Cotswold Archaeology

Clyde-Built: A Study of the Clyde Shipbuilding Industry as Represented by Shipwrecks within the Clyde River and Estuary

for

Historic Scotland

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Andover Cirencester Milton Keynes

CLYDE-BUILT: A STUDY OF THE CLYDE SHIPBUILDING INDUSTRY AS REPRESENTED BY SHIPWRECKS WITHIN THE CLYDE RIVER AND ESTUARY

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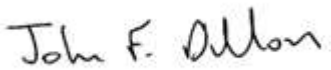
signed	
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SUMMARY

This project forms a study of Clyde-built wrecks within the Clyde and has been undertaken by Cotswold Archaeology for Historic Scotland as part of the *Heritage Assets in Relation to Marine Designation: Scottish, Welsh and Northern Irish Territorial Waters* project. The study has been guided by Philip Robertson at Historic Scotland and sits within the Source to Sea research programme, developed by the RCAHMS following on from recommendations by the Scottish Archaeological Research Framework (ScARF).

This project has collated information from a range of sources and has enhanced knowledge of Clyde-built wrecks within the Clyde. In particular information from recreational divers has proved invaluable and has been the source of detailed information about the current condition of many Clyde-built wrecks, useful for on-going management.

A number of wrecks previously recorded as of unknown identity in the RCAHMS database were positively identified during the project and more accurate positional information was established for a number of other wrecks. Additionally, the project identified a potentially significant wreck (*Margaret Niven*) the remains of which were not previously recorded. This project has also identified a number of other potentially significant wrecks within the Clyde, which reflect both its unique contributions to world-wide shipbuilding and local connections. These wrecks include paddle steamers (*Lapwing* and *Princess of Wales*), Clyde Puffers (e.g. *Margaret Niven*), steam-yachts with military connections (HMS *Breda*), a dredger (*Greenock*) and an 18th-century West Indiaman (*Lady Margaret*). Numerous other wrecks have been identified by this project, and all display some degree of significance.

All of the wrecks can contribute in varied ways to the Source to Sea project, and provide a window through which to view many of the Source to Sea strands, from boats and ships, to migration, fish and fishing and river management and modification.

The project aims have been addressed, and in particular the project has enhanced understanding of the nature, extent, condition and significance of the Clyde-built wreck remains, in addition to providing information to aid management considerations. The project has also enhanced existing archaeological datasets (e.g. Canmore), and data downloads to that repository have been carried out. Additionally this project has nurtured relationships between archaeologists and divers and has resulted in valuable new wreck information and plans for on-going cooperation and outreach.

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ILLUSTRATIONS

All photographs have been reproduced with the kind permission of Peter Moir and Ian Crawford

1. PROJECT BACKGROUND

1.1. Introduction

1.1.1. The maritime archaeology of the Clyde has been identified as a focus for a major study of human interaction with the river through time by the RCAHMS following on from recommendations by the Scottish Archaeological Research Framework (ScARF). Source to Sea has been developed as the long-term research programme, of which the research into human connections with the River Clyde forms part.

1.1.2. Numerous wrecks are recorded within the Clyde, which themselves present a tangible reflection of people's interactions with a river system which has provided a major route for communication since prehistory.

1.1.3. In *Characterising Scotland's Marine Archaeological Resource*, Lancaster (2012: 23-25) commented:

'Navigation through the Firth of Clyde has always presented hazards, and problems of navigating the river led to the construction of ports and dockyards closer to the sea at Port Glasgow, Greenock and Gourock. The pre-eminence of Glasgow and the Clyde in shipbuilding in the late 19th and early 20th century has great historical significance, and has had a major impact on the archaeological record, both in this region and throughout Scottish waters'.

1.1.4. Lancaster observed a relatively high percentage of Clyde-built vessels represented in the wreck record for south-west Scotland which he believed, 'reflects as much the relative importance in the Clyde of large scale trade using larger vessels than the presence of the shipbuilding industry itself'.

1.2. Scope

1.2.1. This project is a study of the surviving shipwreck heritage of Clyde-built vessels lost within the Clyde estuary and Firth of Clyde (Figure 1). The temporal scope of the project is from the beginnings of the shipbuilding industry on the Clyde in the first quarter of the 18th century to the present. The study is desk-based and uses existing databases and previous research, combined with extensive information gathered from within the recreational diving community regarding the Clyde-built wreck sites.

1.2.2. A dataset of the Clyde-built vessels in the area is established by this project. The wreck sheets included as Appendix B give details of the Clyde-built wrecks within the study area detailing the evidence gathered as part of this project for each wreck.

1.2.3. The significance of these Clyde-built wrecks is also assessed (Sections 4-10). This report discusses the wrecks from a series of different perspectives, including their manner of loss, hull material, ship-builder etc., but focuses on the function of the vessels which has guided the main structure of the report and the formation of groups. The groups have been defined with reference to the function of the vessels and fitted in to wider categories as defined by Source to Sea (e.g. river management) and *Characterising Scotland's Marine Archaeological Resource* (e.g. fisheries). Detailed assessments of significance are carried out for a number of vessels in the groups defined by function, but with respect to a much wider variety of factors affecting significance. The Clyde-built wrecks are also discussed with relation to the Source to Sea strands in Section 11 of this report, and management

recommendations based on the current understanding of the wrecks are set out in Section 12.

1.2.4. This scope was agreed in advance with Historic Scotland and was guided by input from the RCAHMS (Cotswold Archaeology 2014a and b).

1.3. Location

1.3.1. For the purposes of this project the Clyde has been defined as the Firth of Clyde, and including the Clyde estuary and the River Clyde up to its tidal limit at the tidal weir adjacent to Glasgow Green (Figure 1). This includes sea lochs, but not freshwater lochs. This study area was agreed in advance with Historic Scotland, and covers the approximate area outlined in the Firth of Clyde Marine Spatial Plan (2010).

2. METHODOLOGY

2.1. Sources and data processing

2.1.1. In order to identify a baseline of Clyde-built wrecks within the Clyde a series of datasets were consulted. These comprised:

- *Characterising Scotland's Marine Archaeological Resource* database (Wessex Archaeology 2012);
- Canmore (RCAHMS NMR database obtained in November 2014);
- The UKHO Wrecks and Obstructions Database (obtained via MarineFIND in November 2014, with most recent data download from UKHO in November 2014); and
- Wrecks reported in *Clyde Shipwrecks* and *Argyll Shipwrecks* (Moir and Crawford 2004 and 2003).

2.2. Characterising Scotland's Marine Archaeological Resource database

2.2.1. The *Characterising Scotland's Marine Archaeological Resource* database is broken down into four components: Wrecks, Aircraft, Infrastructure and Spotfinds. Both aircraft and infrastructure were not within the remit of this project, thus they were excluded from consideration. The Spotfinds dataset does contain information relating to wrecks (including finds of anchors and cannon), however these Spotfinds have not been assigned to specific wrecks, thus on the basis of current knowledge the identification of any Clyde-built wrecks from this component of the dataset would not be possible. Therefore only the 'wrecks' component of the database was used as a data source for this project.

2.2.2. Unidentified wrecks were filtered out from within the 'Wrecks' component of the *Characterising Scotland's Marine Archaeological Resource* database. Some of these wrecks may represent Clyde-built vessels, however without a positive identification of the wreck's name it is not possible to verify which ones. The remaining wrecks (i.e. those lying within the study area and whose named identity has been established) were researched further with a view to ascertaining whether these wrecks were Clyde-built. The methodology for this is discussed below.

2.3. RCAHMS

2.3.1. The RCAHMS wrecks database was imported into ArcGIS and those wrecks with an unknown identity or which lay beyond the study area were filtered out. Where the RCAHMS record losses these have not been included within those wrecks considered by the project unless they relate to seabed remains recorded by the UKHO or divers. The remaining wrecks, with positive identifications, were researched further with a view to ascertaining whether these wrecks were Clyde built.

2.4. UKHO Wrecks and Obstructions database

2.4.1. The UKHO wrecks and obstructions database was provided by MarineFIND. The data presented in this database was updated (by a data download from the UKHO) in November 2014, and the data received in December 2014.

2.4.2. Four hundred and twenty one wrecks, obstructions and fouls lie within the project study area. Of these there are 122 named wrecks. The remainder represent fouls, obstructions, known features such as anchors and swamped moorings and unknown features. The latter

include a number of unidentified wrecks. Therefore, as with other data sets, wrecks with an unknown identity were filtered out, unless other datasets such as RCAHMS database indicated an identity.

2.4.3. This filtering process left the core data set, comprising 122 named wrecks within the study area. The wrecks within this area were then compared with those recorded by the RCAHMS database and the *Characterising Scotland's Marine Archaeological Resource* database. The locations and details of the wrecks were compared to establish whether the UKHO records tied up with the recorded location for the vessel of the same name in other sources. A number of wrecks previously recorded as of unknown identity in the RCAHMS database were positively identified during this process, and more accurate positional information was established for a number of other wrecks.

2.5. *Clyde Shipwrecks* and *Argyll Shipwrecks*

2.5.1. The publications *Clyde Shipwrecks* and *Argyll Shipwrecks*, written by Peter Moir and Ian Crawford (2003, 2004), deal with wreck sites whose locations extend across the study area. Vessels which feature in the books have been included within the dataset for this project where Moir and Crawford (2003, 2004) report evidence for seabed remains within the study area. Positional information recorded in these publications generally corresponded with that recorded by the UKHO, however, for a number of wrecks there is no corresponding UKHO record. Discussion with Moir and Crawford (*pers. comm.,* 2015) indicated that their positions were based on dGPS readings taken from the dive boat above wreck sites and thus these positions are considered to be reasonably accurate. Thus, where there is no corresponding UKHO record, Moir and Crawford's position has been used.

2.6. Identifying Clyde-built wrecks

2.6.1. The data from these sources was first loaded into the project GIS workspace (set up in WGS84) and filtered for results occurring within the study area and for wrecks with a positive identity.

2.6.2. In order to identify which of the wrecks from the above data sources were Clyde-built, first a list of shipbuilders in operation on the Clyde was established, based on the list presented by the Clydesite website (Appendix A). Second, records from the above datasets relating to wrecks within the Clyde were also checked to verify whether any of these vessels were Clyde-built.

2.6.3. Two methods for identifying Clyde-built wrecks from these filtered datasets were used. Firstly all of the above datasets were searched on the basis of the shipbuilder and/or build-place of the vessels recorded. The build-place and shipbuilders of the vessels with a known identity are recorded in *Characterising Scotland's Marine Archaeological Resource* database. Eleven Clyde-built wrecks were identified within the *Characterising Scotland's Marine Archaeological Resource* database by this method.

2.6.4. The datasets also recorded large numbers of positively identified vessels for which the shipbuilder was unknown. Initial tests showed that further research could provide information on the build-place and/or shipbuilders responsible for the construction of these vessels. The Iona I for example, recorded in *Characterising Scotland's Marine Archaeological Resource* database as from an unknown build-place and shipbuilder, is known to have been constructed by J & G. Thomson, on the Clyde (Wessex Archaeology 2009).

2.6.5. Research, using the name of the vessels, was conducted with a view to establishing where these vessels were constructed. This research was undertaken primarily using Canmore, the Clydesite website, the Clyde Built Ships database (Caledonian Maritime Research Trust 2015), Peter Moir and Ian Crawford's *Clyde Shipwrecks* (2004) and *Argyll Shipwrecks* (2003) and general internet searches. The shipbuilder or build place for each vessel was recorded in a RCAHMS events spreadsheet, for upload to Canmore.

2.6.6. Any Clyde-built vessels identified were recorded in the project spreadsheet, along with details of the position of the wreck (in WGS84 decimal degrees) and information about the build date, loss date, hull material, area of use, propulsion etc. This formed the primary dataset for the project. More detailed information is contained within the Wreck Sheets which form Appendix B.

2.7. Diver consultation

2.7.1. A major aspect of the project, as outlined in the project proposal (Cotswold Archaeology 2014a), has been to integrate the work and knowledge of recreational divers into archaeological datasets. The methods for involving the diving community included communication via emails, phone calls and face-to-face meetings. During this correspondence details of the wrecks were recorded. In particular consultation focused around establishing:

- The position of the wreck;
- The remaining and identifiable elements of the wreck, including details of the hull, method of propulsion and any features observed;
- The condition of the wreck;
- The seabed type and wreck environment;
- The methods of identification (to establish on what basis the wreck had been ascribed a named identity); and
- The date of the dive.

2.7.2. These details were recorded within event logs, designed as part of the process to enable effective and efficient discussion and recording of diver knowledge. The event logs form part of the project archive. Information from the event logs has been used to compile the wreck sheets, which form the primary records of the wrecks from information gathered by this project (Appendix B).

2.7.3. A key part of the project has been information from divers, and in particular those who have carried out detailed and extensive research into the wrecks they dive. Peter Moir and Ian Crawford have been key contacts, and have provided much detail on the remains and their positions. A large number of others have also contributed to the information presented here, including Simon Exley and Rob Sewell, and thanks are due to all who kindly contributed.

2.8. Geophysical Survey

2.8.1. It was initially anticipated that this project would incorporate geophysical survey data from the Clyde Port Authority (Peel Ports- Clydeport). However, discussion with Clydeport indicated that, with the exception of the *Iona I*, they did not hold surveys covering the wreck sites under study (J. Craig *pers. comm.,* 2015). Thus geophysical survey data has not been included within this project.

2.9. Assessing Significance

2.9.1. Statutory marine planning in Scotland was established through the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010. The latter includes provision for the designation of Historic Marine Protected Areas (HMPAs), which have replaced the use of Section 1 under the Protection of Wrecks Act (1973).

2.9.2. Guidance on the selection, designation and management of Historic Marine Protected Areas has been produced (Historic Scotland 2014), and includes a framework for determining cultural significance. Within the framework the cultural significance of an asset can be established with regard to the following characteristics:

- Intrinsic
- Contextual
- Associative

2.9.3. These qualities can be used to characterise the importance of the heritage asset on a local, national, or international scale (Historic Scotland 2014: 53). The assessments of significance detailed within this report use this framework.

2.9.4. The Build Use Loss Survival Investigation (BULSI) framework is also used (Wessex Archaeology 2006) as a baseline for which to offer observations regarding the significance of marine heritage assets (specifically shipwrecks), with reference to Historic Scotland's frameworks for determining cultural significance for scheduling and Historic Marine Protected Areas. These details have been used to guide the information recorded within the wreck sheets (Appendix B) and have been taken into consideration when conducting the assessments of significance.

