features include the main deck, forecastle, boat deck, deck house, bow deck, raised quarterdeck, steps, railings, mooring bollards, holds, cargo winches, a mast foot, the masts (which have fallen), the spare iron propeller, coamings, cover beams, a pulley wheel near the stem post, anchors, anchor winches, chains and hawse-pipes. The stern gun has reportedly fallen on its side. The remains of the propeller shaft and broken rudder post are noted on site, although the rudder and propeller themselves are missing. The area of the funnel and engine room has reportedly collapsed, leaving debris. Debris also marks the location of the former wheelhouse (Divernet.com 2011).
- 12.9.15. **Investigation:** The CMA indicate that the wreck has been investigated by divers and the UKHO. The UKHO give details of their surveys which have investigated the wreck:
- A series of entries dated to 1918 indicate the position of the wreck, 543100N, 052500W, and the speed with which the vessel sank (15 minutes). The position was noted in 1924 to be approximate, and in 1965 a note indicates that the wreck was believed not to exist at that location;
 - However, the wreck was examined in 1966 at 543137N, 052311W and swept clear to 72ft. The least echo-sounder depth was recorded as 105ft in a general depth of 155ft. No scour was recorded;
 - The wreck was also recorded on 21.2.1973 using a Hi-Fix and echo-sounder, which located the wreck in a general depth of 45m, on a sand seabed;
 - A note dated 08.09.1980 indicates that the wreck was dived in 1980, and was found to sit upright and intact. The depth to the top of the bridge was given as 32m;
 - A report dated 16.11.1904, in the UKHO surveying details and from diver magazine, indicates that the stern gun survives on site, and torpedo damage is visible on the port side;
 - A note dated to 04.03.2012 indicates that the wreck was located by survey in 5431.634N, 0523.254W. The wreck stands 12m high;
 - A multibeam survey was reported on, 23.9.13, showing that the least depth was 32.86m in a general depth of 44.3m. The scour was reportedly 1.4m in depth. The

wreck was thought to be intact (measuring 104m x 16.8m x 13m), sitting upright, and probably broken aft of amidships.

- On 29.10.12 the least multibeam depth was amended to 31.63m.

13. LOW PRIORITY VESSEL: AMBER

13.1. Introduction

13.1.1. A wreck which lies at 54.47437, -5.38612 (WGS84, decimal degrees) has been identified as the possible remains of the *Amber* (Figure 1).

13.2. Location

13.2.1. The position given above reflects that recorded by the UKHO, and lies approximately 30m to the south-west of the CMA position. The CMA indicate that this position is reasonable.

13.3. The wreck remains

13.3.1. The wreck remains lie at a depth of 40m (according to the CMA) and have been recorded as an anomaly measured at 46.6m in length. The anomaly is recorded as an intact and upright wreck, extending to 7m in height.

13.4. Archival holdings and documentary sources

13.4.1. The Caledonian Maritime Research Trust (2015) have published an online database for Clyde-built ships which include information on specifications, ownership details and information on the loss of different Clyde-built vessels, relevant to their loss. The Clydebuilt database also holds comparable information (at www.clydesite.co.uk).

13.5. Documents relating to the construction of the vessel

13.5.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/238/1);
- Plan of ships *Nugget*, *Cornelian*, *Beryl* and *Amber*, by Scott & Sons (Bowling) Ltd (Glasgow Archives UGD 165/2/2304/1; Figure 5);
- Lloyds Registers; and
- Lloyds Surveys. A single survey was carried out of the *Amber*. Indexes held at the National Maritime Museum record the reference numbers as GLs 11694 (detailed within index number LLY/IND/3/1).

13.5.2. The UKHO also give details of the ship's specifications.

13.6. Documents relating to the use of the vessel

13.6.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/238/1);
- Lloyds Registers, which indicate the owner of the vessel;
- Mercantile Navy Lists also give details of ownership; and
- the website uboat.net also gives details which relate to the final voyage of the *Amber* (Helgason 1995-2015).

13.7. Documents relating to the loss of the vessel

13.7.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) provide details on the loss of the *Amber*. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration. The UKHO also gives a brief description of the loss of the vessel. As the *Amber* was lost

following a torpedo strike fired by the UC 65, details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). War diaries for this submarine have not been accessed, but may exist and may be able to provide further details on the sinking of the *Amber*. Such details may be particularly illuminating for this vessel, as a note on the certificate of registry (BT 110/238/1) indicates that the Commander of the German submarine took the original certificate of registry from the ship, indicating possible communication and investigation of the ship by the German crew. Such activities may have been recorded in German documents.

13.8. Documents relating to the survival of the vessel

- 13.8.1. Remains identified as the *Amber* have been recorded by divers and the CMA. The UKHO have also conducted surveys of the wreck. These are the primary sources of information relating to the survival of the vessel. Details of the surviving features of the wreck are also available from recreational diver websites including Irish Wrecks Online (1997).
- 13.8.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Amber* can be gleaned from recreational diver reports and UKHO survey details.
- 13.8.3. No salvage records have been located.

13.9. Documents relating to the investigation of the vessel

- 13.9.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus divers and the UKHO are the principal sources.

13.10. History of the *Amber*

- 13.10.1. **Build:** The *Amber* was built in 1892 by Scotts Bowling, Dunbartonshire, who in 1965 were taken over by Scotts Shipbuilding and Engineering Company Ltd, the firm credited with founding the first commercial shipyard on the Clyde. The company were also renowned for constructing a variety of vessel types from mercantile ships to navy vessels of various forms and uses. *Amber* was a British steamship and the vessel's official number was 99840.
- 13.10.2. **Machinery, propulsion and specifications:** *Amber* was built of iron and steel. The certificate of registry indicates, under the heading 'framework and description of vessel', that *Amber* was 'iron and steel transverse'. The Lloyds Register entry for 1892-1893 indicates that the vessel had iron framing and steel plating. The deck was also iron. The vessel was built with a round stern and was of clinker construction. *Amber* was propelled by a single screw and was schooner rigged, with three masts. The ship was fitted with a compound, direct-acting inverted engine, with a steel boiler, both of which were manufactured by Ross & Duncan, Glasgow (BT 110/238/1). The plan of the vessel shows a single funnel (UGD 165/2/2304/1).
- 13.10.3. The gross tonnage of the vessel was recorded as 400.80 and the registered tonnage as 122.55. The registered tonnage was altered in 1914, in line with the provisions of the Merchant Shipping Act 1907, to 148.22 tons. The vessel had four bulkheads and one 18 ton water ballast tank. The dimensions of the vessel are recorded as 142.5ft x 25.15ft x 10.85ft.
- 13.10.4. **Arrangement:** The steamship had one deck. Other features of the ship's arrangement noted on the certificate of registry include the forecabin aft and in the bridge and hatchways (BT 110/238/1). The plan of the vessel indicates that there was provision for the

crew at the bow of the ship, above the water ballast tank. Aft of these sections was the hold (UGD 165/2/2304/1; Figure 5).

13.10.5. **Use:** The certificate of registry gives the following list of owners:

- William Robertson of 15 Gordon Street was the owner of the ship from 1892 (BT 110/238/1).
- 08.02.1915: Sold to Kennedy Stewart, Belfast.
- 11.02.1916: Wm. Barkley & Sons Ltd., (Samuel Kelly, manager, Kelly Group), Belfast.
- 12.09.1916: John Henderson, Belfast.
- 30.11.1916: John E. Wellwood, Belfast

13.10.6. The Caledonian Maritime Research Trust (2015) indicate that the vessel was a coaster which carried general cargoes. The website uboat.net indicates that on its last voyage the vessel was travelling with a cargo of coal from Troon (South Ayrshire) to Waterford (south-east region of Ireland), (Helgason 1995-2015).

13.10.7. **Loss:** Lloyds War Losses indicate that the *Amber* was lost en route from Troon to Waterford with a cargo of coal when the vessel was sunk by a submarine 2 miles off Ballyhalbert (Co. Down). The certificate of registry contains the following note on the loss of the *Amber*:

13.10.8. *Registry closed this 10th day of May 1917. Vessel sunk by an enemy submarine near the Skulmartin Lightship on the 2nd May 1917. The certificate of registry was taken by the Commander of the submarine. Advice received from the managing owner.*

13.10.9. This note indicates the possibility that the German crew boarded the ship. A note recorded by the Caledonian Maritime Research Trust (2015) also indicate that bombs were place on board, and the UKHO indicate that the ship was captured by the submarine and scuttled.

13.10.10. *Amber* was sunk by UC 65, a UC II type coastal minelayer submarine (Helgason 1995-2015). The UC 65, under the command of a series of Kapitänleutnants, had been responsible for the sinking of 106 ships including a warship and caused damage to a further 11 ships between 1916 and 1917 (Helgason 1995-2015). The majority of these losses, including *Amber*, occurred while Otto Steinbrinck was the Kapitänleutnant of the submarine. This Kapitänleutnant sunk a total of 206 ships and damaged a further 12 during his career. The UC 65 sunk seven other ships on the 2nd May, along with the *Amber*, including the *Derrymore*, *Dora*, *Earnest*, *Morion*, *Taizan Maru* and the *Saint Mungo*. The latter is considered in more detail below in Section 16 (Helgason 1995-2015).

13.10.11. **Survival :** The UKHO indicate that the remains comprise an entire wreck. The CMA report that the wreck is in one piece and extends up to 7m above the seabed. Irish Wrecks Online (1997) indicate that the wreck lies upright, with its bow facing northward. A hole in the stern of the wreck is also noted, and some break-up has been recorded on site (UK Diving 2006). The seabed is noted to be shale at Irish Wrecks Online (1997), however, the UKHO indicate that the seabed is of sand and broken shell.