2.9.5. Reference has also been made within this report to specific studies which inform understanding of the intrinsic, contextual and associative characteristics of the Clyde-built wrecks. In particular *Characterising Scotland's Marine Archaeological Resource* (Wessex Archaeology 2012) provides contextual information for understanding marine heritage assets within a Scottish context. This project has also highlighted the dominance of wreck remains from the period 1850-1950 (Wessex Archaeology 2012: 9).

2.9.6. The dominance of mid-19th to mid-20th century wrecks within the archaeological record has been observed elsewhere in 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: one in which the Clyde played a key role.

2.9.7. 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*

- *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)

2.9.8. 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 Clyde-built wrecks within the Clyde.

2.9.9. The primary aspects of significance which have been informed by this project relate to the survival and investigation of the wreck remains, which inform the intrinsic characteristics of the asset. Focus on these aspects is a product of the methodology, which uses diver records to enhance existing archaeological datasets. These methods of survey can also inform, by proxy, other elements of the significance of wreck remains such as details of the vessel as built, and perhaps indications of its use, such as cargo, and loss, such as indicated by associated damage visible on the wreck remains. These aspects can primarily inform understanding of the intrinsic and contextual elements of the wreck remains. Associative characteristics can also be informed by these methods. The assessment of associative characteristics has also been undertaken within this study using readily available sources (including detailed online sources of information for individual Clyde-built vessels e.g. Clydesite.com), however, it must be noted that further desk-based research, particularly of archival holdings, could potentially illuminate the associative characteristics and significance of the wreck remains further. Thus discussions of significance within this report may be added to by further study in this area. Further survey may also add to understandings of the intrinsic and contextual characteristics of the wrecks. Suggestions for further work are included within Section 12 of this report.

2.9.10. Those wrecks chosen for more detailed assessments of significance have been selected primarily on the basis of their condition (one of the considerations of significance within the intrinsic characteristics of marine archaeological remains), as it is this aspect which forms the primary focus for the project, and thus which the data gathered by this project can best address. However, where wider consideration of the group as a whole indicates that individual wrecks may be of heightened importance on the current understanding of elements related to their associative or contextual characteristics, they have also been considered for more detailed assessments of significance.

2.10. Limitations

2.10.1. Large numbers of documented losses are recorded in the Clyde Estuary. The RCAHMS, for example, record almost 3000 within the study area and the records of vessels lost in the Clyde Estuary far outweigh the known wreck remains within this area. This disparity hints at the potential for further, as yet undiscovered wrecks, to come to light within the Clyde, of which some may prove to be Clyde-built. Additionally, there are large numbers of wrecks present on the seabed whose identity is unknown. It is likely that some of these will be Clyde-built vessels.

2.10.2. Thus the current project represents a snapshot, assessing the evidence for Clyde-built wrecks within the Clyde as currently known. This will be subject to change, and future discoveries may yet add to the Clyde-built heritage within the study area. Further research

which could lead to the positive identification of known seabed remains, or prospection which could identify as yet unknown wreck remains have the potential to enhance the current Clyde-built dataset.

2.10.3. The base datasets also have inherent limitations within their data when viewed from an archaeological perspective. These limitations stem primarily from the original intentions of the particular datasets. The UKHO, for example, are principally concerned with hydrography and navigational safety. During data processing it has been noted that a number of the wrecks recorded by divers have no corresponding UKHO record. This is primarily the case where wreck remains are reported to lie close to the shore (often on rocky reefs), such as the *Charlemagne* which lies in shallow water close to Feochaig (Moir and Crawford 1997: 28), and the *New York* (Moir and Crawford 1997: 50). Comparison with the modern hydrographic charts for the area of the latter indicates that the *New York* is situated along a stretch of coastline not surveyed since 1852. The 1852 survey was conducted using a lead line, and was undertaken prior to the sinking of the *New York*.

2.10.4. There are also discrepancies between many of the positions recorded in *Characterising Scotland's Marine Archaeological Resource* database and the RCAHMS database. The UKHO has therefore been used as the primary source for positional information, supplemented by diver positions (recorded with a dGPS) where a UKHO record does not exist. This is in order to ensure cartographically accurate site location data, to feed into the Source to Sea 'map' (RCAHMS & Historic Scotland 2014: 2).

2.10.5. The project has used a series of different datasets as primary sources in order to avoid the impact of these limitations on the overall project.

2.11. Wreck Sheets

2.11.1. Wreck sheets which form Appendix B have been used to collate information from the above sources. The sheets hold information relating to each wreck, and include details of:

- Identification
- Basis for identification
- Position and a rating of positional accuracy
- Type of vessel
- Build date
- Propulsion
- Hull material
- Tonnage
- Dimensions
- Shipbuilder
- Use of vessel
- Years in use
- Circumstances of loss
- Loss of life
- Loss date
- Surviving features and condition (of the wreck site)
- Identifiers (i.e. numbers: Canmore, UKHO etc.)
- Seabed type and marine environment
- Investigation
- Key Sources

2.11.2. These details have been recorded in order to facilitate easy understanding of the Build, Use, Loss, Survival and Investigation of the vessel (to feed in to assessments of significance), in addition to understanding of the position and basis of its identification. Diver and UKHO reports of the wrecks have been arranged chronologically on the wreck sheets (in the surviving features and condition section) in order to allow an understanding of deterioration over time, as has been carried out in other areas where metal shipwrecks represent an important aspect of the archaeological resource (ORCA 2014: 3). To further understand deterioration, information known to affect the survival of metal wrecks has been included where available. This includes details such as seabed type (Deegan et al. 1973), depth and tidal currents and flow. Additionally other threats such as trawling are also recorded, in the 'seabed and marine environment' section.

3. SHIPBUILDING ON THE CLYDE

3.1. Introduction

3.1.1. The birth of commercial shipbuilding in Scotland is generally agreed to have been in 1711, with the establishment of Scotts of Greenock, on the banks of the Clyde (Johnman 2008: 523; Johnman & Murphy 2005; Scotts' Shipbuilding & Engineering Co. Ltd 1906). However, it was not until the mid-19th century that the Clyde began to take prominence in the shipbuilding arena. Prior to this period the east coast shipyards at Aberdeen, Leith and Dundee had been responsible for the majority of Scotland's ships, at a time when activity on the Clyde was still focused around the construction of fishing vessels (Johnman & Murphy 2005; Slaven 1993).

3.2. Origins

3.2.1. The date of 1711 is to some extent an arbitrary point in time. The foundation of Scotts of Greenock represents the earlier development of boat building and maritime activity in Scotland which, prior to this period, had been characterised by the construction of small, vernacular craft, and in particular vessels associated with the fishing industry (Wessex Archaeology 2012: 31). The focus on the construction of craft of this type continued in the period following 1711, and initially Scotts, which grew to be one of the largest shipbuilding companies in operation on the Clyde, was involved in building smaller vessels and herring busses which reflected the prominence of that fishery during the 18th century (Coull 2008; Johnman & Murphy 2005:1; Scotts' Shipbuilding & Engineering Co. Ltd 1906).

3.2.2. Herring fisheries form an important part of Scotland's economic history and came to particular prominence during the 19th and 20th centuries (Coull 2008: 208). However, the origins of this industry stretch much further back in time. Archaeological evidence suggests that herring have been exploited since prehistory, and intensified exploitation of the species is known to have occurred following the close of the first millennium AD (Barrett and Richard 2004; Cerón- Carrasco 2005; Oram and Adderley 2010: 259). The Clyde herring fishery originated during the medieval period, and by the 18th century it was a relatively large scale industry (Coull 2008). The fishery was initially characterised by the use of small boats, but by the mid-18th century larger herring busses, such as those made by Scotts, had been adopted (Coull 2008: 2010). This early history indicates the inextricable link between the birth of commercial shipbuilding on the Clyde and Scotland's maritime past.

3.2.3. Fisheries represent one of the themes identified in *Characterising Scotland's Marine Archaeological Resource* (Wessex Archaeology 2012), reflecting the importance of this industry to Scotland's maritime archaeology. Although the early focus of shipbuilding on the Clyde may have been for fishing vessels, the later industrial character of Clyde-built vessels dominates the archaeological record of wrecks (Wessex Archaeology 2012: 32).

3.3. Clyde Shipbuilding Industry

3.3.1. Modifications to the Clyde waterway were instrumental in facilitating the industrial growth which took place on its banks in the 19th and 20th centuries. Specifically operations to increase the depth of the Clyde which were underway by the latter part of the 18th century, and foundation of ports closer to the sea (at Port Glasgow, Greenock and Gourock for example) allowed deeper drafted vessels access to the Clyde.

3.3.2. 'The massive contribution made by Clyde engineers and shipbuilders, not merely to Scottish but to world shipbuilding, lay in three areas – the commercial application of steam to

power vessels, the technical development of compound expansion engines, and the steady improvement in boiler design' (Moore 2008). Supporting these contributions were a number of conditions peculiar to the Clyde and its hinterland. A good supply of labour, marine and engineering establishments and rail connections in the area all underpinned the growth and success of shipbuilding on the Clyde. Additionally the rapid development of the iron industry in Scotland from the second quarter of the 19th century, and the subsequent ability of the iron manufacturers to expand into steel production fed the increasing and changing demands of the Clyde shipbuilders (Johnman & Murphy 2005; Slaven 2006).

3.3.3. The use of steam power was championed on the Clyde, and in 1812 the paddle steamer *Comet* became Europe's first successful, commercial steamer (Millar 1888: 159) following earlier vessels such as the rear-paddle steamer *Charlottes Dundas*, also trialled on the Clyde in 1801, and others elsewhere. While paddle steamers moved relatively slowly and did not strain wooden hulls, the later use of screws driven by increasingly effective boilers and engines, and their associated increases in speed, caused twisting and distortion to vessels over 300ft in length which led to leaks and higher maintenance (Slaven 2006: 112). By the 1860's the construction of iron hulled steamers had far outstripped that of wooden vessels. Although sailing vessels were still in use at this time, on the longer trade routes, the adoption of the Scotch Boiler in 1862 coupled with development of the compound marine expansion engine in 1853, and the invention of the triple-expansion steam engine in 1874 (all on the Clyde) allowed steamships to travel further on less fuel. This removed the necessity of stopping to refuel, and allowed steamships to rival sailing vessels for the first time on longer journeys (Robins 2014; Wessex Archaeology 2011: 36).

3.3.4. These developments show the central role of the Clyde shipbuilders in the advancements of the industry. The advancements were pioneered by the 268 different shipbuilders who have been in operation on the Clyde (see Appendix A, as listed on Clydesite.co.uk), and who were responsible for the 20,000 ships built on its banks. Alongside its renown for technological advancements the Clyde is also characterised by the variety of ship types constructed along its banks (Wessex Archaeology 2012: 32) which represent vessels for local to international use and include metal warships, paddle steamers, fishing vessels, Clyde Puffers and dredgers.

4. CLYDE-BUILT WRECKS WITHIN THE CLYDE

4.1. Overview and filtering

4.1.1. Using the UKHO, RCAHMS, *Characterising Scotland's Marine Archaeological Resource* databases and the publications *Clyde Shipwrecks* and *Argyll Shipwrecks* in addition to consultation with divers,40 wrecks of Clyde-built vessels within the Clyde were identified.

4.1.2. The decision was taken not to filter these wrecks down at this stage as it seemed likely that this would create artificial preferences based on differences between the ease with which information could be obtained rather than the potential significance of each shipwreck. Thus the list of 40 Clyde-built vessels identified from the datasets formed the focus for the collation of further information. To this end information on the build-date, propulsion type, hull material, tonnage and shipbuilder was collated, in addition to information relating to the use, loss, survival and investigation. Each wreck was considered in greater detail, including assessment of the position.

4.1.3. Following this research, of the 40 wrecks identified five of the dataset were removed, *Carrick*, *Amy, Bruce, Rhoda* and *Eagle* for the following reasons:

4.1.4. *Carrick:* From the detailed assessment of the position of each wreck it was determined that while a wreck previously thought to be the *Carrick* lies within the study area, subsequent surveys have recorded the *Carrick* elsewhere (just beyond the study area) by the recovery of the ships bell, at 55˚ 06.692'N, 005˚10.740' W. The UKHO identify a live wreck in this location. Thus the wreck within the study area is now not thought to be the *Carrick*, and no other identity has been suggested. As such the *Carrick* has been excluded from further consideration.

4.1.5. *Amy:* The UKHO indicates that wreck remains within the Firth of Clyde, between Skelmorlie and Dunan have been identified as the possible remains of the Amy, a dumb lighter lost in 1899. However, discussion with divers indicated that the identity of this wreck has not been verified and they believe the *Amy* has not been found. Thus this vessel is not considered further.

4.1.6. *Bruce:* Despite being a 'live' UKHO wreck divers indicate that there are no known remains of *Bruce*. Investigation into the UKHO record shows that it reports the loss location and a piece of information attributed to P. Moir, stating that the wreck lies at a depth of 24m, and record the *Bruce* as a live wreck. Subsequent discussion with P. Moir about this wreck suggests this is unlikely, and he does not believe this wreck has been located, despite diver searches in the area. Thus it has been removed from the project dataset.

4.1.7. *Rhoda:* Two positions for the *Rhoda* were recorded within the study area. Current UKHO data records a single record for a wreck identified as the possible remains of the *Rhoda* within the Clyde. This record relates to position 55.92797, -4.89535 (WGS84 decimal degrees). The surveying details indicate that when the obstruction was originally recorded one of the possibilities was that it represented the wreck of the *Rhoda*, lost in this area. However, subsequent surveys have indicated that the obstruction may be a boulder or fastener in an area of 'innumerable trawl scours', and the record has been amended to 'F' (foul). It appears likely that the name (which still reads Rhoda- possible) has yet to be updated, but on the basis of the equation of the obstruction with a boulder or fastener, it is unlikely that there is a wreck at this position.

4.1.8. The second position recorded for the *Rhoda* is recorded within the RCAHMS database (NumLink 102742), and also within the *Characterising Scotland's Marine Archaeological Resource* database (which used the RCAHMS database as the primary source) at 55.9055 -4.92867. Although there is no UKHO point at this position the RCAHMS database records UKHO survey details. Assessment of the survey details show that they are the same as those recorded in the current UKHO database for the wreck of the HMS Seagull 540m to the east, with the exception of the last surveying entry of the latter which led to the identification of that wreck as the HMS Seagull. The positions given in the survey details cited in the RCAHMS database are for the area of the HMS Seagull, and thus it is likely that the RCAHMS record represents an error, possibly stemming from a mistake inputting the UKHO position. The other details within the RCAHMS database for the *Rhoda* amount to that of a documented loss. Thus, the *Rhoda* has been removed from the project dataset.

4.1.9. *Eagle*: An anomaly recorded by a UKHO survey in 1980 was identified as the possible remains of the *Eagle*, and is currently recorded by the UKHO as a live wreck. However, following dives on the anomaly divers have reported that the anomaly in the position recorded for the *Eagle* is a large rock. It has also been suggested that the vessel was lost further south and that the remains have not yet been located. Thus, the *Eagle* has been removed from the project dataset.

4.1.10. Consequently no further research and wreck sheets have been produced for these five vessels.

4.1.11. Additionally, the detailed studies of the wrecks set out below does not include two Clyde-built wrecks which have already been subject to detailed study or are currently the focus of research being undertaken by others. These wrecks comprise the paddle steamer, *Iona I* (Wessex Archaeology 2009) and the Newshots diving bell barge (SCHARP 2014b). Both the paddle steamer and the diving bell barge represent innovative vessel types pioneered by the Clyde shipbuilders (Wessex Archaeology 2012; SCHARP 2014b), and make important contributions to the Clyde-built heritage of the Clyde. Short wreck sheets have been produced for these vessels.

4.1.12. Appendix B contains details on the other 33 Clyde-built vessels which form the focus for this project, including details of their build, use, loss, survival and investigation.

Name	Type	Build date	Latitude	Longitude
Lady Isabella	Barque	1882	55.71193	-4.9583
Elmbank	Barque	1890	55.43203	-5.18832
Auchmountain	Barque	1892	55.97547	-4.76454
Lady Margaret	West Indiaman	1769	55.69794	-4.90565
Charlemagne	Sailing ship	1857	55.35917	-5.5195
New York	Steam ship	1854	55.2886	-5.7506
Arran III	Steam ship	1926	55.89158	-5.40555
St Oran	Steam ship	1911	55.29445	-4.94421
Delta	Steam ship	1881	55.38332	-5.50107
Briton	Steam ship	1893	55.31275	-5.4631
Saxon I	Steam ship	1894	55.33665	-5.34498
Glenhead	Steam Lighter	1887	55.45333	-5.51967
Louise	Steam Lighter	1870	55.84743	-5.02116

Enterprise	Steam Lighter	1865	55.96388	-4.82137
Kaffir	Motor Coaster	1944	55.47332	-4.63731
Tuscan	Motor vessel	1935	55.5819	-5.12558
Kintyre	Steam ship	1868	55.88659	-4.89979
Davaar I	Steam ship	1878	55.28333	-5.54106
Beagle	Steam ship	1864	55.78827	-4.94395
Lapwing	Paddle steamer	1848	55.33445	-5.5186
Caledonian	Dredger	1874	55.75	-4.985
Greenock	Dredger	1876	55.93269	-4.89396
Princess of Wales	Paddle steamer	1888	55.87576	-4.90118
Lady Gertrude	Paddle steamer	1872	55.86742	-5.02367
Osprey	Steam yacht	1877	55.97333	-4.8092
HMS Breda	Steam yacht	1912	55.41553	-5.58383
Janet McNichol	Smack	1875	55.5309	-5.09193
Margaret Niven	Steam Lighter	1866	55.89488	-5.4066
Arthur	Steam ship	1877	56.00192	-4.86103
Glendale	Paddle steamer	1875	55.28861	-5.75917
Ethel Crawford	Steam trawler	1919	55.21748	-5.24991
Bellevue	Steam trawler	1897	55.32352	-4.93587
Kyle Skye	Steam ship	1911	55.44028	-5.26

Table 1: Clyde-built wrecks within the Clyde assessed as part of this project

4.2. Assessing the Resource: Understanding the Clyde-built wrecks

4.2.1. The Clyde-built wrecks represent a variety of vessels. These vessels fall within a series of different groups, dependant on the perspective from which they are viewed, as shown in Tables 2-8. The function of the vessels allow them to be grouped in one way, the propulsion and manner in which they were lost, for example, form other groups. These different groupings allow different strands of the significances of the vessels to be drawn out and understood. Function is considered to be the main driver in terms of the built form and use of the vessel, and also often strongly relates to the manner and location of its loss. Thus, this has formed the primary basis for the structure of discussions below. However, groupings have been further subdivided on the basis of their propulsion forms, such as Paddle Steamers, to draw out other aspects of significance, often with particular relevance to the Clyde.

4.2.2. To allow for the fact that the significance of vessels may be understood differently dependant on which perspective they have been viewed from, these groupings have not been used in a restrictive way. Where vessels may be better understood with reference to others from a different group, this comparison has been undertaken accordingly.

4.2.3. The tables below provide a summary of the different perspectives from which the wreck remains may be viewed.

4.2.4. *Build- date:* During the period between 1870-1913 Scottish shipbuilding boomed (Johnman 2008: 536). The build dates of the Clyde-built wrecks within the Clyde show the clear dominance of the dataset by vessels dating from the second half of the 19th century to 1913, which reflects wider trends in Clyde shipbuilding (Table 2). This period saw the expansion of the Clyde shipbuilding industry, and in 1871 (coinciding with the decade with

the highest number of wrecks in the Clyde-built dataset), almost 80% of those working in the Scottish shipbuilding industry were employed on the Clyde (Slaven 1993: 155), a dominance which continued into the 20th century.

Build Period	Date range	Number of vessels
18th century and earlier	Pre-1711	0
	1711-1799	**1**
Sub-total		**1**
First half of 19th century	1800-1839	0
	1840-1849	1
Sub-total		**1**
Second half of 19th century	1850-1859	2
	1860-1869	4
	1870-1879	9
	1880-1889	4
	1890-1899	5
Sub-total		**25**
First half of 20th century	1900-1913	3
	1914-1918	0
	1918-1919	1
	1920-1938	2
	1939-1945	1
Sub-total		**7**
Total		**33**

Table 2: Break-down of build periods of the Clyde-built wrecks

4.2.5. Ships built during the 1870s also dominate other UK wreck datasets, and vessels built within this decade have been identified as the most numerous wrecks within English waters, followed by those built in the 1860s and 1880s (Wessex Archaeology 2011: 6).

4.2.6. The period between 1860-1913 has been identified as an era of 'revolutionary change when the full impact of the industrial revolution and Britain's commercial and colonial expansion was felt in the maritime world' (Wessex Archaeology 2011: iii). That the dataset is dominated by wrecks of this period shows the potential of the Clyde-built wrecks within the Clyde to illuminate this complex period in shipbuilding; when steam overtook sail and wooden hulls were replaced by iron, and then steel (Wessex Archaeology 2011: iii), developments which were often pioneered by Clyde shipbuilders.

4.2.7. There are fewer 20th-century vessels within the dataset. None date from the period of WWI. This is likely to reflect the impact of the war on shipbuilding activities, when the production of mercantile vessels came almost to a standstill (although following the U-boat campaign more vessels were required) and naval vessels formed the focus of the shipbuilding industry, of which there are no purpose-built examples within the dataset. However, the *Ethel Crawford* (originally named the *John Langshaw*), was built as an Admiralty Strath class trawler, but was completed in 1919, too late for the war.

4.2.8. The war had a devastating effect on the shipbuilding industry, and while masked for a short time by a short boom which immediately followed the war, the true impact, caused by the disruption to trades and knock-on effects of this, became apparent in the 1920s (Johnman 2008). From 1920 the shipbuilding industry went into a period of decline and unemployment in Scottish shipbuilding had reached 40% by 1923 (having been only 2% 3 years earlier) (Johnman 2008: 530). Two vessels within the Clyde-built dataset were built in

the 18 year period between 1920-1938, and only one of these vessels was built before the mid 1930s revival in shipbuilding, the *Arran III* (constructed in 1926).

4.2.9. *Hull material:* The changes in shipbuilding, including the replacement of wooden hulled vessels with those built of iron and then steel, is represented in the dataset:

Hull material	Number of vessels
Wood	3
Iron	19
Steel	11
Total	**33**

Table 3: Break-down of the hull material of the Clyde-built wrecks

4.2.10. Iron vessels dominate the dataset, followed by steel and then wood. During the 1830s the use of iron as a hull material became feasible and it was used for this purpose throughout the mid to late 19th century. Steel began to rival iron from the late 1880's (Wessex Archaeology 2011: 38). The predominance of iron hulled vessels within the dataset therefore largely reflects the build-dates of the Clyde-built vessels (see Table 2), which are primarily from the second half of the 19th century, when iron was the preferred hull material.

4.2.11. *Propulsion:* Technological developments, including the changes to methods of propulsion which occurred during the 19th and 20th centuries are also represented within the Clyde-built dataset.

Propulsion type	Propulsion sub-type	Number of vessels
Sail	Sail	**6**
Conversions	Possible Sail converted to steam	**1**
Steam	Paddle	4
	Screw	18
	Steam Yachts	2
Sub- total		**24**
Motor	Screw	**2**
	Total	**33**

Table 4: Break-down of the propulsion methods of the Clyde-built wrecks

4.2.12. In terms of the methods of propulsion steam engines are represented by the highest numbers, with 24 vessels overall and an additional two which may have been converted to steam power, or had steam as an auxiliary method of propulsion (Table 4).

4.2.13. Sails are thought to have been the sole means of propulsion for 6 vessels, with an additional 1 representing a converted vessel. Within the sailing vessels international cargo ships form the majority of those represented, however a small local smack, the *Janet McNichol*, also falls under the category of vessels powered by sail.

4.2.14. The vessels powered by motors and propellers are among the latest within the dataset.

4.2.15. *Manner of Loss:* As is clear from the Table 5, the most common cause of loss was collision, which accounted for the loss of 13 vessels. A total of 12 vessels ran aground and a further 4 foundered. The remainder of the causes of loss reflect the losses of single vessels only.

Cause of Loss	Context of Loss	Number of ships lost
Collision	Collision	11
	Poor weather (poor visibility/ fog)	2
Sub- total		**13**
Ran aground	Poor weather (storm/ gale)	4
	Poor weather (poor visibility/ fog)	2
	Equipment failure	2
	Mechanical failure	1
	Navigational hazard (Patterson's Rock)	1
	Human error	1
	Unknown	1
Sub- total		**12**
Foundered	Poor weather (heavy seas)	2
	Leak	1
	Unknown	1
Sub- total		**4**
Fire	Explosion of cargo	**1**
Capsized	Poor weather (heavy seas)	**1**
Possibly struck mine	Unknown	**1**
Unknown	Unknown	**1**
Total		**33**

Table 5: Break-down of the causes of loss of the Clyde-built wrecks

4.2.16. The context of the loss throws further light on the losses of vessels within the Clyde. Poor weather was an important factor, and prompted a series of different loss causes, including collision, running aground, foundering and capsizing, which account for the loss of 11 vessels. Problems with the ship's equipment (faulty compasses) or machinery also caused 3 vessels to run aground.

4.2.17. The loss of a vessel due to the presence of a navigational hazard is also of note. While, of the Clyde-built wrecks, only the *Davaar I* ran aground on Patterson's Rock, this feature and other exposed rocks and small islands including Sheep Island and Sanda Island have caught many other vessels. The UKHO record nine wrecks on these rocks, including the HMS *Adept, Anwoth* and *Byron Darnton*, while the RCAHMS record 101 documented losses on Sanda and the associated rocks.

4.2.18. *Loss of life:* 'Significant loss of life' associated with a wrecking event in vessels dated to between 1860-1950 has been identified as an indicator of significance (Wessex Archaeology 2011a). As can be seen from the dataset the number of lives lost are unknown for most of the Clyde-built wrecks, and where numbers are known these primarily range from 0-3 (usually incorporating the crew). The one exception to this is the *Ethel Crawford,* thought to have been lost with her ten crew, and representing the largest known loss of life within the dataset.

Lives lost	Number of vessels
Unknown	12
0	10
1	2
2	4
3	3
3 at least	1
10	1
Total	**33**

Table 6: Break-down of the loss of life associated with the Clyde-built wrecks

4.2.19. *Shipbuilder*: A number of the Clyde shipbuilders are represented within the dataset (Table 7).

Shipbuilder	Number of vessels
J & H Halliday, Rothesay	1
A McMillan & Son, Dumbarton	1
Alexander Stephen, Kelvinhaugh	1
Ayrshire Dockyard Co Ltd, Irvine.	1
Barclay Curle & Co Ltd, Glasgow	1
Blackwood & Gordon, Paisley and Port Glasgow	1
Campbeltown Shipbuilding Co	1
Inglis & Co. Glasgow	1
J & J Hay Kirkintilloch	5
J Elder & Co. Glasgow	1
J. Brown & Co, Clydebank	1
John Reid & Co. Port Glasgow	1
Mackie & Thomson, Glasgow	1
Peter MacGregor Kirkintilloch	1
Port Glasgow	1
Tod and McGregor, Patrick	1
Rennie, Ritchie & Newport, Glasgow	1
Robertson & Co. Greenock	1
Russel & Co., Port Glasgow	2
Scott and Son, Bowling	3
Swan & Co. Maryhill, Glasgow	1
Tod McGregor, Patrick	1
Unknown	2
Wm Simons & Co. Renfrew	2
Total	**33**

Table 7: Shipbuilders of the Clyde-built wrecks

4.2.20. These, and the other Clyde shipbuilders, are listed in Appendix A. The dataset shows a fairly even spread distribution with few of the shipbuilders represented by more than one vessel. Exceptions to this comprise J & J Hay Kirkintilloch, Russel & Co, Port Glasgow, Scott & Son, Bowling, and Wm Simons & Co. Renfrew. Where numerous vessels represent a single shipbuilder this often bears some relationship with the type or function of the vessel. The five vessels built by J & J Hay Kirkintilloch were all Clyde Puffers. The firm, situated along

the banks of the Forth and Clyde canal, specialised in the construction of Puffers, whose dimensions allowed them to pass through the canal locks. The two vessels produced by Russel & Co, Port Glasgow were both barques and those by Wm Simons & Co. Renfrew were both dredgers.