13.10.12. According to the website UKdiving the wreck was identified as that of the *Amber* by divers on 25/02/1992, however, no further detail is given and the basis for this identification is unclear (UK Diving 2006).

13.10.13. **Investigation:** The CMA indicate that the wreck has been investigated by divers and the UKHO. The UKHO give details of their surveys which have investigated the wreck:

- An undated entry indicates that the *Amber* was sunk approximately 2 miles off Ballyhalbert, Co. Down. A second undated entry gives a position (542824N, 052300W) and records dimensions: length 153ft, height 24ft;
- A note dated 07.07.1966 indicates that the wreck was located 542827N, 052306W [OGB]. The least echo-sounder depth is recorded as 115ft, in a general depth of 22-23 fathoms. No scour is recorded on the seabed, and the UKHO indicate that the seabed is sand and broken shell. The wreck was reported to extend to around 20ft in height, close to an area where the seabed rises steeply to 18fathoms;
- A record dated 25.01.1992 indicates that the wreck was identified by divers as the *Amber*;
- On the 07.06.2013 a note indicates that the wreck was examined in 5428.474N, 0523.167W by multibeam. The multibeam indicated that the least depth was 34.90m, in a general depth of 39.82m. The scour was reported to be 1.8m in depth and running close along the east side of the wreck. The dimensions of the wreck were recorded as 55m x 10m x 5.5m. This entry also noted that the wreck was intact and upright.
- On 29.10.2013 the least multibeam depth was amended to 33m.

14. LOW PRIORITY VESSEL: DAYBREAK

14.1. Introduction

14.1.1. A wreck which lies at 54.42155,-5.34728 (WGS84, decimal degrees) has been identified as the probable remains of the *Daybreak* (Figure 1).

14.2. Location

14.2.1. The position given above reflects that recorded by the UKHO and CMA (which lies c.0.2m from the UKHO position). The CMA indicate that this position is reasonable.

14.3. The wreck remains

14.3.1. The wreck remains lie at a depth of 48m (according to the CMA) and have been recorded as an anomaly measured at 103.6m x 14.8m. The anomaly is recorded as an intact and upright wreck, extending to 5m in height.

14.4. Archival holdings and documents relating to the construction of the vessel

14.4.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/285/37);
- Lloyds Registers; and
- Lloyds Surveys. A number of surveys were conducted on the *Daybreak*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Hpl 14315; Lon 74855; Cff 35617; Liv 72203; Cff 37606; Bry 15128; Cff 38793; Npt 18669; Hpl (this is not certain, the index is very faded at this point) 15355; Bry 16264 (detailed within index number LLY/IND/6/1).

14.4.2. The UKHO also give details of the ship's specifications, as do other sources such as the Mercantile Navy List (for example, online at <http://www.crewlist.org.uk/data/viewimages.php>).

14.5. Documents relating to the use of the vessel

14.5.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/285/37);
- Lloyds Registers, which indicate the owner of the vessel;
- Mercantile Navy Lists also give details of ownership;
- Crew lists dating to 1915 (BT 400/3929/23; BT 400/3929/22; BT 400/3929/21);
- A passenger list dating to 1913 (BT 26/545/3);
- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the wartime use of the *Daybreak*. This list was accessed at the Caird Library; and
- the website uboat.net also gives details which relate to the final voyage of the *Daybreak* and lives lost (Helgason 1995-2015).

14.6. Documents relating to the loss of the vessel

14.6.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) provide details on the loss of the *Daybreak*. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration. The UKHO also gives a brief description of the loss of the vessel. As the *Daybreak* was struck by a torpedo fired by the U 87, details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). War diaries for this submarine have not been accessed, but may exist and may be able to provide further details on the sinking of the *Daybreak*.

14.7. Documents relating to the survival of the vessel

14.7.1. Remains identified as the *Daybreak* have been recorded by divers and the CMA. The UKHO have also conducted surveys of the wreck. These are the primary sources of information relating to the survival of the vessel. Details of the surviving features of the wreck are also available from recreational diver websites including Irish Wrecks Online (2006).

14.7.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Daybreak* can be gleaned from recreational diver reports and UKHO survey details.

14.7.3. No salvage records have been located.

14.8. Documents relating to the investigation of the vessel

14.8.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus divers and the UKHO are the principal sources.

14.9. History of the *Daybreak*

14.9.1. **Build:** The *Daybreak* was built in 1911 by W. Gray & Co. Ltd, Hartlepool, a large shipbuilding company in West Hartlepool who specialised in iron clipper barques, sailing vessel and steamships during the 19th century. During WWI the company made many vessels for the Admiralty and also produced cargo liners and tramp steamers (Grace's Guide 2014). *Daybreak's* official number was 132809.

14.9.2. **Machinery, propulsion and specifications:** *Daybreak* was built of steel. The vessel was built with an elliptical stern and was of clinker construction. *Daybreak* was screw-propelled and schooner-rigged, with two masts. The ship was fitted with an inverted, direct-acting, triple-expansion condensing engine, with two multi-tubular steel boilers, manufactured by W. Gray & Co. Ltd, Central Marine Engineering Works, West Hartlepool (BT 110/285/37; Lloyds Register 1917-1918).

14.9.3. The gross tonnage of the vessel was recorded as 3238.46 and the registered tonnage as 2003.61. The dimensions of the vessel are recorded as 340ft x 48.5ft x 22.6ft.

14.9.4. **Arrangement:** The vessel had six bulkheads and six water ballast tanks (at 1047 tons). *Daybreak* had one deck, of steel (Lloyds Register 1917-1918). The Lloyds Register for 1917-1918 indicates that cargo battens (typical in general cargo ships) were not fitted. Other features of the ship's arrangement noted on the certificate of registry include the forecabin, houses, bridge house, poop, masters accommodation, boatswains store and chart space (BT 110/285/37).

- 14.9.5. **Use:** The certificate of registry, Mercantile Navy Lists (copies accessed for 1913, 1914, 1915 and 1917), and the Lloyds Register (1917-1918) gives the following list of owners:
- John Wood and Co. Ltd, (ship-owner) London;
 - 20.04.1915: Scarisbrick Steamship Company (Elvidge & Morgan, managers). The Lloyds Register for 1917-1918 indicates that the vessel remained in the ownership of this company until its loss in 1917.
- 14.9.6. During 1913, when the vessel was under the ownership of John Wood, a passenger list (BT 26/545/3) indicates that the *Daybreak* travelled from Santa Fe to Cardiff. The passenger list details those passengers embarking at St Vincent and disembarking at Cardiff. Crew lists from 1915 indicate that the vessel took between 27- 31 crew members, many of whom worked on the ship multiple times (BT 400/3929/23; BT 400/3929/22; BT 400/3929/210).
- 14.9.7. The Service List compiled by the Shipping Intelligence Section of the Ministry of Shipping indicates that the *Daybreak* was hired for wartime activities. Primarily the ship was used as a collier and for the transportation of wheat and other goods. It carried out the former function between 3 November 1914 to 14 April 1915, 8 June 1916 to 12 September 1916, 4 April 1917 to 10 May 1917 and 17 July 1917 to 28 August 1917, as collier number 431. The ship was involved in the transportation of wheat and other goods between 11 May 1917 and 6 July 1917, and between 29 August 1917 and until its loss on 24 December 1917 (Shipping Intelligence Section 1921). For a period between 13 September 1916 and 3 April 1917 the *Daybreak* was employed as an ammunition carrier to northern Russia for the Russian Government.
- 14.9.8. The ship was classified as a general cargo vessel. However, the passenger list indicates that *Daybreak* also undertook voyages for the transportation of people in addition to goods.
- 14.9.9. **Loss:** Lloyds War Losses indicate that the vessel was en route from Huelva to Glasgow with a cargo of iron ore when lost on Christmas Eve, 1917. The certificate of registry contains the following note on the loss of the *Daybreak*:
- 14.9.10. *Registry closed this 3 January 1918. Vessel sunk by an enemy action on December 24th 1917. Certificate of registry lost with vessel. Advice received from manager (BT 110/285/37).*
- 14.9.11. *Daybreak* had been carrying iron ore from Spain to Glasgow when she was torpedoed by the U87 one mile east of the South Rock Lightvessel or five miles north-east of Ballyquintin, Downs. Twenty-one men were lost with the vessel. The vessel was under the ownership of Scarisbrick Steamship Company at the time of the loss.
- 14.9.12. U87 was a U87 type ocean-going diesel-powered torpedo attack boat class submarine (Helgason 1995-2015). Five submarines of this type are known to have been constructed (Helgason 1995-2015). The U87 had been in commission since February 1917, and was responsible for the loss of 22 ships, and had caused damage to a further two during its lifetime. Primarily these successes had been while the submarine was under the command of Kapitänleutnant Rudolf Schneider, however the last 3 vessels, including the *Daybreak*, were sunk under the command of Kapitänleutnant Freiherr Rudolf von Speth-Schülzburg. The submarine was sunk on the 25th December, 1917, the day after she torpedoed *Daybreak*. U87 was responsible for the loss of one other vessel during that period; *Agberi*, sunk on the 25th December. The U87 was sunk in the Irish Sea and all hands were lost.
- 14.9.13. **Survival:** The UKHO indicate that the remains comprise an entire wreck. The CMA report that the wreck is in intact and upright, extending up to 7m above the seabed. The wreck remains lie at a depth of 48m (according to the CMA) and have been recorded as an

anomaly measured at 103.6m x 14.8m. According to the UKHO the bridge area has collapsed and the CMA indicate that the bow of the vessel is detached and lies close to the wreck at an angle of 90 degrees.