4.2.21. The vessels by Scott & Son, Bowling represent a range of types. This variety of vessel types is representative of the company as a whole, who made mercantile and navy vessels of various forms and uses. Those within the dataset comprise the *Glenhead*, a Clyde Puffer, *St Oran*, a regional cargo-carrier, and *Ethel Crawford*, a trawler, all powered by steam engines (on which Scotts' concentrated from around 1839) (Johnman and Murphy 2005: 2).

4.2.22. *Function:* Function has been defined largely with relation to the use of the vessel (e.g. cargo vessel, fishing vessel) and, the length of voyages and the type of waters it was intended for (e.g. local, international). The latter have been defined here as:

1. Local (West Scotland): Vessels used in the Clyde and attached waterways including the canals and sheltered inshore Hebridean sea areas.
    1. Clyde
    2. Inner Hebrides
    3. Ireland and Outer Hebrides
2. National (UK): Vessels that cross the Irish Sea and travel around the UK.
    1. Western and Northern Scotland (including the Orkney's and Shetland) and the Irish Sea (down to west Cornwall)
    2. Southern England, the Thames and the North Sea coast
3. Regional (Europe): Vessels that interact with waters around the UK and further afield in Europe including:
    1. North Sea, the Baltic and Northern Europe
    2. Iberian Peninsula and the Mediterranean
4. International (Rest of the World): Ocean going vessels capable of travelling to:
    1. Atlantic (Americas and the West Indies)
    2. Africa, India, the East Indies and Australasia

4.2.23. In terms of the uses to which the vessels were put, a series of themes are discernible within the Clyde-built dataset. These comprise: Trade and the transportation of goods, passenger transport, military vessels, fisheries and river management. Within these categories division into further sub-categories including cargo vessels, passenger vessels, pleasure craft, trawlers and dredgers aids understanding. Cargo vessels can be further subdivided into specific types such as traditional vessels, Clyde Puffers and other steamships (all within the grouping Trade and the transportation of goods); passenger vessels (including specific types such as paddle steamers) and pleasure craft (all within the grouping passenger transport); trawlers (which represent the only type of fishing vessel within the dataset); Military vessels, and dredgers (again, which represent the only type of vessel associated with river management in the dataset). Divisions are also made on the basis of the area (local, national, regional and international).

4.2.24. These categories have been defined with relation to themes identified by the *Characterising Scotland's Historic Marine Archaeological Resource* report (Wessex Archaeology 2012) and the Source to Sea strands (identified in Annex 1 to the Programme Initiation Document) (RCAHMS & HS 2014).

4.2.25. *Characterising Scotland's Historic Marine Archaeological Resource* defined national themes including trade and fisheries (in addition to shipbuilding which forms a focus for the entire Clyde-built project). The passenger transport group also links to the migration theme identified by *Characterising Scotland's Historic Marine Archaeological Resource.*

4.2.26. Source to Sea also identified 'migration' as a strand, in addition to 'trade', 'navigating the Clyde including the canals' (which relates directly to the Clyde Puffer sub-group), 'fish and fishing', 'naval history' and 'river management and modification'. Numerous other strands relate to the Clyde-built wrecks including those which form overarching components of the project, such as 'boats' and 'ships', and strands which are more peripheral to this projects main purpose, such as 'logboats to shipbuilding' of which the project will be able to contribute to understanding an aspect of shipbuilding, but not the earlier history of vessels. These strands are discussed with relation to the wrecks in Section 11.

4.2.27. Table 8 contains a summary of the functions of the wrecks within the dataset.

Area	**Use**	**Number of vessels**
International	Cargo	4
	Passenger	1
	Cargo/ Passenger	1
Sub-total		**6**
Regional	Passenger	1
Sub-total		**1**
Local	Cargo	10
	Cargo-passenger	4
	Passenger	2
	Dredgers	2
Sub-total		**18**
Local (possible/ Probable)	Cargo	3
	Pleasure	2
Sub-total		**5**
Unknown	Trawler	2
	Unknown	1
Sub-total		**3**
Total		33

Table 8: Summary of the functions of the Clyde-built wrecks

4.2.28. As can be expected, local vessels are strongly represented, reflecting the use of Clyde-built vessels within the local area (including Western Scotland and across the water to Northern Ireland).

4.2.29. It must be noted that function has been determined from a few readily available sources, including the Clydesite website, *Clyde Shipwrecks*, *Argyll Shipwrecks*, Clyde Ships Database (Caledonian Maritime Research Trust 2015) and internet searches. While these sources are detailed and considered reliable, in-depth historical and documentary research has not been within the scope of this project. Further work in this area may lead to changes in the understanding of the function of vessels, and thus categorisation within this report.

4.2.30. Consideration of the dataset as a whole led to the conclusion that significance may be best assessed with regard to the function of the vessels, which necessarily relates to the built form and use of the vessel. The function of the vessels has been used in order to form groupings which allow an understanding of the significance of the remains. Grouping the

vessels in terms of their function allows each wreck to be understood in context. For example, the significance of the wreck of the *Margaret Niven* comes from an understanding of the wreck in the context of the development of the vessel and development of the vessel type (originally a gabbart, then fitted with an engine to form a Clyde Puffer, the *Margaret Niven* thereby reflects the overall development of Clyde Puffers).

5. TRADE AND THE TRANSPORTATION OF GOODS

5.1.1. The shipwrecks of the Clyde represent the wide variety of markets with which the region was involved; from local trade including the transportation of cargoes such as coal and necessities to the coastal communities of Scotland, to international exchange such as the tobacco trade with the Americas in which Glasgow was a key player (Moore 2008).

5.2. Local Cargo Vessels

5.2.1. There are a large number of vessels within the dataset which carried out functions associated with the local movement of cargo. Within the local cargo carriers Clyde Puffers dominate, and have therefore formed the focus of discussions here, however other vessels are also represented and discussed. Wrecks of local cargo vessels identified within the study area, with details of names, build dates and vessel types, comprise:

- Traditional vessels
  - *Janet McNichol* (Probable local cargo smack)
- Clyde Puffer and Steam Coasters
  - *Kaffir* (1944, steel motor coaster).
  - *Tuscan* (1935, steel motor vessel)
  - *Saxon I* (1894, iron steamship)
  - *Briton* (1893, iron steamship)
  - *Glenhead* (1887, iron steamlighter).
  - *Delta* (1881, iron steamlighter)
  - *Arthur* (1877, iron steamlighter)
  - *Louise* (1870, iron steamlighter)
  - *Margaret Niven* (1866, iron steamlighter)
  - *Enterprise* (1865, wooden steamlighter)
  - *St Oran* (1911, steam coaster)
  - *Kyle Skye* (possibly) (1922, steam coaster)
  - *Arran III* (1926, steam coaster)

5.2.2. While it is thought that the *Janet McNichol* has been identified within the study area, this identification has been on the basis of a concentration of bricks and some wooden debris on the seabed. It is thought that the smack was carrying a brick cargo when lost, and this information forms the basis of the correlation of the seabed remains with the wreck of the *Janet McNichol*. However this identification is unverified, and as reports indicate there is little surviving beyond the possible cargo, this wreck is not considered further.

5.2.3. *Characterising Scotland's Marine Archaeological Resource* noted problems identifying Clyde Puffers in current archaeological datasets, and some vessels of this type are recorded just as steamships (Wessex Archaeology 2012: 25). The terms motor vessels and steamlighters have also been found to refer to Clyde Puffers. The problems in identification may stem from confusion as to the specifications of Clyde Puffers, and thus discussion of the distinct characteristics of Puffers is given in 5.2.5, and in Appendix C, in order to provide a basis for understanding the identifications made here, and subsequent assessment of significance. Notwithstanding difficulties arising from classification terminology, a number of Clyde Puffers have been identified within the study area.

5.2.4. The *Arran III* is also referred to as a Clyde Puffer in some locations online. However, although the vessel carried out many duties in common with the Puffers, including carrying cargo between the ports of the Clyde, the dimensions of the vessel at 99.7'x21.1'x9.2' (Moir and Crawford 2004: 52), exceed those used for Puffers (discussed in detail below). The *Arran III* is considered as a steam coaster, but not a Clyde Puffer. However, the grouping of the vessels in terms of their function allows consideration of the *Arran III* alongside the Puffers, in addition to the other local steam coasters, *St Oran* and *Kyle Skye*.

5.2.5. ***Clyde Puffers and Steam Coasters***

5.2.6. *Overview, development and characteristics:* While the Clyde Puffers essentially form a type of coaster, they are discussed separately here due to the specific associations of that vessel type and its relationship with the Clyde.

5.2.7. The origins of the Clyde Puffer are entwined with two other craft: the scow and the gabbart. The former were canal-going vessels, built to transport goods along the Forth and Clyde Canal from its completion in 1790. The scows were initially horse drawn, and capable of carrying up to 80 tons of cargo (MacKenzie 2012). In the mid-19th century the steam scow was introduced, fitted with a single-cylinder engine. The vessel emitted a distinct 'puffing' noise which resulted from exhausted steam being pumped directly into the air, due to the absence of a condenser, which was to characterise this type of craft and eventually gave its name to the Clyde Puffers.

5.2.8. Westward, the waters of the Clyde and the Western Isles were plied by the gabbart, a small sailing vessel designed to carry up to 50 tons of cargo to the coastal communities of western Scotland from the 17th century. The shallow draughts and flat bottoms of the gabbarts made it possible for the vessels to deliberately beach themselves to unload their cargoes, in areas not served by a pier (MacKenzie 2012).

5.2.9. Features of these vessels, including the Puffer engine of the scow and, typically, the shallow bottomed hull of the gabbart were combined in the Clyde Puffer, capable of completing the entire journey through the canals and out to the remote coastal communities of Scotland (Brown 2013). The puffing engine was, however, quickly replaced by the two-cylinder compound engine, which did not require a supply of fresh water such as was abundant in the canals. In addition to these features the Clyde Puffers were typically characterised by a bluff bow, a single mast and a derrick. Steam powered winches were also fitted (MacKenzie 2012). The boats were controlled, in the earlier models, from an open navigation platform and later from a wheelhouse (Brown 2013).

5.2.10. Three types of Clyde Puffer emerged. The Inside Boats were used on the canals, upper Clyde and docks. The Shorehead boats, with higher bulwarks and freeboard, were used in the Clyde Estuary. Finally Outside boats were built from the 1870s as seaworthy craft capable of making the crossing to the Hebrides. The latter largely replaced the sailing vessels, the gabbarts.

5.2.11. The Puffers also have important wartime connections. Primarily known for their use as Victualing Inshore Craft (VICs) during WWII, smaller numbers were also used for this purpose during WWI, and took supplies around Scotland's coast. In 1941 the Ministry of War Transport commissioned the first consignment of VIC vessels, based on the Clyde Puffer design. Later in the war the size of the VIC vessels was increased, welding rather than riveting was used in the construction of their hulls and some incorporated diesel engines as opposed to the original twin cylinder compound steam engines (MacKenzie 2012).

5.2.12. The Puffers have additional cultural importance for this region through their depiction as the vessel *Vital Spark* in the Para Handy stories by Neil Munro, a key conceptual association of the Clyde Puffer.

5.2.13. While the Clyde Puffers developed for use in a particular environmental and geographic niche, and important elements of their built form related to the area in which they were used, such as the dimensions which reflected their use in canals and their shallow draughts and flat bottoms which allowed them to be beached, the built forms of other steamships in use at this period were not dictated by these considerations. For the other local steam coasters within the dataset, their developments followed large scale trends in shipbuilding, including the changing preferences in hull material (wood, iron and steel), and technological changes. The local cargo-carrying steamships within the dataset all exceed the dimensions and cargo capacity of the Puffers. These differences in the dimensions of the local coasters and Clyde Puffers reflect the different restrictions imposed by the use of the vessels, which governed their form: unlike the Clyde Puffers the local coasters were not designed to fit through the canals, and their dimensions reflect this.

5.3. Assessment of Significance

5.3.1. Within the group of local cargo vessels coastal steamers, Clyde Puffers and a single traditional vessel are represented. Clyde Puffers dominate this group, and their local associations and development indicate just some of the numerous facets of their significance. These aspects and special connections with the Clyde and the west of Scotland provide evidence of the heightened significance of this vessel type within the group of local cargo carriers. Thus the assessment of significance will focus on Clyde Puffers but will make reference to other vessels within this group in order to draw attention to aspects of their significance.

5.3.2. General characteristics of significance are first considered (primarily under the headings of contextual and associative value) followed by examples of an individual vessel, selected for detailed consideration on the basis of aspects of intrinsic characteristics (namely, condition) in addition to associative and contextual characteristics understood with reference to wider trends and developments. The condition of the wrecks within the study area further supports the focus on Clyde Puffers, as these wrecks represent the best preserved of the local cargo carriers, with a number of largely intact examples such as the *Tuscan* and *Kaffir*.

5.3.3. *Contextual Characteristics:* The dominance of Clyde Puffers within the dataset would suggest that, as an asset type, they are not particularly rare. Surviving examples of Puffers are also known, such as at the Boat Museum, Ellesmere Port (Brown 2013).

5.3.4. *Characterising Scotland's Marine Archaeological Resource* noted four records of Puffers within the region of south-west Scotland, and one within the west region (Wessex Archaeology 2012). No others are recorded within Scotland, however, this is likely due to classification problems (Wessex Archaeology 2012), and the numbers identified within the Clyde as part of the present study surpass those identified in the region as a whole. The UKHO records only 1 vessel classified as a Puffer, the *Tuscan* (others are noted as S. Puffers). This undoubtedly reflects the issues in classification terminology (Wessex Archaeology 2012). Thus, apparent rarity within datasets is considered to be a product of classification issues, and where detailed study has been undertaken (as by this project, within the Clyde), Clyde Puffers are noted to be relatively abundant. This abundance is likely to reflect the fact that the present study is focused around one of their principal areas of use. It is likely that, with the exception of western Scotland, Puffers would be rarer in other regions.

5.3.5. Assessing the rarity or representativeness of the other coastal steamers is also difficult. The datasets do not hold sufficient information to discern which of the vessels classed as 'steamers' or 'steamships' represent coasters. However a single coaster is noted as such within the UKHO dataset for the study area. As with Clyde Puffers it is likely that issues of classification beset identification of local coasters. The three wrecks of Clyde built coasters within the Clyde are similar in form (although there is some variation in size), and constituent parts (e.g. all were fitted with compound 2 cylinder steam engines, all of the vessels were powered by a single screw and all had steel hulls)(see Table 9). Thus surviving examples, such as the *St Oran* which is thought to survive well, may be considered representative of this type of vessel.

Name	Dimensions	Tonnage	Engine and propulsion
St Oran	122.0' x 21.6' x 9.4'	89nt	1-screw. Compound 2 cylinder engine
Kyle Skye	130.3' x 22.6' x 9.8'	116nt	1-screw. Compound 2 cylinder engine
Arran III	99.7' x 21.1' x 9.2'	49nt	1-screw. Compound 2 cylinder engine

Table 9: Summary of specifications of the Clyde-built local coasters

5.3.6. In terms of diversity, the chronology and components section above gives an indication of the development and therefore potential diversity within Clyde Puffers (Appendix C). The table below summarises these elements for those Clyde-built Puffers within the study area:

Name	Date	Dimensions	Engine	Steam winch	Hull material	Helm features
Kaffir	1944	66.6'x18.3'x8.6'	Unknown	Winch*	Steel	Wheelhouse
Tuscan	1935	65.6'x18.4'x8.7'	Steam compound 2 cylinder and converted for oil fuel	Unknown	Steel	Wheelhouse
Saxon I	1894	65.8'x18.0'x8.4'	Steam compound 2 cylinder	Unknown	Iron	Unknown
Briton	1893	65.6' x 18.0' x 8.2'	Steam compound 2 cylinder	Unknown	Iron	Unknown
Arthur	1887	65.7' x 16.2'	Steam, 1 cylinder oscillating	Unknown	Iron	Unknown
Glenhead	1887	66.0'x17.5'x6.4'	Steam compound 2 cylinder	Winch*	Iron	Unknown, Wheel hub*
Delta	1881	65.5' x 17.5' x 7.5'	Unknown, steam	Unknown	Iron	Unknown
Louise	1870	65.2'x14.3'x5.5'	Direct acting	Winch*	Iron	Unknown
Margaret Niven	1866	63.2'x16.5'x5.0' (60.2'x16.6'x5.0' cited on Clydesite)	Steam engine fitted in 1881. 1 cylinder*	Winch*	Iron	Unknown
Enterprise	1865	Unknown	Unknown, steam*	Unknown	Wood	Unknown
Details from Moir and Crawford (2003 and 2004) and diver details, unless otherwise stated. *indicates feature noted on wreck site by divers						

Table 10: Specifications of Clyde Puffers

5.3.7. The Puffers appear to show little diversity: their dimensions reflect those necessary to pass through canals, conversion from wood, to iron and then steel follows wider patterns, as do developments in engines (although more detail is needed to fully understand the latter). There are, however, a number of unknowns which could throw further light on diversity

within the Clyde Puffers. Additionally, as a form of local coaster, the Clyde Puffer represents diversification of this overall class.

5.3.8. The dimensions recorded for the Clyde Puffers within the study area are representative of those for the Inside and Shorehead types. None of the larger, Outside, types are represented. While this may be due in part to the location of the study area and its coincidence with the working areas of the Inside and Shorehead types (i.e. the Clyde and Clyde Estuary) this absence is also reflected in the current dataset outside this area. The *Logan*, for example, which lies in the Sound of Mull, measures 65ft in length. Thus, on the basis of the present known dataset the larger 'Outside' Clyde Puffers are rare. However, although no Outside type Puffers survive (with dimensions restricted to 88ft in order to fit through the Crinan canal locks), larger local coastal steamers are represented by the *Arran III*, *Kyle Skye* and *St Oran*.

5.3.9. The presence of the *Logan* in the Sound of Mull indicates that smaller types may too have made journeys beyond the Clyde. Within the Clyde-built dataset the *Kaffir* is known to have completed journeys to the Hebrides, and a photograph (reproduced in Moir and Crawford 2004: 141) shows the vessel at Iona.

5.3.10. The vessels were used within the Clyde and waters off the west of Scotland. The presence of wrecks of this type within the Clyde, their primary area of use and development, and the locality with which they share the strongest connections, is thus of importance. This importance represents the relationship of this vessel type to its wider environment and setting.

5.3.11. *Associative Characteristics of Clyde Puffers:* In terms of the associative characteristics of Clyde Puffers, there are a number of potential sources from which they may derive significance. Leading on from the area of use, the Clyde Puffers represent the shipment of general cargos around the Clyde, and from around 1870 they largely replaced the gabbarts in their role of delivering essential supplies to communities of the west of Scotland. The Puffers have been immortalised in this role by the *Vital Spark* stories. These stories represent the significance of the Clyde Puffer in the national consciousness and show the importance of the vessels to the people who used, and relied, on them.

5.3.12. The place of Clyde Puffers in public consciousness was further cemented by the Ministry of War Transport's choice to use the vessel type as VIC vessels during the war. Although there are no VIC vessels within the dataset *Kaffir* was originally ordered as a VIC, but this order was cancelled and the vessel completed by 1944 as part of shipbuilder J. J. Hay's, Kirkintilloch, fleet of Puffers.

5.3.13. In addition to the association with *Vital Spark* which can be considered a historical event/ character (albeit fictional) through which the Clyde Puffer draws significance, many of the vessels also have connections to shipbuilders renowned for the construction of this type of boat. J & J Hay Kirkintilloch, for example, built large numbers of Puffers, and in 1857 had been connected with the first ever purpose-built Clyde Puffer (previous Puffers had been made through fitting scows with engines, a process undertaken by J & J Hay). The first purpose-built Puffer, *Glasgow*, had been built by Swan & Co. Maryhill (Mackenzie 2012). These shipbuilders are both represented within the Clyde-built dataset, which has 5 Puffers constructed by J & J Hay Kirkintilloch, and a single Puffer, *Louise,* by Swan & Co. Maryhill.

5.3.14. Within those identified as Clyde Puffers a number survive in good condition (see Appendix B, Wreck Sheets 16.2- 16.11). Figure 4 shows an example of the surviving remains of one of

the Puffers, the *Tuscan,* which include the vessel's mast. Of the Clyde Puffers the *Margaret Niven* has been selected for a detailed assessment of significance. This selection is based not only on the good condition of the wreck, but is also due to the ability of the wreck to represent the development of the Clyde Puffer (Appendix B Wreck Sheet 16.10 and Figure 5).

5.4. Margaret Niven

5.4.1. *Intrinsic characteristics:* Divers have noted the remains of a small wreck with a largely intact hull, off Barmore Island. The wreck remains have been reported on by numerous divers, and are regularly dived by a local dive charter (see Appendix B, Wreck Sheet 16.10, Figure 5).The first published record of this wreck dates to 2004, although it may have been known about earlier. This wreck is not currently recorded by Canmore, however the documented loss of the *Margaret Niven* is recorded (Canmore ID 112344). No archaeological work is known to have taken place on this site, however recreational divers who regularly dive the site have provided detailed accounts of the remains. Additionally there is no UKHO record of this wreck.

5.4.2. The metal hull of the vessel is reported to be largely intact, although the bow has split open. The stern is intact, and the rudder and propeller have been recorded on the wreck. A single, large, boiler is also recorded, with a small one-cylinder engine behind. Bollards and a winch are present toward the bow of the wreck. Deck beams have also been noted, and stone chips form the cargo, situated in the hold. The position of the rudder has also been recorded, hard to starboard (see Figure 5). It has been suggested that this may show the final attempts of the crew to avoid hitting the rocks on which the vessel ultimately wrecked.

5.4.3. Documented loss records indicate the *Margaret Niven*, an iron steamlighter (Puffer), was sunk near Barmore Point with a cargo of crushed granite, in 1908. This represents the only known loss of a steamlighter with a cargo of crushed stone in this area, hence on the basis of vessel type and cargo these remains are thought to represent the *Margaret Niven*.

5.4.4. It is thought that the *Margaret Niven* was only fitted with a steam engine in 1881 (clydesite.co.uk). Prior to this the vessel is thought to have been an iron gabbart, a vessel type driven by sail power and intimately connected with the development of the Clyde Puffer. The dimensions of the vessel, in particular the length of 60ft, would have allowed the *Margaret Niven* to pass through the canal locks and fulfil the role of a Puffer, and the chipped stone on the wreck site indicate that she was involved in cargo-carrying when lost. The origins and development of the *Margaret Niven*, from a gabbart to a Puffer, therefore form a microcosm representative of the development of the Clyde Puffer vessel type as a whole. Features important to understanding the gabbart and the Puffer, and the alterations made to the *Margaret Niven* which represent this development, may include the hull of the wreck, engines and machinery, all of which are known to survive, largely intact, on the wreck site.

5.4.5. *Contextual characteristics:* The contextual characteristics of the *Margaret Niven* are largely reflected by those for Clyde Puffers generally, although with a few notable differences. While Clyde Puffers are not considered to be rare, vessels which were not purpose-built Puffers, but instead have been modified, are not otherwise known within the dataset. The modified vessel represents a transition and the development of an important class of vessel with specific associations to the Clyde and western coast of Scotland.

5.4.6. The wreck lies in close proximity to another wreck of a local cargo-carrying steamship, the *Arran III*. Both vessels were thus involved in similar activities, and both wrecked on the rocks on and around Barmore Island. There is no particular relationship with this area, or between the vessels known at present. However, in a wider context the vessel lies within the Clyde and comprises a vessel type associated with this area (on two levels, as a gabbart and then a Clyde Puffer), and thus some importance is derived from this factor.

5.4.7. *Associative:* As for the contextual characteristics, the associative characteristics of the *Margaret Niven* are largely as for the Clyde Puffer vessel type as a whole. The significance of the vessel in terms of the public consciousness may be slightly heightened, particularly in the west coast and Clyde area, due to the vessel having been both a gabbart and a Puffer (both of which have particular connections to these areas).

5.5. Summary

5.5.1. The discussion of the strands of significance which can be ascribed to Clyde Puffers overall indicates that these vessels may all have the potential to be of importance, on the basis of their associative and contextual values. While the *Margaret Niven* has been chosen for detailed assessment due to her intrinsic characteristics, as her development encapsulates the development of the vessel class as a whole, and includes specific relationships with wider aspects of significance assigned to Clyde Puffers (e.g. her earlier role as a gabbart and hence connection with the Clyde and west coast communities), there are many well preserved examples of Puffers within the dataset.

5.5.2. In addition to their state of preservation, there are other aspects which may indicate heightened significance of some of the vessels, such as the origins of *Kaffir* as a VIC vessel, the potential wooden hull of the *Enterprise* (although not thought to survive), and *Louise*, built by those responsible for the first purpose built Puffer, Swan & Co. Maryhill.

5.5.3. The different locations of other Clyde Puffers within the dataset mean that different individuals can connect with the vessels. *Kaffir* for example is accessible from the shore, and can be seen above the water, while there are many others which survive in an apparently good state of preservation below the water, including *Glenhead*, *Briton* and *Tuscan*, the latter of which has been noted by divers to be the best preserved (underwater) example of a Clyde Puffer (Figure 4).

5.6. Local Cargo/ Passenger Vessels

5.6.1. Those Clyde-built vessels which conducted both passenger and cargo transport on a local basis are relatively few within the dataset, comprising:

- *Lapwing* (1848, Paddle Steamer)
- *Kintyre* (1868, Steamship)
- *Beagle* (1864, Steamship)
- *Davaar* (1878, Steamship)

5.6.2. These vessels include three screw propelled steamers and a paddle steamer. The development of steamers and paddle steamers are well understood and thus less detail will be given here than for the Clyde Puffer category. Given their associations with both passenger and cargo, the significance of these vessels may be best understood with reference to the local cargo vessels and local passenger vessels.

5.7. Assessment of Significance

5.7.1. As before, those wrecks in best condition form the focus for assessments of significance. The *Davaar,* an iron hulled steam ship lost while on its maiden voyage from Glasgow to Limerick with a general cargo and two passengers survives in poor condition, with only the boiler reported (Appendix B Wreck Sheet 16.18). Thus this vessel will not be considered further.

5.7.2. Due to the differences between the other vessels their significances will be discussed separately.

5.8. Lapwing

5.8.1. *Intrinsic Characteristics:* The UKHO recorded remains of a small wreck in 1986, within 30m of diver records of the wreck of a paddle steamer recorded in 2003. It is possible that these records relate to the same wreck, however this is not verified and the UKHO have identified the anomaly they recorded as the possible remains of the *Quesada* (Appendix B Wreck Sheet 16.15).

5.8.2. The remains reported on by divers lie at *c*. 36m off the Kintyre Peninsula. The central section of the wreck is relatively intact, and features including the engine block, cylindrical boiler and the paddle wheel hubs survive. Plating and structural remains are also visible and the crankshaft and drive shafts survive. Possible bulkheads are also noted. Debris on the seabed appears similar in form to the remains of the paddle wheel observed on the *Iona I*, and may represent comparable remains. While evidence of the outer hull is noted in the central area, away from the central section the hull has largely deteriorated. Divers have also recorded extensive sediment movement on and around the wreck, and 'parts of the wreck continually disappear and reappear on successive visits' (Moir and Crawford 2004: 45). Toilets and jars have also been noted on the wreck site, and artefacts reported to the Receiver of Wreck include crockery, a basin, steering wheel hub, toilet and jars.

5.8.3. Documentation indicates that the paddle steamer, *Lapwing*, built in 1848, was lost in 1859 following a collision with the steamer, *Isleman*, near Sanda in poor weather. Divers have identified the wreck as that of the *Lapwing* on the basis of the vessel type and pottery noted on the wreck site bearing the name 'David Hutchinson', the owner of *Lapwing* from 1851.

5.8.4. In terms of the developmental sequence of the asset the survival of machinery on the wreck site is important, as the engines and boilers were originally those of the *Helen McGregor*, a wooden paddle steamer built in 1835, and were later included in the *Lapwing* in 1848. These elements also contribute to the technological and archaeological interest of the wreck, as do remains of other features of the paddle steamer.

5.8.5. *Contextual characteristics:* Clyde shipbuilders pioneered the paddle steamer, and were responsible for the construction of large numbers of this vessel type. By 1850, 168 paddle steamers had been built on the Clyde (Body 1971) and The Caledonian Maritime Research Trust (2015) record details for 1,910 paddle steamers overall, built on the Clyde. While these incorporated vessels such as tugs, the primary function for many paddle steamers was passenger transport.