14.9.14. Irish Wrecks Online (2006) indicate that the stern of the vessel is intact, but that the bow of the vessel is missing (or smashed) possibly representing damage caused by an explosion. The wreck is broken amidships. The diver website also indicates that the vessel is thought to have had a self-defence gun on the bow, but this has not been located. The evidence for the existence of this gun is uncertain. The website also indicates that the bridge is almost intact, in contradiction to the CMA and UKHO records which indicates that the bridge area has collapsed.

14.9.15. **Investigation:** The CMA indicate that the wreck has been investigated by divers and the UKHO. The UKHO give details of their surveys which have investigated the wreck:

- An undated entry indicates that the *Daybreak* was sunk approximately 1 mile eastward from South Rock Light Vessel, at 542500N, 052000W.
- A note dated 04.02.1975 indicates that a wreck had been located in 542518N, 052042W (OGB) using Hi-Fix. The least echosounder depth was recorded as 39m in an area where general depths were 48m. The seabed is reported to be fine sand and broken shell. Dual Control Side Scan Sonar indicates that the height of the wreck was 12.1m.
- A note dated 15.02.2008 indicates that the wreck was dived on, in 5425.293N, 0520.837W (WGD), and was found to be upright and intact with the bridge area collapsed. The stern section was reported to be at 40m, and the wreck sloped downward to 55m around the bridge, after which flat wreckage is reported on the seabed. The bow is detached and lies close to the wreck at an angle of 90 degrees.

15. LOW PRIORITY VESSEL: RFA INDUSTRY

15.1. Introduction

15.1.1. A wreck which lies at 54.39667, -5.335 (WGS84, decimal degrees) has been identified as the probable remains of the RFA *Industry* (Figure 1).

15.2. Location

15.2.1. The position given above reflects that recorded by the UKHO and CMA (which lies c.0.4m from the UKHO position). The CMA indicate that this position is reasonable.

15.3. The wreck remains

15.3.1. The wreck remains lie at a depth of 82m (according to the CMA) and have been recorded as an anomaly measured at 59.7m x 9.1m. The anomaly is recorded as an entire wreck extending to 8m in height.

15.4. Archival holdings and documentary sources

15.4.1. In addition to the archival holdings, detailed below, information relating to the RFA can be found online on the Historical RFA website, <http://www.historicalrfa.org/rfa-industry-ships-details> (White 2008-2015). The Caledonian Maritime Research Trust (2015) have also published an online database for Clyde-built ships such as the RFA *Industry*, which include information such as specifications, ownership details and information on the loss of different Clyde-built vessels, relevant to their loss. The Clydebuilt database also holds comparable information (at www.clydesite.co.uk).

15.5. Documents relating to the construction of the vessel

15.5.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/331);
- Lloyds Registers; and
- Lloyds Surveys. Two surveys were conducted of the RFA *Industry*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: GIs 25590 and Lon 72969a (detailed within index number LLY/IND/6/1).

15.5.2. Further information is likely to be held in the archives of the shipbuilding company responsible for the construction of the RFA *Industry*: W. Beardmore & Co. Ltd, Govan. Archives relating specifically to the RFA *Industry* have not been located, however, may be placed with the Glasgow University Archives which holds records of W. Beardmore & Co. Ltd at references GB 248 UGD 100/1 and GB 248 UGD 179. Details relating to the RFA *Industry* may be held at this archive. The UKHO also give details of the ship's specifications, as do other sources such as the Mercantile Navy List (for example, online at <http://www.crewlist.org.uk/data/viewimages.php>).

15.6. Documents relating to the use of the vessel

15.6.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/331);
- Lloyds Registers, which indicate the owner of the vessel;
- Mercantile Navy Lists also give details of ownership;

- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the wartime use of the RFA *Industry*. This list was accessed at the Caird Library; and
- the website uboat.net also gives details which relate to the final voyage of the RFA *Industry* and lives lost (Helgason 1995-2015).

15.7. Documents relating to the loss of the vessel

15.7.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) provide details on the loss of the RFA *Industry*. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration, although these are limited. The UKHO also gives a brief description of the loss of the vessel. As the RFA *Industry* is thought to have been lost by torpedo fire from the UB92 details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). The Kriegstagebücher (KTB- war diary) of the UB92 did not survive, and the connection between this submarine and the RFA *Industry* has been presumed (Helgason 1995-2015).

15.8. Documents relating to the survival of the vessel

15.8.1. Remains identified as the RFA *Industry* have been recorded by the CMA. The UKHO have also conducted surveys of the wreck. These are the primary sources of information relating to the survival of the vessel. No recreational diver records have been located, probably due to the depth of the wreck.

15.8.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the RFA *Industry* can be gleaned from UKHO survey details.

15.8.3. No salvage records have been located.

15.9. Documents relating to the investigation of the vessel

15.9.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus divers and the UKHO are the principal sources.

15.10. History of the RFA *Industry*

15.10.1. **Build:** The RFA *Industry*, laid down in 1900 as *Glasgow*, was launched in 1901 by W. Beardmore & Co. Ltd, Govan, one of the Clyde shipbuilders. W. Beardmore & Co. Ltd began as an iron foundry. The company later added a steel foundry in addition to a steel armour plate mill during the 1880s. W. Beardmore & Co. were heavily involved in the production of armaments. In 1900 the company bought up Robert Napier's shipyard at Govan, followed by others, and began building both merchant and naval ships, specialising in the latter (Johnston & Buxton 2013:72). RFA *Industry's* official number was 138989.

15.10.2. *Machinery, propulsion and specifications:* RFA *Industry* was built of steel. The vessel was given an elliptical stern and the certificate of registration suggests the vessel was of 'in and out' construction. RFA *Industry* was screw-propelled (with a single propeller) and schooner-rigged, with two masts. The ship was fitted with an inverted, direct-acting, triple-expansion engine, with two multi-tubular steel boilers, manufactured by the shipbuilder (BT 110/331; Lloyds Register 1917-1918).

- 15.10.3. The gross tonnage of the vessel was recorded as 799.56 and the registered tonnage as 496.79. The dimensions of the vessel are recorded as 196ft x 30.2ft x 18.46ft. RFA *Industry* was built as a store carrier (Caledonian Maritime Research Trust 2015).
- 15.10.4. **Arrangement:** The vessel had five bulkheads and one water ballast tanks (at 65 tons). RFA *Industry* had one deck, of steel (BT 110/331; Lloyds Register 1917-1918). Other features of the ship's arrangement noted on the certificate of registry include the forecastle, poop, bridge space, chart house and hatchways (BT 110/331).
- 15.10.5. **Use:** The vessel was owned by the Admiralty throughout her lifetime (BT 110/331; Shipping Intelligence Section 1921). The Historical RFA website indicates that the vessel was completed and was subject to a Yard Craft Agreement as it had been specifically designed to carry guns and stored between dockyards, and as such had large hatches (White 2008-2015). The vessel is classified in the Service List produced by the Shipping Intelligence Section of the Ministry of Shipping as an RFA (No. X. 24), (Shipping Intelligence Section 1921).
- 15.10.6. The vessel was one of a number of small tankers and store ships acquired by the Admiralty in the early 20th century. With these vessels the Admiralty is thought to have conducted experiments, and gained experience which was channelled into the design and construction of later, larger vessels. Following the establishment of the RFA in 1905 to supply the Navy with fuel, ammunition and supplies, these early vessels became among first RFA ships (White 2008-2015).
- 15.10.7. Later in its life, in 1911, the vessel is thought to have delivered a steam pinnacle for the harbour master at Dover. The Caledonian Maritime Research Trust (2015) indicate the vessel was transferred to the RFA in 1914. In July 1915 the RFA *Industry* is known to have been at Scapa Flow, alongside the Requisitioned Auxiliary *Zaira* (White 2008-2015). The following month the ship collided with the Dutch vessel, *Zeeland*, off the Wold Lightship.
- 15.10.8. On its final voyage the vessel is thought to have been under the escort of an armed trawler, the *Persian Empire*, when she was torpedoed (Caledonian Maritime Research Trust 2015).
- 15.10.9. **Loss:** The UKHO record that the RFA *Industry* was en route from Kingstown to Belfast when lost, on 18.10.1918. The certificate of registry contains the following note on the loss of the RFA *Industry*:
- 15.10.10. *Registry closed 16th February 1920. Vessel lost. Advice received from Admiralty. Certificated not delivered up...from 20 received 18.2.20.*
- 15.10.11. It is thought that the RFA *Industry* had been under the escort of the *Persian Empire* when she was torpedoed in the Irish Sea, off Strandford Light Buoy. The Caledonian Maritime Research Trust (2015) indicate that 20 people were lost with the vessel, while uboat.net suggest that the number of men lost was 21. Discrepancies may be due to the paucity of the records which relate to the loss of this vessel: it is noted on uboat.net that the war diary of the UB92, which may have been responsible for sinking the RFA *Industry*, did not survive, and the certificate of registry does not contain details as to the manner of loss. The UKHO attribute the loss of the RFA *Industry* to a different submarine: the UB94, and indicate that 6 men were lost with the ship. The reference given for this information is the Shipwreck Index of the British Isles. The war diary of UB94 may throw light on this issue, and online research indicates that this submarine reported sinking a steamship in the Irish Sea the day the *Industry* is thought to have been lost. The *Hudson* was lost on the same day and is thought to have been travelling with the RFA *Industry* and the *Persian Empire*. While the Lloyds War Losses record the loss of the *Hudson* no record exists of the RFA

Industry having been lost on the same day or the days around the 18th October 1918. The Auxiliary Patrol Report for the area may also hold details on the loss of the RFA *Industry* in addition to the *Hundson*. These reports are held at the National Archives, Kew (ADM 137/...). Witness reports from the *Hundson* may also prove informative.