5.8.6. Caledonian Maritime Research Trust (2015) record only 3 paddle steamers built on the Clyde before 1850 whose purpose was solely cargo carrying. Seventy-four vessels are recorded as having been built as passenger-cargo carriers on the Clyde before this date,

with the majority constructed during the 1840s. However, these vessels are predominantly over 150ft in length (many measured *c*. 200ft). The *Lapwing*, at 77.5ft is thus anomalous and may represent a rarity. Additionally, *Characterising Scotland's Marine Archaeological Resource* records 6 paddle steamer wrecks within the south-west Scotland region (Wessex Archaeology 2012: 25), indicating that despite their frequency within built-records, as wrecks paddle steamers are less common.

5.8.7. Although its method of propulsion links the *Lapwing* with other paddle steamers built on the Clyde, its function indicates other connections. The vessel was used on the routes between Oban, Fort William, Glasgow and Inverness, and more specifically its dimensions allowed the vessel to pass through the locks of the Crinan Canal. This aspect of its use forms a clear parallel with the Clyde Puffers. Images of the *Lapwing'*s sister ship, *Cygnet*, which shared these dimensions and function, also shows a comparable bow form to the Clyde Puffers (Moir and Crawford 2003: 44).

5.8.8. *Associative Characteristics:* The *Lapwing* was built by John Reid & Co. Port Glasgow. While this association with a Clyde shipbuilder indicates the local (contextual) characteristics of the ship, it also has relevance for the form and function of the *Lapwing* as a paddle-steamer with obvious parallels to the Clyde Puffer. John Reid was in partnership with John Wood between 1838-1857. Wood had been responsible for the construction of the *Comet* on the Clyde in 1812, Europe's first successful, commercial steamer (Millar 1888: 159). While this provides associative information for understanding the *Lapwing* as a paddle steamer, John Reid's other shipbuilding projects provide some understanding of the *Lapwing* in the context of local cargo carriers, and Clyde Puffers.

5.8.9. Between 1845 and 1850 Clydesite.co.uk records that Reid was responsible for building 3 paddle steamers (including *Lapwing* and *Cygnet*) 2 steamships and 2 iron sailing vessels classed as gabbarts (the *Newark* and *Bowling*). Vessels of the latter type were used as cargo carriers to the communities of western Scotland, and, together with the scow, fed into the development of the Clyde Puffer. The Clyde Puffer was, however, not introduced until 1856, and thus the *Lapwing* pre-dates the introduction of the Clyde Puffer. The construction of the *Lapwing* in this context may suggest that paddle steamers were first trialled in the role of Clyde Puffers, prior to the development of that vessel type and the adoption of screw propulsion. Additionally the dimensions of the *Lapwing* are comparable with those of the 'Outside' Puffers, capable of dealing with more exposed marine crossings while also being able to fit through the Crinan Canal Locks. There are no Outside boats represented within the Clyde Puffer group.

5.9. Beagle

5.9.1. *Intrinsic Characteristics:* In 1976 the UKHO reported a wreck lying intact and on an even keel, off Great Cumbrae island. Subsequent diver reports indicate that the wreck remains include the hull, however the superstructure has collapsed (Appendix B, Wreck Sheet 16.17, Figure 6). The bow post and emergency steering position at the stern form the wreck's high points. Other features noted include the boiler stack, engine room, anchor and steam winch (toward the bow), propeller and rudder. Aft of the cabin there is a large empty space. An anchor is visible toward one end of the wreck (possibly the bow). Railing is also present, and a section of the railing is missing near the port side toward the bow. Collision damage is visible and a large section of the hull is missing on the port side. The cross-decking and support structure has largely deteriorated and the aft bulkhead has disintegrated. A series of objects have also been reported to the Receiver of Wreck including a Bronze or brass signal cannon, two cast iron sides of carriage, portholes (one with a deadlight), pottery and cutlery. Divers have noted that the wreck had high quality features including a cast iron

stand with 2 dolphins, in which the ship's bell fitted. These are not thought to survive on the wreck today.

5.9.2. It appears therefore that the wreck survives moderately well although some features recorded by earlier surveys are no longer present on the wreck site, or have deteriorated (such as the decking). The ship's bell indicated that this vessel is the *Beagle.*

5.9.3. The *Beagle*, built in 1864, is thought to have been used as a cargo passenger steamship between the ports of Belfast and Glasgow, and offered First Class cabins (Moir and Crawford 1997: 54), which may account for the high quality fittings noted on the wreck site by divers. However, it must be noted that other sources refer to the vessel as a Cargo Livestock Carrier (Caledonian Maritime Research Trust 2015). The vessel was lost while en route to Glasgow in a collision with the SS *Napoli.* The *Napoli* collided with the port side of the *Beagle,* tearing a hole in the vessel which caused the subsequent sinking.

5.9.4. *Contextual characteristics:* As an iron-hulled screw-propelled steam ship the Beagle is comparable to many other vessels built and operated from the Clyde. The Caledonian Maritime Research Trust (2015) record details for 1,823 screw-propelled cargo passenger vessels constructed on the Clyde. *Characterising Scotland's Marine Archaeological Resource* identified 63 steamships within the south-west Scotland region, and 80 within the west Scotland region, of which the majority were cargo carrying vessels, although passenger vessels were also represented (Wessex Archaeology 2012: 24, 29). Thus on the basis of current knowledge the *Beagle* does not appear to be rare.

5.9.5. *Associative characteristics:* The *Beagle* was built by Tod McGregor, Patrick and owned by G. & J. Burns. The former was a prolific shipbuilder and constructed many passenger vessels including paddle steamers and screw steamers. G. & J. Burns owned the *Beagle*. This company had introduced a passenger steamer service from Glasgow to Ayr in 1821, followed by other such services crossing the Irish sea. One of the founders of the company, George Burns, co-founded the firm which eventually became the Cunard Steam Ship Company, together with Samuel Cunard and David MacIver (The Glasgow Story 2004). In terms of the wreck of the *Beagle* this connection is notable due to the pottery found distributed on the wreck site, which bears a crest very similar to Cunard's crest, with a lion holding a globe, beneath a crown (Moir and Crawford *pers. comm.,* 2015). This forms a tangible link between the wreck remains and wider developments in shipping with which the *Beagle* bears some connection.

5.9.6. The high quality fittings noted by divers indicate potential interest of the wreck in terms of its aesthetic attributes. However, it appears that many of these fittings no longer survive on the wreck site, and numerous fittings including bronze or brass signal cannon, two cast iron sides of carriage and portholes have been reported to the Receiver of Wreck. It is thought the cast iron stand formed of two dolphins, in which the ship's bell fitted, also no longer survives on the wreck site. Thus the surviving aesthetic attributes may be limited.

5.9.7. In terms of artistic associations of the wreck site, an oil painting of the sinking of the vessel is also known to exist. The exact date of this painting is uncertain however it is thought to have been produced during the Victorian period (Sangster 2009).

5.10. Kintyre

5.10.1. *Intrinsic Characteristics:* A wreck lying virtually intact, with some superstructure also present aft of the forward hold, was first recorded by divers in 1982 (Appendix B, Wreck Sheet 16.16, Figure 7). Recent reports indicate that some deterioration has occurred,

however the wreck remains are reported to consist of the hull (relatively intact on the port side, and with a large gash in the starboard side thought to represent a collision scar). While the plating is present in some areas, it has fallen away around the bow leaving the exposed ribs. The bow itself has a distinctive clipper form and the bowsprit survives. In the amidships area three toilets have been noted. The stern of the vessel lies at a depth of *c*. 50m. Features recorded in this area include a bollard, and the stern structure itself which has reportedly seen some break up. The engine room has also been recorded, with the roof missing allowing views of the large boiler within. Other features noted include a winch, and brass toilet fittings. However brass cannon, the ship's bell, portholes and brass rims, passageway edges and toilets have all been removed since the 1980s. The wreck has deteriorated down to deck level, and the bow and deck are silting up.

5.10.2. These wreck remains are thought to be of the vessel *Kintyre*, built in 1868. This is based on known losses in this area and features of the wreck remains including the collision damage which is on the starboard side, where the *Kintyre* is known to have been struck by the *Maori*, in 1907 (Moir and Crawford 2004: 66). The *Kintyre* was an iron hulled Clyde-built steamship with a clipper bow and powered by screw propulsion.

5.10.3. *Contextual Characteristics:* In addition to representing a Clyde-built vessel within the Clyde, and thereby deriving some significance from the relationship of the vessel with its wider setting, the *Kintyre* has a relationship with a particular area of water within the Clyde, connected with shipbuilding and testing of ships on the Clyde. The *Kintyre* was en-route to Tarbert, via Campbeltown when she was lost following a collision with the *Maori*, which had just completed speed trials along the Skelmorlie measured mile. The wreck, lying in the vicinity of the measured mile, is thus connected with this specific part of the Clyde waterway. Other vessels are also known to have been lost in association with the Skelmorlie measured mile, such as the *Princess of Wales*, another Clyde built vessel, discussed below. These vessels lie *c*. 1.2km apart.

5.10.4. *Associative Characteristics:* Significance is also derived from the role of the vessel as a local passenger carrier, and the raked lines and clipper bow which led people to refer to the Kintyre as 'the Campbeltown Yacht' (Moir and Crawford 2004: 66), indicating a level of significance derived from recognition of those who knew and used the vessel. The form of the vessel, and the clipper bow, is also representative of the Campbeltown ships and became a defining feature of the Campbeltown & Glasgow Steam Packet Joint Stock Company Fleet (Kelly 2004: 20), exemplified by vessels such as the SS *Kinloch* (built 1878) and the SS *Davaar* (built 1885), both scrapped.

5.11. Summary

5.11.1. This category is characterised by the variety of vessels which were involved in local passenger/ cargo transportation. Although these vessels are each thought to have a dual purpose it is clear that the transportation of either passengers or cargo formed the focus for individual vessel: for the *Lapwing* its role as a cargo carrier appears to have provided the impetus for its form (although its technology can be best understood with reference to local passenger vessels), for the *Beagle* and *Kintyre* their forms, fittings and associations relate most closely to their use in passenger transport. Thus the significance of the wrecks is best understood with regard to these categories.

5.12. International Cargo Vessels

5.12.1. Five ship wrecks within the study area are known to have been used as international cargo vessels:

- *Lady Margaret* (1769- West Indiaman)
- *Charlemagne* (1857- sailing vessel)
- *Lady Isabella* (1882- 3 masted ship)
- *Auchmountain* (1892- Barque)
- *Elmbank* (1890- 4 masted Barque)

5.12.2. This category is dominated by sailing ships. Although the first practical steam engine was built in 1712, by Newcomen, it was not until the early 19th century that steam was successfully used to power a marine engine. However, deficiencies and constraints which came with steam engines meant that sails continued to be used. This was particularly the case for vessels undergoing longer journeys, where sufficient space was not available to store the vast quantities of coal required. Developments in sailing vessels continued in tandem with refinements of steam propulsion. The clipper, a fast sailing ship whose hull configuration allowed for speed at the expense of capacity, and used in international trade, represents both the key development of 19th-century sail, and the primary usage for sailing vessels of that period (Moore 2008: 504). The *Cutty Sark,* built in 1869, forms probably the most famous example of the Clyde's contribution to this vessel type (Johnman 2008: 526). There are no known remains of Clyde-built vessels of this type within the study area.

5.13. Assessments of Significance

5.13.1. The majority of wrecks within this category represent 19th century vessels, as is typical of the wreck resource within Scottish, and UK waters. However, there are no substantially intact wrecks which fall within this category and lie within the study area.

5.13.2. The *Lady Margaret* is thought to have been launched at Greenock (Colquhoun *pers. comm.,* 2015) and was registered to Glasgow Port at the time of her loss. As a West Indiaman the vessel represents a type built on the Clyde during the early days of its shipbuilding industry, supporting the evidence for the vessel having been Clyde-built. The First West Indiaman built on the Clyde was the *Greenock*, in 1760, however involvement in this trade was relatively limited until the 19th century (Scotts' Shipbuilding & Engineering Co. Ltd, 1906: 7).

5.13.3. Of the other wrecks the *Auchmountain* was lost following an explosion involving 20 tons of gunpowder (Appendix B Wreck Sheet 16.22). Remains may survive beneath a foul area, however given the scale of the explosion any such remains would be likely to have very little coherence and may just be debris. The *Elmbank*, lost on Arran, is thought to have been well salvaged and little remains on the seabed (Appendix B Wreck Sheet 16.23). Likewise little wreckage survives in the area where the *Charlemagne* was lost and the vessel is thought to have been at least partially salvaged (Appendix B Wreck Sheet 16.20). There are additional problems with this wreckage stemming from other losses in this area. Although incomplete, more remains of the *Lady Isabella,* including organic remains which in general survive poorly within the Clyde. Thus an assessment of the significance of this wreck has been undertaken, in addition to the wreck of the *Lady Margaret*.

5.14. Lady Margaret

5.14.1. *Intrinsic Characteristics:* In 1989 the UKHO reported an account of a cannon found at a depth of 3m, and other magnetic anomalies found in depths of 4m (Appendix B Wreck Sheet 16.19). The Archaeological Diving Unit (ADU) subsequently conducted diver surveys on site and recorded a table-top tomb slab from an 18th-century wreck. Magnetometer surveys also picked up an anomaly adjacent to this slab, on the rocks, interpreted as the possible remains of a small cannon concreted to the rocks, other anomalies were also

recorded buried by sediment further offshore (Dean 1989). Divers also report pockets of concretion in the area. Above the water a cannon has been reported at Portencross Castle and may be from the wreck in this area (Dean 1989; The Friends of Portencross Castle 2007). Artefacts including pottery, metal objects, lead shot, weights, plates, tankards, cooking pots, a tooth and a glass nameplate seal were raised from the seabed in 1981 and deposited with the Dick Institute in 1982 (for a full list of the holdings see Appendix B Wreck Sheet 16.19). Lead shot and bottles associated with this wreck are also held by West Kilbride Museum.

5.14.2. Identification of the wreck remains focuses around two different reports of vessels lost near Portencross Castle: a possible Spanish Armada wreck, and a West Indiaman, the *Lady Margaret.* These losses are reported in an account from 1794 which indicated that '*Within the very same place where the Spanish ship went down, a fine vessel belonging to Glasgow, the richest that ever was fitted out from this country, and the property of Glassford and Company, was also lost, in the spring of the year 1770*' (Canmore ID 112271). The latter refers to the *Lady Margaret,* and the former to the Spanish wreck. The evidence for the loss of a Spanish wreck on this site is considered in a recent re-appraisal of the evidence (Glen 2010). This report indicates that reference to a wreck lost in this area appears in 1769 in 'A Tour Throughout the Whole Islands of Great Britain' which recounts diving operations on a wreck at Portencross in 1740: *'Captain Roe immediately went down and found the vessel to be very entire, to have a great number of guns on board, but to be full of sand. The first thing he fixed upon was a cannon, which lay upon the sand at the heel of the ship…The cannon was drawn up … Ten of these brass cannon and ten iron ones have been since carried into Dublin ; they hoped to recover 60 out of this ship'* (DeFoe and Richardson 1769 cited in Glen 2010). In terms of seabed remains the ADU recorded no evidence on the seabed for an Armada period wreck in this area during their investigations (Dean 1989).

5.14.3. However, the ADU did report a table-top tomb slab from an 18th century wreck which supports the evidence for the Glasgow-registered *Lady Margaret* (Dean 1989). The Dick Institute and West Kilbride Museum also hold artefacts from the wreck site and archival material relating to the *Lady Margaret.* A detailed list of the holdings of the former is given in Appendix B (Wreck Sheet 16.19). No technical examination of the finds is known to have taken place, however museum staff indicate that many of the metal objects reported on the wreck may be associated with horse harnesses and shoes which were part of the cargo of the *Lady Margaret* (Morgan, *pers. comm.,* 2015; Appendix B Wreck Sheet 16.19). Additionally, suggestions that some of the pottery from the site was Hispano-Moresque ware (and possibly connected with the reports of the Spanish Galleon) is, however, thought to be incorrect, and museum staff indicate that the pottery recorded is Delft ware, which the *Lady Margaret* is known to have been carrying at the time of her loss (Morgan, *pers. comm.,* 2015; Appendix B Wreck Sheet 16.19).

5.14.4. Other evidence for a wreck in this area comes from cannon in the vicinity. One is known in Portencross, and another in Greenock (outside McLean Museum and Art Gallery), it has been suggested that both may have originated from Armada vessels (Glen 2010). However, the ADU indicate that the Portencross cannon post-dates the Armada and probably dates from the late 17th or early 18th century (Dean 1989). It is possible that the cannon reported in the area may come from a Spanish wreck, however as West Indiamen were also typically armed, and the cannon may be of late 17th or early 18th century date, it is possible that these remains relate to the wreck of the *Lady Margaret*. The existence of cannon on the seabed has not been verified by archaeological surveys conducted by the ADU (although the report noted a magnetic anomaly potentially caused by concretion which may

represent a small cannon on the seabed [Dean 1989]), and at present seabed remains are understood to consist of the table-top tomb slab and pockets of concretion.

5.14.5. *Contextual Characteristics:* The relative rarity of wreck sites which pre-date the 19th century highlights the potential importance of the *Lady Margaret* in terms of rarity. However, on the basis of current knowledge it appears that little survives on the seabed, although potentially the cannon, and artefacts recovered to the surface may derive from this wreck. Sands and silts which characterise parts of the seabed in the area may mask and preserve remains.

5.14.6. The position of the *Lady Margaret* within the Clyde, the launch place of the vessel, and its place of registration forms an aspect of the relationship of the asset with its wider setting. Additionally, the development of Glasgow as a major port was intimately connected with the tobacco trade (in addition to trade of other luxuries such as sugar), which was focused around imports from the West Indies and North America. By 1770 Glasgow dominated the tobacco trade market (Jackson 2004; Moore 2008), and it is in this context that the *Lady Margaret*, as a West Indiaman, sits.

5.14.7. *Associative Characteristics:* Little is known of the details of the vessel. The *Lady Margaret* has, through virtue of their coinciding loss locations, become associated with a possible Spanish wreck. Although this association does not inform the historical context of either vessel while afloat (their use as vessels being separated by centuries) the historic documentation relating to vessels lost in this area forms an important part of the post-loss understanding of the wreck or wrecks in this area. Additionally the Portencross cannon and artefacts from the wreck, held at museums, represent the vessel and give it a place within public consciousness.

5.15. Lady Isabella

5.15.1. *Intrinsic Characteristics:* Divers identified the remains of a metal hulled vessel off Gull Rock on Little Cumbrae Island (Appendix B Wreck Sheet 16.21, Figure 8). The UKHO also attributes its information on the wreck remains to divers, and note that the remains were not located by a survey by HMSML Gleaner, but were also not searched for. Divers indicate that the remains comprise sections of the hull, with riveted plating. One report indicates that steel plating survives in the area, although this is not verified. The hull is broken up but relatively large sections survive. A section of the keel survives, as do frames. Machinery is also noted on the wreck site, although the nature of this is unclear. The rudder and capstan are also reported. Metal debris is distributed around the wreck site, and in addition to this wooden features reportedly survive, including an area of decking. Spars are also recorded on the wreck site as are ropes, dead eyes, steel rope, and some artefacts. Thus, although broken up, it appears that a considerable amount of evidence of the vessel survives, including structural elements, decking and machinery, rigging and artefacts.

5.15.2. The equation of these remains with the *Lady Isabella* is based on the loss details, the *Lady Isabella* being the only large sailing vessel to have known to be lost in this area and the hull not salvaged. Additionally the location of the remains correlates with the general description of the loss, and a photograph depicting the stranded vessel has been used by divers to locate the wreck (Moir and Crawford 2004: 70). The only discrepancy between the identification and wreck remains relates to the hull material. The *Lady Isabella* is recorded as an iron hulled ship, however a single diver report refers to a mass of steel plating on the wreck site. However, this material is reported only once, all other diver reports refer to metal plating thus it is possibly a mistaken identification of the material.

5.15.3. During her 20 year lifetime the *Lady Isabella*, a 3-masted sailing ship, was owned by the North British Shipping Company and Henry Grierson until 1899. In 1902 while under the ownership of G. Gordan, she wrecked on Little Cumbrae Island. The ship had been carrying a cargo of nickel ore from New Caledonia, and en route had hit a number of storms, losing part of her cargo and a member of the crew.

5.15.4. *Contextual Characteristics:* 'By the early 1870s 90 per cent of ships built on the Clyde were iron-framed and iron-plated steamships. Just 2 per cent were wooden hulled vessels and 9 per cent iron-hulled sailing ships, many of which were built for the tea and wool trades to the Far East. Meanwhile the old established east-coast shipyards in Scotland had tended to stick with wood and sail' (Robins 2014). Despite the mathematical discrepancy in this passage, the content serves to illustrate the relative rarity of metal-hulled sailing ships by the 1870's in the Clyde shipbuilding context. Thus the iron hulled sailing vessel, *Lady Isabella*, represents a relatively rare type in terms of overall shipbuilding within the Clyde. *Characterising Scotland's Marine Archaeological Resource* noted a total of 15 sailing vessels out of a total 148 records with vessel type specified in south- west Scotland. Within these were 5 barques, 1 brigantine, 5 schooners and a series of smaller vessels (Wessex Archaeology 2012: 25). The functions of these vessels are not noted, and thus direct comparison with the international cargo vessels here is difficult. Within the study area the *Auchmountain*, *Charlemagne* and *Elmbank* all represent comparable vessels built within the latter half of the 19th century, however it is thought that very little survives of these vessels (and the identification of *Charlemagne* is not definite). Thus in terms of vessel type and extent of survival (although by no means complete) the *Lady Isabella* may represent a rarity. Elements of the wreck capable of expressing this, rare, aspect of Lady Isabella's form include rigging and sections of hull which survive on the wreck site.

5.15.5. As with other vessels within this project, the contextual relationship between the vessel's location of loss, within the Clyde, and her build place, also the Clyde, indicates a facet of significance relating to the contextual characteristics of the wreck.

5.15.6. *Associative Characteristics:* The ship was built by the well known Clyde shipbuilders, A McMillan & Son, Dumbarton, for whom the Caledonian Maritime Research Trust (2015) record details for over 520 vessels built, over half of which were sailing vessels such as the *Miltonpark* and *Maracas*, built in the same year as the *Lady Isabella*.

6. PASSENGER TRANSPORT

6.1. Local passenger vessels

6.1.1. The vessels which carried out this function are represented, within the study area, entirely by wrecks of paddle steamers.

- Iona I (1855- paddle steamer)
- Lady Gertrude (1872- paddle steamer)
- Princess of Wales (1888- paddle steamer)

6.1.2. With the advent of screw propulsion during the 1830s the paddle steamer was slowly eclipsed, particularly in terms of their speeds and range. The period from 1840-1860 saw the gradual adoption of screw propulsion over paddles (English Heritage 2012). However, the type continued to be used in harbours and shallower waters (Wessex Archaeology 2011: 17), primarily as pleasure craft and ferries, and it is into this context that the paddle steamers listed above fall. However, some paddle steamers, such as the Cunard Liners, were used as transatlantic vessels. Cunard's Britannia class for example, the first of which was launched in 1840, were used in the transatlantic mail business. The Britannia Class, and many of the later transatlantic mail steamers, were Clyde-built and have particular associations with Robert Napier, often seen as the father of shipbuilding on the Clyde (Osborne 2015).

6.2. Assessment of Significance

6.2.1. Substantial sections of the *Iona I* survive, including key features such as paddle hubs, crankshaft and machinery. Full details of the surviving elements of the *Iona I*, the significance of the remains and identification of the vessel are contained within the undesignated site assessment for this wreck (Wessex Archaeology 2009). However this vessel already forms the focus for a detailed and on-going study, and thus detailed consideration of this vessel will not be included here.

6.2.2. The *Princess of Wales* survives relatively well, and will be considered further below. The condition of the *Lady Gertrude* differs from other known paddle steamers, which typically survive best around the central section where associated machinery and the paddles are situated (see Appendix B Wreck Sheet 16.25). The machinery and central components have been salvaged from this wreck, and while the loss of her diagonal engines is unfortunate, the hull form appears to survive, periodically covered by shifting sands. As this is an element which may survive relatively poorly on other paddle steamer wrecks particularly away from the central section (for example the *Iona I,* one of whose ends may be missing or buried [Wessex Archaeology 2009]) the remains of the *Lady Gertrude* may provide an opportunity for the study of this aspect of the paddle steamer form.

6.3. Princess of Wales

6.3.1. *Intrinsic Characteristics:* The bow section of a vessel has been located by divers in 62m of water (Appendix B Wreck Sheet 16.26). The depth of the wreck places it beyond the reaches of normal recreational diving, however some diver reports do exist and indicate that the bow is inverted and the wreck shows some breakup. A UKHO entry dated to 2000, citing a diver as the source, indicates that remains of the paddle wheels with struts and spars are visible (Mahoney n.d.). The remains of the bow lie on a silty seabed and include the hull form and plating, a large hole is also noted on one side of the wreck. The depth and

marine environment does not preclude the possibility that remains of this vessel survive in good condition. Artefacts including tea urns have also been noted on the site.

6.3.2. The equation of these wreck remains with the *Princess of Wales* are on the basis of the loss position and nature of the wreck remains. The *Princess of Wales*, built in 1888, is the only known paddle steamer to be lost off Wemyss Bay pier. The paddle steamer was intended as a Royal Steam Packet vessel on the Southampton to Isle of Wight crossing but was lost during speed trials in 1888 within the Clyde when the *Balmoral Castle* cut the vessel in two parts, aft of the engine room. The wreck has been identified as the bow section of a paddle steamer, which fits with the loss description. Investigations are on-going by divers seeking the stern section, and responses noted on side scan sonar may represent the remains of this part of the ship, although as yet this is unverified (Moir *pers. comm.,* 2015).

6.3.3. *Contextual Characteristics:* Around 400 passenger carrying paddle-steamers are thought to have been built on the Clyde (Caledonian Maritime Research Trust 2015; Deayton 2013). However, paddle steamers are rare within areas of the UK territorial waters (Wessex Archaeology 2011: 68), and represent less than 2% of known wrecks within English waters (Wessex Archaeology 2011: 34). *Characterising Scotland's Marine Archaeological Resource* identified 8 paddle steamers in the west Scotland region, 3 in south-west Scotland (with an additional 2 classified as paddle tugs), and 1 in north Scotland (Wessex Archaeology 2012), totalling 14 paddle steamers, including the tugs, overall in Scottish waters. Five Clyde-built paddle steamers have been identified within the study area.

6.3.4. The loss position of the *Princess of Wales*, as a Clyde-built vessel within the Clyde, places the wreck within a group whose contextual associations, comprising the shipbuilding industry on the Clyde, are well understood.

6.3.5. The *Princess of Wales* was lost while on speed trials along the measured mile at Skelmorlie. The loss of the *Princess of Wales* in this area represents tangible connection with a specific area of the Clyde, vital for when shipbuilding in the area was in its heyday. Additionally the Skelmorlie mile has terrestrial features associated with it (measured mile marker poles, Canmore ID 232205), thereby providing a connection from the land, to the (nautical) mile-long stretch of water, and the wreck of the *Princess of Wales*.

6.3.6. *Associative Characteristics:* As a paddle-steamer the *Princess of Wales* is of a type with specific local associations with the Clyde (Wessex Archaeology 2012: 25). Although the first functioning paddle-steamer was the Palmipède built in 1774 in France, the Scottish engineer William Symington also worked on early examples, and in 1801 was responsible for the *Charlotte Dundas*, a rear-paddle steamer built on the Clyde. The *Comet,* Europe's first successful, commercial steamer, launched in 1812, was also Clyde-built (Millar 1888: 159, Johnman 2008: 525). Following the early pioneering work in the region the paddle steamer became strongly associated with the Clyde, and vessels of this type were used extensively for passenger trips. The preservation and on-going use of the Waverley (built in 1946), the worlds last seagoing passenger paddle-steamer and a Clyde-built vessel, represents the continued association of the Clyde and the paddle steamer (Paddle Steamer Preservation Society 2015). Thus in terms of the form of the vessel as a passenger carrying paddle steamer, the wreck may derive some significance from public awareness of the Clyde associations of paddle steamers.