15.10.12. This vessel represents a late WWI loss.

15.10.13. **Survival** : Relatively little is known about the current condition of the shipwreck, and the identification of the wreck remains as the RFA *Industry* is not confirmed. The UKHO indicate that the remains comprise an entire wreck, which stands up to 7.8m in height (on the basis of a side scan sonar survey). The seabed is composed of sand and shell.

15.10.14. **Investigation:** The CMA indicate that the wreck has been investigated by the UKHO. The UKHO give details of their surveys which have investigated the wreck:

- An entry dated to 19.10.1918 indicates an approximate position for the RFA *Industry* at 542200N, 052000W, and a further note date 23.10.1918 indicates the vessel was sunk 3 miles south-eastward from South Rock.
- A report dated 04.02.1975 indicates that a wreck was located at 542348N, 052006W (OGB) using Hi-Fix. The least echosounder depth was recorded as 77.4m, in general depths of 82m. The seabed was reported as fine sand and broken shell. Dual Control Side Scan Sonar indicated that the height of the wreck was 7.8m.

16. LOW PRIORITY VESSEL: SAINT MUNGO

16.1. Introduction

16.1.1. A wreck which lies at 54.43061,-5.33042 (WGS84, decimal degrees) has been identified as the possible remains of the *Saint Mungo* (Figure 1).

16.2. Location

16.2.1. The position given above reflects that recorded by the UKHO and CMA (which lies c.1.1m from the UKHO position). The CMA indicate that this position is accurate.

16.3. The wreck remains

16.3.1. The wreck remains lie at a depth of 68m (according to the CMA) and have been recorded as an anomaly measured at 72m x 10m x 6.2m. The anomaly is recorded as an intact wreck, possibly upright with some superstructure surviving amidships.

16.4. Archival holdings and documentary sources

16.4.1. The Caledonian Maritime Research Trust's (2015) online database for Clyde-built ships provides information on vessels including the *Saint Mungo* and includes details of specifications, ownership and information on the loss of different Clyde-built vessels. The Clydebuilt database also holds comparable information (at www.clydesite.co.uk).

16.5. Documents relating to the construction of the vessel

16.5.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/404/4);
- Lloyds Registers;
- Lloyds Surveys. A number of surveys were conducted on the *Saint Mungo*. Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Gls 25982, 26124, 26613, 26719, 28465, 29604, 31293, 33144, 35461, 34338, 35583, 36335; Liv 75891, 76362 (detailed within index number LLY/IND/8/1); and
- Photographs of the vessel held by Glasgow University Archives in Scott & Sons, Bowling, archival holdings (Reference GD322/14/9/1).

16.5.2. The UKHO also give details of the ship's specifications, as do other sources such as the Mercantile Navy List (for example, online at <http://www.crewlist.org.uk/data/viewimages.php>).

16.6. Documents relating to the use of the vessel

16.6.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/404/4);
- Lloyds Registers, which indicate the owner of the vessel;
- Mercantile Navy Lists also give details of ownership;
- the website uboat.net also gives details which relate to the final voyage of the *Saint Mungo* and lives lost (Helgason 1995-2015).

16.7. Documents relating to the loss of the vessel

16.7.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) provide details on the loss of the *Saint Mungo*. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration. The UKHO also gives a brief description of the loss of the vessel. As the *Saint Mungo* is thought to have been lost due to being torpedoed by the UC65 details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). The war diary of this vessel, if in existence, may allow a more detailed understanding of the loss of the *Saint Mungo*.

16.8. Documents relating to the survival of the vessel

16.8.1. Remains identified as the *Saint Mungo* have been recorded by the CMA. The UKHO have also conducted surveys of the wreck. These are the primary sources of information relating to the survival of the vessel. No recreational diver records have been located.

16.8.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Saint Mungo* can be gleaned from UKHO survey details.

16.8.3. No salvage records have been located.

16.9. Documents relating to the investigation of the vessel

16.9.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO is the principal source.

16.10. History of the *Saint Mungo*

16.10.1. **Build:** The *Saint Mungo* was built in 1907 by Scott & Sons, Bowling. Scotts Bowling, Dunbartonshire, who in 1965 were taken over by Scotts Shipbuilding and Engineering Company Ltd, the firm credited with founding the first commercial shipyard on the Clyde. *Saint Mungo* was a British steamship and the vessel's official number was 123128.

16.10.2. **Machinery, propulsion and specifications:** *Saint Mungo* was built of steel. The vessel was given a round stern and was of clinker construction. *Saint Mungo* was screw-propelled and schooner-rigged, with three masts. The ship was fitted with one reciprocating compound, direct-acting engine with inverted cylinders manufactured by Ross & Duncan, Whitefield Works, Govan (BT 110/404/4).

16.10.3. The gross tonnage of the vessel was recorded as 402.22 and the registered tonnage as 99.23. The dimensions of the vessel are recorded as 155.67ft x 23ft x 11.05ft. *Saint Mungo* was built as a general cargo coaster (Caledonian Maritime Research Trust 2015).

16.10.4. **Arrangement:** The vessel had three bulkheads and two water ballast tanks (at 59 tons). *Saint Mungo* had one deck, of iron (BT 110/404/4; Lloyds Register 1917-1918). Other features of the ship's arrangement noted on the certificate of registry include the lower forecabin, break, hatchways, bridge space, round houses, bosun's store and master's room (BT 110/404/4).

16.10.5. **Use:** All sources indicate that the vessel was owned by T. Heiton & Co. Ltd., Dublin (R. Harper is recorded as the manager), (BT 110/404/4; Lloyds Register 1917-1918). *Saint Mungo* was used as a cargo ship, and on its final voyage the vessel was carrying coal between Troon and Dublin, when she was lost (Helgason 1995-2015). No details of the

vessel are contained within the Service List compiled by the Shipping Intelligence Section of the Ministry of Shipping (1921).

- 16.10.6. **Loss:** The Lloyds War losses indicate that the *Saint Mungo* was lost due to submarine action, and sunk 2 miles NNE of South Rock L- V (Light Vessel), (Co. Down). The certificate of registry contains the following note on the loss of the *Saint Mungo*:
- 16.10.7. *Registry closed 9th day of May 1917. Vessel sunk by enemy submarine 2nd May 1917. Certificate of registry taken possession of by the enemy. Advice received from manager.*
- 16.10.8. This note indicates the possibility that the German crew boarded the ship. Online sources give further detail and indicate that the vessel was scuttled by the German crew of the UC65 (Caledonian Maritime Research Trust 2015). This submarine was responsible for sinking 106 ships during WWI, and damaging a further 11, primarily under the command of Otto Steinbrinck, the Kapitänleutnant responsible for the majority of these events including the loss of *Saint Mungo* (see section 13). On the same day the *Saint Mungo* was sunk, the UC65 had also sunk the *Amber*. The wrecks lie approximately 6km apart.
- 16.10.9. **Survival:** The wreck is reportedly lying intact and possibly upright with some superstructure survive amidships. The anomaly representing the wreck remains has been recorded as 72m x 10m x 6.2m (CMA and UKHO information).
- 16.10.10. **Investigation:** The CMA indicate that the wreck has been investigated by the UKHO. The UKHO give details of their surveys which have investigated the wreck:
- An undated entry gives the account recorded in the Lloyds War Losses (see above), indicating the position as approximately 542630N, 052100W
 - At 18.04.2001 a note indicates that a wreck was located in 5425.84N, 0519.83W (WGD). The least echosounder depth was recorded as 61m.
 - The final entry in the surveying details field indicates that the wreck was examined in 19.02.2001 (the entry itself dates to 13.07.2001) in 5425.837N, 0519.825W (WGD) using a dGPS. The least echosounder depth was reported as 61m, in general depths of 68m. No scour is reported around the wreck. The wreck is recorded as being of a length of 72m, width 10m, and dual sidescan sonar indicates the height of the wreck at 6.2m. The vessel reportedly lies at 005/195 degrees, with the bow possibly facing to 005 degrees. It is suggested that the anomaly recorded represents an intact and upright vessel and the midships superstructure may survive.

17. LOW PRIORITY VESSEL: CONARGO

17.1. Introduction

17.1.1. A wreck which lies at 54.07838,-5.19967 (WGS84, decimal degrees) has been identified as the possible remains of the *Conargo* (Figure 1).

17.2. Location

17.2.1. The position given above reflects that recorded by the UKHO and CMA (which lies c.0.4m from the UKHO position). The CMA indicate that this position is accurate.

17.3. The wreck remains

17.3.1. The wreck remains lie at a depth of 95m (according to the CMA) and have been recorded as an anomaly measured at 78m x 10m x 10m. The anomaly is recorded as an intact wreck, sitting upright and with hatches visible on geophysical survey data.

17.4. Archival holdings and documents relating to the construction of the vessel

17.4.1. A number of different archival sources provide information on the details of the vessel as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/278/22);
- Lloyds Registers; and
- Lloyds Surveys. A number of surveys were conducted on the *Conargo* (formerly the *Altona*). Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Ham 7148, 7443, 7725, 7992, 8260, 8463, 9037, 9479, 9735, 10298; Syd 2630; Ham 11102, 11303, 11678, 12024, 12343, 12725; Syd (illegible); Ham 13104, 13396, 13753, 14165; Mel 2477, 2493 (detailed within index number LLY/IND/5). The above surveys were conducted while the vessel was named *Altona*. The following surveys were carried out on the vessel following the renaming to *Conargo*: Syd 5068; Gal 527; Syd 5517; NSW 1895; Mel 2681, 2741; Syd 5558; Cff 39818; Auk 621; Syd 5778; Liv 77620 (detailed within index number LLY/IND/5).

17.4.2. Further information may be held in the archives of the shipbuilding company responsible for the construction of the *Conargo*, the German company Flensburger Schiffbau Ges., Flensburg. The UKHO also give details of the ship's specifications, as do other sources such as the Mercantile Navy List from the period in which the vessel was under British ownership.

17.5. Documents relating to the use of the vessel

17.5.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/278/22);
- Service lists which give details of the wartime uses of the vessel (Shipping Intelligence Section 1921);
- Lloyds Registers, which indicate the owner of the vessel;
- Mercantile Navy Lists also give details of ownership;

- The Service List, compiled by the Shipping Intelligence Section of the Ministry of Shipping includes details of the wartime use of the *Conargo*. This list was accessed at the Caird Library; and
- the website uboat.net also gives details which relate to the final voyage of the *Conargo* and lives lost (Helgason 1995-2015).

17.6. Documents relating to the loss of the vessel

17.6.1. *Lloyds War Losses: The First World War: Casualties to Shipping Through Enemy Causes 1914-1918* (facsimile accessed at Caird Library) provide details on the loss of the *Conargo*. The Lloyds War Losses give details of the manner in which the *Conargo* was lost, in addition to the context of the loss in terms of details relating to the final voyage of the vessel. Details of the loss of the vessel are given on the Board of Trade Certificate of Registration, although these are limited. The UKHO also gives a brief description of the loss. As the *Conargo* is thought to have been torpedoed by the U96 details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). The war diary of this vessel, if in existence, may allow a more detailed understanding of the loss of the *Conargo*.

17.7. Documents relating to the survival of the vessel

17.7.1. Remains identified as the *Conargo* have been recorded by the CMA. The UKHO have also conducted surveys of the wreck. Recreational diver reports of the wreck also exist. These are the primary sources of information relating to the survival of the vessel.

17.7.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Conargo* can be gleaned from UKHO survey details and diver reports.

17.7.3. No salvage records have been located.

17.8. Documents relating to the investigation of the vessel

17.8.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus divers and the UKHO are the principal sources.

17.9. History of the *Conargo*

17.9.1. **Build:** The *Conargo*, originally *Altona*, was built in 1902 and was constructed in Germany by shipbuilders Flensburger Schiffbau Ges., Flensburg. The company was founded in 1872 by five local ship-owners, who had previously relied on British shipyards for the construction of their vessels, as was common in 19th-century Germany. This company were later involved in the construction of U-boats (Helgason 1995-2015). *Conargo*'s official number was 139005.

17.9.2. *Machinery, propulsion and specifications:* *Conargo* was built of steel. The vessel was screw-propelled and schooner-rigged, with two masts. The ship was fitted with a triple-expansion engine, with three multi-tubular steel boilers, manufactured by the shipbuilder in 1902 (BT 110/278/22; Lloyds Register 1917-1918).

17.9.3. The gross tonnage of the vessel was recorded as 4312 and the registered tonnage as 2726. The dimensions of the vessel are recorded as 375ft x 47.9ft x 17.1ft.

- 17.9.4. **Arrangement:** The vessel had seven bulkheads and water ballast tanks with a capacity of 1012 tons. *Conargo* was also fitted with web-frames (Lloyds Register 1917-1918). *Conargo* had one deck and one spar deck, of steel (BT 110/278/22 Lloyds Register 1917-1918). The details noted on the certificate of registry for this vessel are fewer than for others within the project dataset.
- 17.9.5. **Fittings:** *British Vessels Lost at Sea* indicates that the *Conargo* was defensively armed when lost (Smith n.d.).
- 17.9.6. **Use:** The certificate of registry gives no details of the ownership of the vessel prior to 1915 (see below; BT 110/278/22). However, the Mirimar Ship Index records that the *Altona* (later the *Conargo*) had been under the ownership of the Deutsch-Australische Dampfs Gesellschaft from 1902. This company is thought to have originated in 1888 and initially formed a passenger liner company running services from Germany to Australia. Later activities focused around cargo trade (TheShipsList 1997-2015).
- 17.9.7. The Service List produced by the Shipping Intelligence Section of the Ministry of Shipping indicates that the *Conargo* was a German steamship, which following the outbreak of war, had been detained. During the war, the ship was requisitioned by the Commonwealth of Australia. The certificate of registry (BT 110/278/22) and Mercantile Navy Lists indicate that the Admiralty owned the vessel from 1915. According to the Service List the managers of the vessel in 1918 were the Commonwealth and Dominion Line. The vessel was used for wartime activities as a cargo steamer (No. C. 8), and was employed in the transportation of wheat and other goods to Canada for the Royal Commission (Shipping Intelligence Section 1921).
- 17.9.8. On its final voyage the Lloyds War Losses records indicate that the vessel was travelling from Liverpool with a cargo of coal when she was torpedoed.
- 17.9.9. **Loss:** Lloyds War Losses indicate the *Conargo* was en route from Liverpool when the vessel was lost. The certificate of registry contains the following note on the loss of the *Conargo* (BT 110/278/22):
- 17.9.10. *Registry closed 29th November 1920. Vessel sunk by enemy action 31 March 1918. Certificate lost with vessel. Advice received from Admiralty- her Form 20 received 13.12.20.*
- 17.9.11. Lloyds War Loss records indicate the position of loss as 12 miles north by west from the Calf of Man, and record that the vessel was lost on the 31st March 1918. A newspaper report which appeared in *The Mercury* (published by Hobart Town, Tasmania) on 18th April 1918 wrote that 'Mr Andrew Fisher, the High Commissioner of Australia, has ascertained that the steamer *Conargo*, 4312 tons, formerly the German liner *Altona*, which was seized in Melbourne when the war broke out, was mined or torpedoed. Four boats were launched and one went away and three stood by the ship hoping to save her, when a torpedo struck the bottom of the ship sinking her and wrecking one boat and killing its occupant. Four of the men lost were shipped in Australia and six in Liverpool. Of the survivors only the captain and two seamen were injured, but not dangerously'. Later in the report the newspaper indicates that the vessel was lost off the coast of Ireland on 31st March.
- 17.9.12. The UKHO may give further detail and indicate that the *Conargo* was torpedoed by German submarine U96, 12 nautical miles north-west from the Calf of Man while on passage from Liverpool, with the loss of 9 of the 10 crew. However, some uncertainty regarding the position of the loss is introduced at this point, as the ship was reported to have stayed afloat following the attack on the 31st March, and was again torpedoed whilst under tow off Holyhead. The website uboat.net also gives this account, indicating that the vessel was hit for a second time on the 1st April at 21:00 at 5333N 0450W, and was sunk on the 2nd

April at 06:22. It is not clear whether these accounts are accurate, and further research, particularly into German archives and U-boat war diaries may throw further light on the loss of the *Conargo*. Additionally, discussion with divers who have recovered the ship's bell may throw light on the loss and position of the vessel (BBC, 17.03.2012).

- 17.9.13. **Survival:** The wreck remains have been recorded as an anomaly measured at 78m x 10m x 10m. The anomaly is recorded as an intact wreck, sitting upright and with hatches visible on geophysical survey data.
- 17.9.14. Divers have recovered the bell of the ship (engraved with the name *Altona*; BBC, 17.03.2012). Discussion with divers may throw further light on the matter of the position of the wreck, and whether the remains recorded by the UKHO represent the *Conargo*. It has not been possible to find a position given by divers for this wreck site.
- 17.9.15. The UKHO indicate that the remains comprise an intact and upright wreck. Sidescan sonar has also given responses which indicate that hatches on the wreck are visible. The seabed is composed of soft grey mud.
- 17.9.16. **Investigation:** The CMA indicate that the wreck has been investigated by the UKHO. The UKHO give details of their surveys which have investigated the wreck:
- An entry dated 01.04.1918 gave the position of loss as 533800N, 044900W however a note indicates that the position was later given as 533300N, 045000W. U-boat telecommunications, Liverpool (AP) was recorded as the reference for this information.
 - A separate undated entry indicates that the vessel was sunk 12m W by N from the Calf of Man, at approximately 540200N, 051000W.
 - On 04.02.1975 a wreck was located in 540442N, 051154W (OBG) using Hi-Fix. The least echosounder depth was recorded as 83.6m, in a general depth of 95m and on a seabed of soft grey mud. The remains were noted as those of a substantial wreck, length 220ft, height 13.75m.
 - The wreck was reportedly shown as a bad wreck on the Kingfisher Trawling plots C-Plot C13 (1983).
 - On 08.06.2001 it was reported that the wreck had been located in 5404.703N, 0511.980W (WGD) using dGPS. The length was recorded at 78m, width 10m and the vessel was thought to be intact and upright. Hatches were also reportedly visible on dual sidescan sonar images.

18. LOW PRIORITY VESSEL: FLORRIESTON

18.1. Introduction

18.1.1. A wreck which lies at 54.43430,-5.16727 (WGS84, decimal degrees) has been identified as the probable remains of the *Florrieston* (Figure 1).

18.2. Location

18.2.1. The position given above reflects that recorded by the UKHO and CMA. The CMA indicate that this position is accurate.

18.3. The wreck remains

18.3.1. The wreck remains lie at a depth of 85m (according to the CMA) and have been recorded as an anomaly measured at 75m x 14m x 12m. The anomaly is recorded as an intact, possibly inverted, wreck.

18.4. Archival holdings and documents relating to the construction of the vessel

18.4.1. A number of different archival sources provide information on the details of the *Florrieston* as built. In terms of archival holdings these primarily comprise information from:

- Board of Trade Certificate of Registration (National Archives, Kew, BT 110/308/1);
- Lloyds Registers; and
- Lloyds Surveys. A number of surveys were conducted on the *Florrieston* (formerly the *Battersea Bridge*). Indexes held at the National Maritime Museum record the reference numbers for these surveys as: Hpl 1169 (6?); Bhn 863; Cff 22853; Bom (crossed out); Npt 13481; Nwc 46150; npt 13851; Cff 25461; Nwe 49256; Cff 27120; Hpl 12940; Bas 1741; Bry 8951; Gal 207; Hpl 13426; Lth 12211; Npt 15765; Hpl 13889; Npt 16153; Bdx 1762; Npt 16641. 16928; Brs 8959; Hpl 14454 (detailed within index number LLY/IND/5). The above surveys were conducted while the vessel was named *Battersea Bridge*. The following surveys were carried out on the vessel following the renaming to *Florrieston*: Cff 34997; Hpl 147115; NNC 65095; Grlb (?) 709; Hul 27128; GlS 34173, 34850; Liv 72223; Grk 16909; GlS 35471; Glb 797; mlb 9426; Npt 18783; Sws 14167; Cff 39556; GlS 37477 (detailed within index number LLY/IND/6/2).

18.4.2. Further information may be held in the archives of the shipbuilding company responsible for the construction of the *Florrieston*, William Gray & Co. Ltd., West Hartlepool. The UKHO also give details of the ship's specifications, as do other sources such as the Mercantile Navy List.

18.5. Documents relating to the use of the vessel

18.5.1. Sources which give details relating to the use of the vessel comprise:

- Board of Trade Certificate of Registration which gives ownership details (National Archives, Kew, BT 110/308/1);
- Lloyds Registers, which indicate the owner of the vessel;
- Mercantile Navy Lists also give details of ownership;
- The Ministry of Shipping reports on the System of Convoys for Merchant Shipping in 1917 and 1918 (accessed at the Caird Library);
- the website uboat.net also gives details which relate to the final voyage of the *Florrieston*, and lives lost (Helgason 1995-2015); and

- Documentation relating to War Risks Insurance associated with the *Florrieston* (National Archives, Kew, MT 9/ 1373).

18.6. Documents relating to the loss of the vessel

18.6.1. The Lloyds War Losses give details of the manner in which the *Florrieston* was lost, in addition to the context of the loss in terms of details relating to the final voyage of the vessel. Details of the loss of the vessel are given on the Board of Trade Certificate of Registry, although these are limited. The UKHO also gives a brief description of the loss. As the *Florrieston* is thought to have been torpedoed by the U91, details of the submarine, held at uboat.net are also of relevance for understanding the loss (Helgason 1995-2015). The war diary of this vessel, if in existence, may allow a more detailed understanding of the loss of the *Florrieston*. War Risks Insurance documents associated with the *Florrieston* also give an indication of the context of the loss (National Archives, Kew, MT 9/ 1373).

18.7. Documents relating to the survival of the vessel

18.7.1. Remains identified as the *Florrieston* have been recorded by the CMA. The UKHO have also conducted surveys of the wreck. These are the primary sources of information relating to the survival of the vessel.

18.7.2. To some extent the survival of the vessel also relates to circumstances of loss, and thus documents relating to this matter inform the baseline for survival at the point of loss. As with other wrecks, post-loss factors affecting the survival of the vessel relate to the environment of the site (e.g. Muckelroy 1978: 160-165). Details regarding the environment of the *Florrieston* can be gleaned from UKHO survey details.

18.7.3. No salvage records have been located.

18.8. Documents relating to the investigation of the vessel

18.8.1. Documents which inform the history of investigation of the vessel are principally the same as those which inform the survival of the vessel. Thus the UKHO is the principal source.

18.9. History of the *Florrieston*

18.9.1. **Build:** The *Florrieston*, originally *Battersea Bridge*, was built in 1901 by William Gray & Co. Ltd., West Hartlepool. The company was in operation between 1874-1963, and by 1900 employed 3000 men (Grace's Guide 2007). *Florrieston's* official number was 114781. The ship's name was changed from *Battersea Bridge* to *Florrieston* in 1912 (BT 110/308/1).

18.9.2. **Machinery, propulsion and specifications:** *Florrieston* was a steel-celled vessel with a double bottom. The vessel was given an elliptical stern and was of clinker construction. *Florrieston* was screw-propelled and schooner-rigged, with two masts. The ship was fitted with an inverted, direct-acting, triple-expansion, surface-condensing engine, with two steel boilers, manufactured by William Gray & Co. Central Marine Engineering Works, West Hartlepool, in 1901 (BT 110/308/1; Lloyds Register 1917-1918).

18.9.3. The gross tonnage of the vessel was recorded as 3366.48 and the registered tonnage as 2170.51. The dimensions of the vessel are recorded as 331 ft x 47.1 ft x 24.7ft.

18.9.4. **Arrangement:** The vessel had five bulkheads and five water ballast tanks with a capacity of 801.5 tons. *Florrieston* was also fitted with deep framing (Lloyds Register 1917-1918). The ship had one iron deck (BT 110/308/1; Lloyds Register 1917-1918). The certificate of registry indicates that the vessel had a signal house, store room, round houses, side houses, forecandle, chart house, hatchways, master's room and boatswains store.

- 18.9.5. **Use:** Originally the vessel was owned by the Bridge Steam Shipping Co. Ltd., who are named as the owners on the 1904 Mercantile Navy List. The ship was then passed to William Gray & Co. Ltd who owned the Battersea Bridge in 1907 (Mercantile Navy List 1907) until 1912 when *Florrieston* came into the ownership of the Florrieston Steamship Company, during which time the ship was registered to Glasgow.
- 18.9.6. Unlike many other vessels during WWI, the *Florrieston* was not requisitioned for wartime activities by the Admiralty. Instead the War Risks Insurance documentation indicates that the ship was chartered to the Italian Government during 1917. These documents are principally concerned with changes to War Risks Insurance rates (due to the high number of losses) and whether the owners of the vessel were worse off because the vessel had been chartered to the Italian Government rather than being requisitioned.
- 18.9.7. A letter in regard to this reads: *'I am directed by the Board of Trade to state that in August, 1917, in consequence of the heavy losses sustained by the Government Insurance Scheme through the intensified submarine campaign, a radical alteration was made in the Government Insurance Scheme and a considerable increase made in the rates of premium payable in respect of all voyages within the danger zone. The effect of this was that a great additional expense was thrown on the owners of British ships which were time chartered to the French and Italians, and for a time there was some doubt as to whether the owners of these vessels could afford to vary out the terms of the charter under the altered circumstances. Both the French and Italian authorities took a reasonable view of the situation and were disposed to meet the English ship-owners in the matter, but it took some little time to arrange satisfactory terms...it was in these circumstances that the letter quoted in paragraph 7 of the Petition of Right was written and signed by the Ministry of Shipping and Board of Trade, the object of the letter being to induce owners to continue running and insure their vessels at the new higher rates of insurance on the definite understanding that they would be no worse off than if they had been requisitioned'* (MT 9/ 1373).
- 18.9.8. In addition to providing such contextual information the document also indicates that the *Florrieston* had sailed from Ardrossan on the 20th August 1917, en-route 'to Glasgow where (the) steamer loaded and thence to Naples where discharge was completed pm 29th September 1917- 40 days' (MT 9/ 1373).
- 18.9.9. On its last voyage Lloyds War Losses indicate the *Florrieston* was en route from Almeria (Spain) for Glasgow with a general cargo when she was torpedoed. The Ministry of Shipping report on the System of Convoys for Merchant Shipping in 1917 and 1918 indicate that the *Florrieston* was part of a homebound convoy from Gibraltar on her final voyage.
- 18.9.10. **Loss:** According to the Ministry of Shipping's report on the System of Convoys for Merchant Shipping in 1917 and 1918 the *Florrieston* is thought to have been torpedoed by an enemy submarine while travelling toward Glasgow in a convoy from Gibraltar. Lloyds War Losses indicate the route was Almeria for Glasgow. The certificate of registry contains the following note on the loss of the *Florrieston* (BT 110/308/1):
- 18.9.11. *Registry closed this 11th day of May 1918. Vessel sunk by enemy submarine off Ireland 10th April 1918. Certificate of Registry lost with vessel. Advice received from manager- her Form 20 received 12.5.18.*
- 18.9.12. However, although the 10th April is given as the date of loss on the Certificate of Registry, Lloyds War Loss records indicate that the ship was sunk on the 20th April at 54 30N, 5 11 W. The Ministry of Shipping's convoy report indicates that the Gibraltar convoy set sail on the 10th April 1918 and thus the later date may be more plausible.

- 18.9.13. There is also some discrepancy as regards the position of loss. The website uboat.net is in agreement with the date and position given in Lloyds War Losses however, an alternative position is also given at 54.28N 05.12W, referenced to patrol boat P62. A note also indicates the sinking location listed in reference to 'South Stack' in error. It has not been possible to resolve these discrepancies, particularly as contradictions exist within primary sources (i.e. the Lloyds War Losses and certificate of registry).
- 18.9.14. However, the website uboat.net indicates the ship was torpedoed by U91, a German submarine which had carried out 8 patrols during which time it had been responsible for sinking 37 ships and damaging a further 2 (Helgason 1995-2015). The UKHO give further detail and indicate that the *Florrieston* was torpedoed by German submarine U91, with the loss of 19 crew members, including the captain.
- 18.9.15. **Survival:** The UKHO indicate that the remains comprise an intact and possibly inverted wreck, with rock outcrops nearby. The dimensions have been recorded by the CMA as 75m x 14m x 12m.
- 18.9.16. **Investigation:** The CMA indicate that the wreck has been investigated by the UKHO. The UKHO give details of their surveys which have investigated the wreck:
- A note dated to 20.04.1918 indicates that the vessel was sunk in 543000N, 051100W. On 24.04.1918 this position was given as 542800N, 051100W, and on 27.04.1918 the position of sinking was recorded from the Board of Trade as 543000N, 051100W. A descriptive account given on 28.04.1918 indicates the vessel sank in 3 minutes, 6 miles east half north from South Rock LTV.
 - An undated entry indicates that a poor Asdic Sonar contact was recorded in 542600N, 051012W, length 147ft, height 44 or 48 ft. Traces of oil were recorded.
 - An entry dating to 05.02.1975 indicates that the vessel was not found by surveys carried out in 1973 and 1974, but that the seabed was irregular in the area.
 - A note dated to 30.09.1999 indicates that an anomaly was located in 5426.06N, 0509.96W [WGD] using dGPS. The least echosounder depth was recorded as 61.7m in a general depth of 75-90m.
 - A note dated to 02.03.2000 indicates the area was examined in 5426.067N, 0510.007W [WGD] using dGPS. The least echosounder depth was recorded as 61.7m in a general depth of 75-95m. No scour was recorded. The anomaly was reported to have a length of 103m, width 15m and height of 8.6m (recorded by dual control sidescan sonar). The seabed was reported to be rock, with coarse sand and mud between the ridges. The wreck was thought to be intact and upright and no debris was recorded.
 - The wreck was reported again on 18.04.2001 in 5426.058N, 0510.036W [WGD]. The least echosounder depth was recorded as 61.8m.
 - A note dated to 13.07.2001 indicates that the wreck was examined on 19.02.2001 in 5426.058N, 0510.036W [WGD] using dGPS. No scour was recorded. The length of the wreck was reported to be 75m, width 14m and height 12m. The wreck lies intact and possibly inverted at 015/195 degrees.

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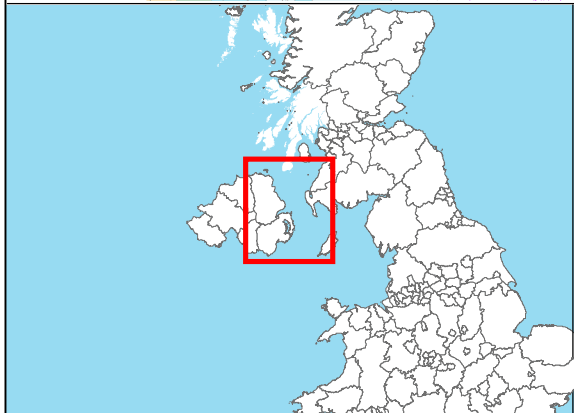
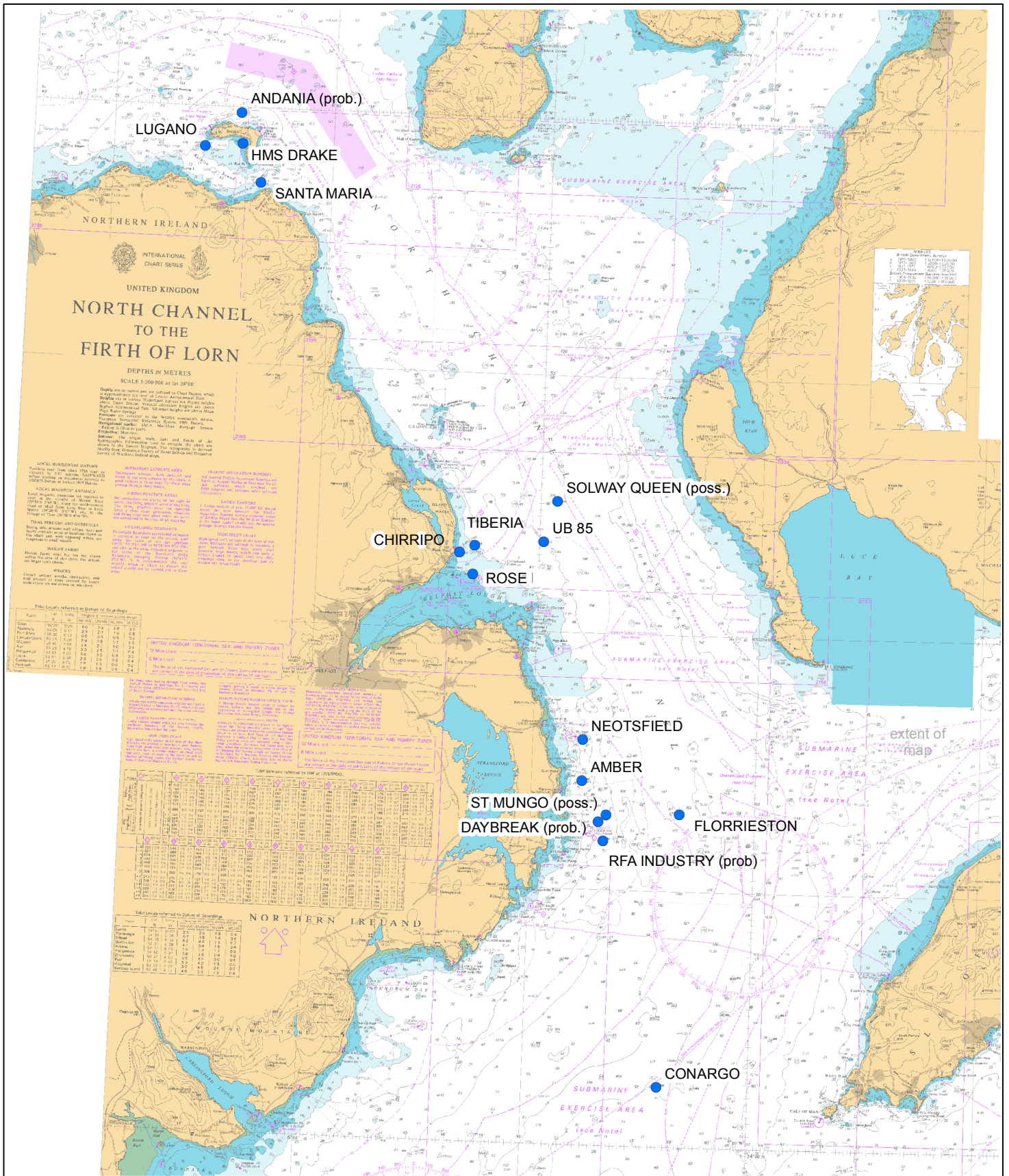


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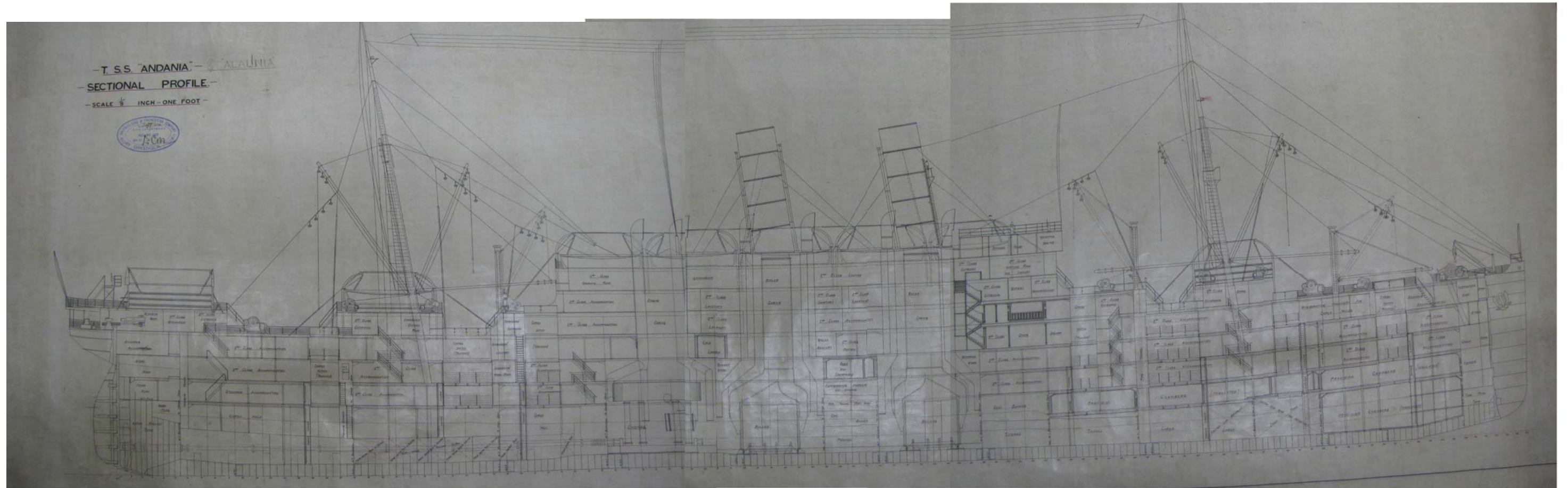
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PROJECT TITLE
 World War I Wrecks in Irish waters
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FIGURE TITLE
 Location of wreck sites

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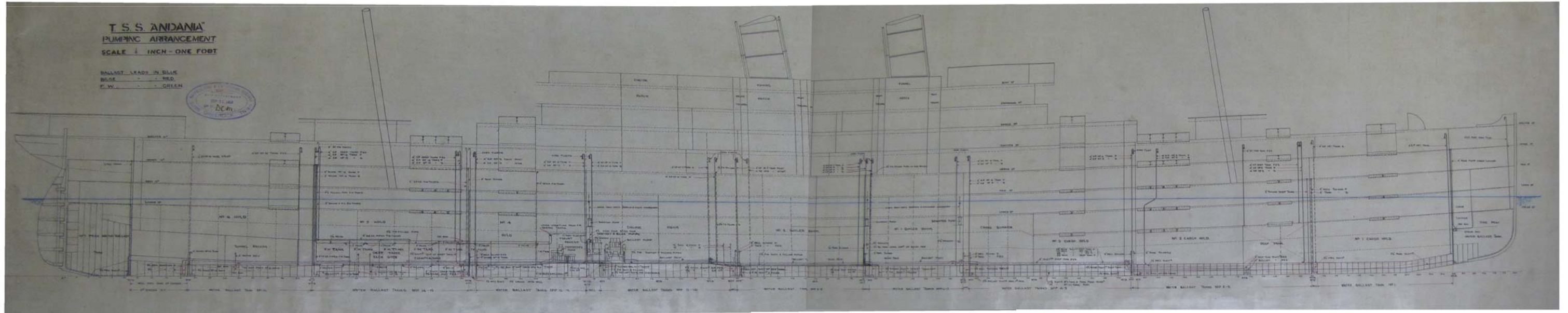



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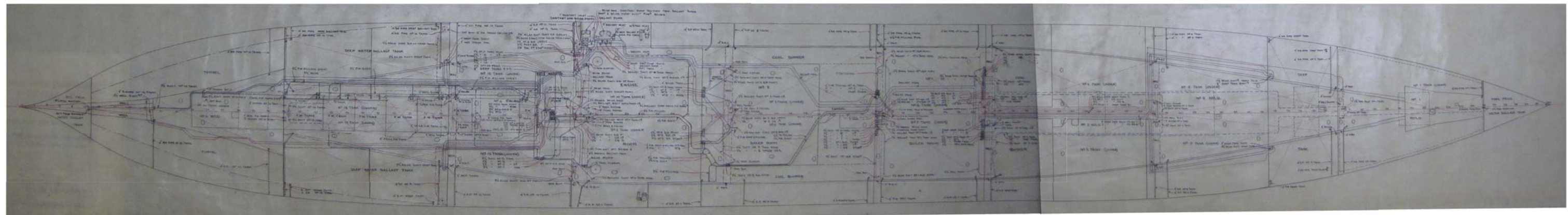
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FIGURE TITLE
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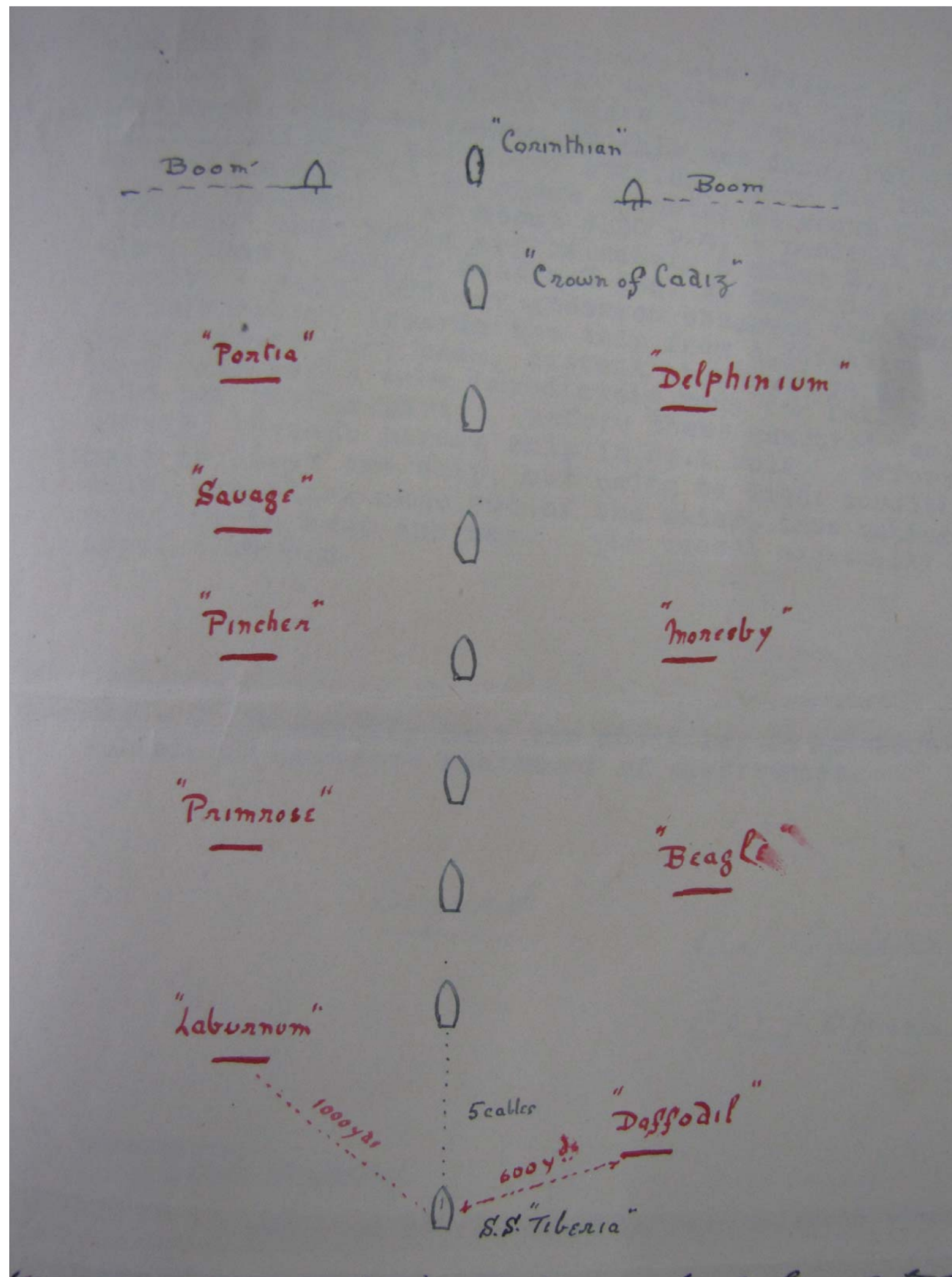
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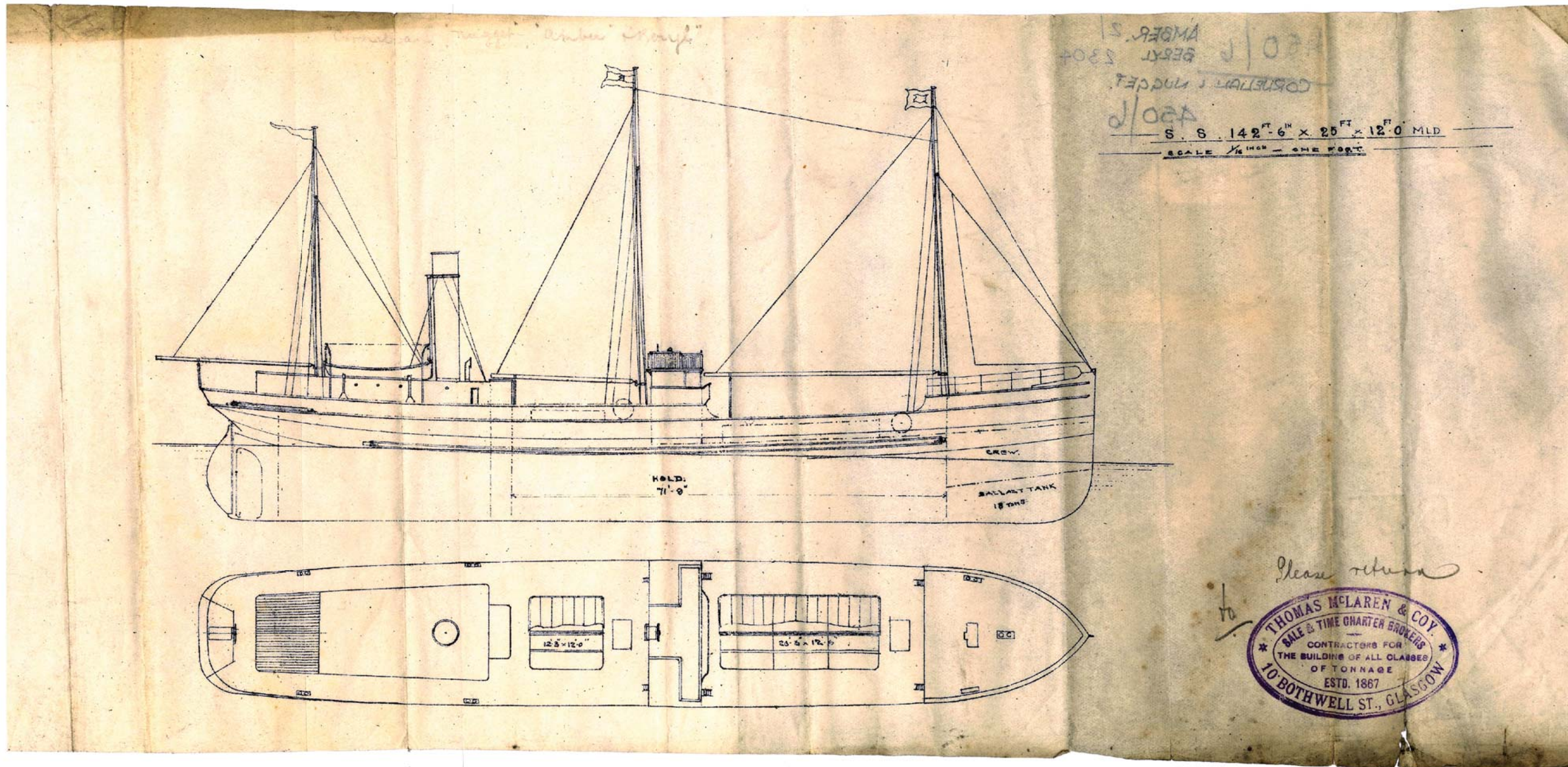


Section of the Andania's pumping arrangements



Plan of the Andania's pumping arrangements





450/1
 CORNELIUS J. MURPHY
 1804
 AMBER S.
 S. S. 142'-6" x 25' x 12'-0" MLD
 SCALE 1/4" = 1 FT

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FIGURE TITLE
 Plan of the Amber

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