6.4. Regional Passenger Vessels

6.4.1. A single vessel falls within this category, the *Glendale* (Appendix B Wreck Sheet 16.27). The Glendale was a paddle steamer, built in 1875 and used on numerous routes including

Newhaven to Dieppe, Liverpool to North Wales, and latterly to areas in the West Highlands. The sources indicate that the *Glendale* survives very poorly, with little in the way of structural integrity which may indicate that the vessel has been salvaged. Plates and pipes are noted in the area of the wreck, but no characteristic elements such as the paddles, hubs or machinery have been found to date. Features which could potentially have illuminated the use and developmental sequence of the vessel, such as the boilers, do not appear to have survived. Given the position of the wreck on a rocky seabed with strong tidal currents the potential archaeological remains are likely to be limited. Thus as little is thought to survive on the wreck the *Glendale* is not considered further (details are given in Appendix B Wreck Sheet 16.27).

6.5. International Passenger Vessels

6.5.1. One wreck, situated within the study area, falls within this category:

- *New York* (1854- steam ship)

6.6. Assessment of Significance

6.6.1. Although diver surveys indicate that the New York does not survive in good condition, an assessment of significance is undertaken due to the relatively early date of the New York for an international steamship, and due to its use history.

6.7. New York

6.7.1. *Intrinsic Characteristics:* Wreck remains have been identified by divers off the southern tip of the Kintyre peninsula (Appendix B Wreck Sheet 16.28). The wreckage is reportedly well broken up, and spread between boulders along the submerged reef and on the shingle seabed. The stern has been identified, and faces toward the shoreline represented by a surviving section. Parts of the ship's machinery and cargo survive, in addition to artefacts present on the wreck site which include crockery and pulley blocks.

6.7.2. The wreck has been identified as the *New York* (a transatlantic vessel built in 1854), on the basis of the loss position and crockery found on the wreck site (Canmore ID 119041, Moir and Crawford, *pers. comm.,* 2015). In light of this identification, the machinery and stern section may hold particular archaeological and technological interest in view of the relatively early date of this transatlantic screw steamer.

6.7.3. The *New York* is not recorded by the UKHO. However, comparison with the modern hydrographic charts for the area of this wreck indicates that the *New York* is situated along a narrow stretch of coastline not surveyed since 1852. The 1852 survey was undertaken prior to the sinking of the *New York* in 1858, which accounts for the absence of the *New York* in UKHO records.

6.7.4. *Contextual Characteristics:* The *New York*, built in 1854, was classified as an A1 ship (Lloyds category). The vessel was built by Tod and MacGregor, owned by the Glasgow and New York Steam Ship Company and ran between the Clyde and New York. Registration details indicate that she was an iron hulled screw steamer (Lloyds Register, 1857). The Glasgow and New York Steam Ship Company ran three ships between the Clyde and New York during the 1850's, the *Glasgow* (built 1851), the *New York* (built 1854) and the *Edinburgh* (built 1855). An historic photograph of the *Edinburgh* shows she could use both steam and sails, and the *Glasgow* is described as a 4 masted iron screw steamer (Caledonian Maritime Research Trust 2015). Readily available sources give no indication that the *New York* had sails, however given that the *Glasgow* and *Edinburgh* were fitted with sails (both by the

same shipbuilder, for the same shipping company) it is possible that the *New York* also had sails as a method of propulsion, alongside steam. The short-falls of steam power for international vessels at this time also indicates she may have carried sails as a back-up. Studies which have considered vessels using both sail and steam as methods of propulsion show this is rare within the wrecks dataset in English waters. For the period between 1850-1859, during which the *Glasgow*, *New York* and *Edinburgh* were all constructed, only 2 out of 27 wrecks studied were found to use steam and sail in English waters: sail alone accounted for 15 of the vessels, and steam 10 (Wessex Archaeology 2011: 13).

6.7.5. In terms of steam propulsion, ocean-going iron-hulled screw steamers saw their advent with the SS *Great Britain*, in 1843 (English Heritage 2012b: 6), following on from earlier steamers which had started to conduct Atlantic voyages during the 1830s but suffered limited success due to the large amounts of coal required. Archival studies may throw further light on the build specifications of the *New York,* and thus her place within these contexts.

6.7.6. The wreck also derives significance from being a Clyde-built wreck within the Clyde.

6.7.7. *Associative Characteristics:* The construction of the *New York* by a prolific Clyde shipbuilder, Tod and MacGregor, who were responsible for building many high-class passenger liners for Cunard Line and Inman Line (Ritchie 1992: 101), indicates a facet of the wreck's significance.

6.7.8. During its lifetime the *New York* was used as a troop transport ship (Moir and Crawford 2003: 50), chartered by the French government for use in the Crimean War, a use to which the SS *Great Britain* was also put, and the *Glasgow.* Association with this event, and its use alongside other significant vessels of the period, notably the SS *Great Britain*, also forms an aspect of the *New York's* significance.

6.8. Pleasure craft

6.8.1. Two vessels fall within this category in the study area:

- HMS *Breda* (1912- Steam Yacht)
- *Osprey* (1877- Steam Yacht)

6.9. Assessment of Significance

6.9.1. Although *Breda* was constructed as a pleasure craft (the *Sapphire*), and part of the significance of this vessel is connected with that use, the primary aspects of significance relate to the use and loss of the HMS *Breda* as a military vessel, and thus the significance of this vessel will be discussed in the military vessels section.

6.9.2. Although the *Osprey* has been identified as a live wreck by the UKHO, discussion with divers indicate that the identification is uncertain (Appendix B Wreck Sheet 16.30). The remains are badly distorted, and Moir and Crawford (*pers. comm.,* 2015) note that the wreck is steel, while the recorded hull material for the *Osprey* was iron. Thus the identification of these remains as those of the *Osprey* is uncertain, and the wreck will not be considered further here.

7. MILITARY VESSELS

7.1. Assessment of Significance

7.1.1. This category primarily considers the HMS *Breda,* however other vessels (two steam trawlers) also had military connections. These vessels may be best understood with relation to their trawling activities and thus are discussed in that section (although an aspect of the function of the trawler *Bellevue* is specifically derived from its use as a boom defence vessel). An assessment of significance of the HMS Breda is thus conducted here, and the trawlers below in section 8.

7.2. HMS Breda

7.2.1. *Intrinsic Characteristics:* In 1964 the UKHO record that a wreck was dispersed but that remains survived (Appendix B Wreck Sheet 16.29). Later UKHO records dating to 1980 record the presence of the wreck, and in 2003 diver reports detailed the remains of the wreck. The remains were noted to comprise an intact stern and tangle of metal from the amidships area forward. The remains reportedly extend from 4.5 - 7.6m above the seabed level. Recent reports indicate that the vessel survive well, although the superstructure does not survive and the bow area is not in good condition. The stern, stem, rudder and some non-ferrous metals used to fit the hull survive on site (Figure 9). Cabling and crockery have also been noted on the site. Thus although damage appears to have been done to the forward section of the wreck, considerable evidence relating to the vessel survives on the wreck site.

7.2.2. The wreck has been identified as the HMS *Breda*, built in 1912 (as *Sapphire*) and lost in 1944. The identification is based on known losses in the area, including a photograph showing the position of the wreckage extending above the waterline. Therefore this identification is considered accurate.

7.2.3. The vessel was originally constructed for the Duke of Bedford. The build details indicate that the *Breda* was a steel-hulled steam yacht with 2 screws and a triple expansion engine (Caledonian Maritime Research Trust 2015). It is thought that the vessel was originally used during the Duchess of Bedford's tours around the Hebrides, Orkney and Shetland while conducting ornithological studies (Moir and Crawford 2003: 20), until, in 1915, Breda was requisitioned for wartime use and converted into an Auxiliary Patrol Vessel. Late in that year the vessel served at Gibraltar. She was returned to her owners in 1919. The Breda's military career re-commenced in 1939 when she was purchased by the Admiralty, converted for use as an Auxiliary Patrol Yacht and Convoy Leader and brought into commission on Norwegian Convoys. In 1940 the vessel was used off the West coast of Scotland with training submarines as a submarine tender. HMS *Breda* was lost in 1944 following a collision with the submarine (HMS Proteus) off Campbeltown. Attempts to refloat and salvage the vessel failed. Given that considerable wreck remains survive, there is potential for evidence of the developmental sequence of the vessel, which reflects the vessel's colourful past, to survive within the wreck remains.

7.2.4. *Contextual Characteristics:* Within the south-west Scotland region *Characterising Scotland's Marine Archaeological Resource* identified 18 military vessels, of which the majority were submarines, although other vessels were also present such as HMS *Dasher*, an escort carrier lost in 1943 due to an external explosion. The latter is a controlled place under the Protection of Military Remains act (1986). Other military vessels include seaplane tenders and naval auxiliary vessels. Thus the HMS *Breda,* which carried out a series of military

functions, forms one of a diverse group of military vessels lost within the Clyde and south-west Scotland region (Wessex Archaeology 2012).

7.2.5. The wreck also derives significance from being a Clyde-built wreck within the Clyde, and through its use history which has specific Scottish connections. Thus the vessel, in terms of its build place, has relevance as part of the Clyde-built shipwreck resource, but its uses also have connections which reach deeper into the Scottish environment through the ornithological studies of the islands conducted from the vessel, and through its use off the west coast as a submarine tender.

7.2.6. The location of the vessel in Campbeltown Loch may also hint at an aspect of the significance of the wreck of HMS *Breda*. From 1940 the vessel had been in use as a submarine tender, and the circumstances in which the vessel was lost in 1944 left the wreck in Campbeltown Loch. During World War II Campbeltown was the location for an anti-submarine training flotilla (National Archives, Kew, reference ADM 1/12918). HMS Nimrod, a World War II training station in anti-submarine warfare, was based at Campbeltown (Canmore 286749), in local school buildings and the Argyll Hotel (Lavery 2012:47). Although the exact connection between HMS *Breda* and Nimrod is not clear it is possible that the vessel, and the submarine with which she collided, may have been in Campbeltown Loch associated with her work as a submarine tender. Further research may throw light on this issue (in particular the documents relating to the loss of the HMS Breda at the National Archives, reference ADM 1/16873). As currently understood, terrestrial remains including the school, trenches and Argyll Hotel form on-land connections with this wreck site.

7.2.7. As the vessel is thought to have been owned by the Admiralty, and was in use as a submarine tender at the time of loss, the remains of the HMS *Breda* may fall within the criteria for designation for the Protection of Military Remains Act (1986), however the wreck is not currently protected. Further archival research may be necessary in order to assess the evidence of relevance to protection under this act.

7.2.8. *Associative Characteristics:* The *Breda* was built (as *Sapphire*) by John Brown & Co Ltd, Clydebank, a company associated with the construction of prestigious passenger ships and, during the 20th century, warships (University of Glasgow n.d). The role of the *Breda* as a passenger (pleasure) craft and her later military associations are thus both reflected by the specialties of the shipbuilder responsible for her construction, and may hint at the reasons she was particularly well equipped to deal with both passenger and military service. The wreck of the HMS *Breda* derives significance from this association.

8. FISHERIES

8.1. Trawling

8.1.1. The fishing industry, and associated boat building, played an instrumental role in the inception of the Clyde shipbuilding industry, whose roots were in the herring fisheries (e.g. Johnman 2008). Within the study area fishing vessels are represented by two steam trawlers:

- *Bellevue* (1897- Steam Trawler)
- *Ethel Crawford* (1919- Steam Trawler)

8.1.2. Of these two vessels the *Bellevue* appears to survive in the best condition (noted to be relatively intact). The wreck of a trawler thought to be the *Ethel Crawford* (on the basis of the wreck remains and the fact that no other trawlers are known to have been lost in this area) is recorded in a number of sections, thought to reflect mine damage. An assessment of the significance of the former has been undertaken below due to the importance of fishing vessels to the origins of the Clyde shipbuilding industry, the relatively intact vessel form and more secure identification (compared with the *Ethel Crawford*). However, the *Ethel Crawford* has aspects of significance which should also be borne in mind.

8.2. Assessment of Significance

8.2.1. The *Ethel Crawford*, built as the *John Langshaw*, was designed and laid down as an Admiralty Strath Class Trawler, a class intended for anti-submarine activities and in particular minesweeping (Appendix B Wreck Sheet 16.32). This class had a number of specific adaptations, including a magazine, shell room and accommodation for more men (all in the location of the fish hold), a gun platform and 'depth-charge chutes and stands, kite racks and towed charge gear' (Friedman 2014:327). The *Ethel Crawford* was, however, finished too late for the First World War, and was instead used by a series of fishing and trawling companies. The vessel was lost in 1945 with 10 crew, and is thought to have struck a mine during trawling activities near to Alisa Craig (Moir and Crawford 2004: 136). The remains, although damaged may hold evidence of her original function (as intended), and subsequent use in the fishing industry. Thus the *Ethel Crawford* may have significance derived from her connection with the fishing industry (important in the Clyde context), and wartime associations (in both her built form and eventual loss), reflecting contextual and associative characteristics respectively.

8.3. Bellevue

8.3.1. *Intrinsic Characteristics:* UKHO surveys recorded an intact wreck in 1981 (Appendix B Wreck Sheet 16.31). Divers subsequently visited the wreck remains and found it to be the wreck of a trawler. The stern section shows evidence of damage, and the bow points upward with the deck lying at an angle of *c.* 45 degrees. The engine room, bridge area and bow post were all noted on the site, in addition to the telegraph.

8.3.2. Divers have identified these remains as those of the *Bellevue,* a steel hulled steam trawler built in 1897 and lost in 1942. The loss details for this vessel (off Turnberry Point) correspond with the general area of the wreck (although the specific details indicate the vessel was lost to the north-west of Turnberry Lighthouse, however the imprecision of such details are recognised). Additionally divers indicate that the beam measurement of the wreck is in accordance with that of the *Bellevue*, and a navigational lamp from the wreck is from a lamp-maker in Leith (Moir and Crawford 2004: 127). However, the UKHO indicate an

alternate identity, that of the SS *Kenan*. This possible identification appears to be based solely on the loss position of the vessel, lost approximately 5.5km west of Turnberry Point (Canmore ID 102515), and thus in the area the wreck remains are recorded.

8.3.3. Although the identification is not certain the remainder of the assessment of significance is undertaken on the basis that these remains may represent the *Bellevue,* as divers who have inspected the wreck believe. However, further research into this wreck (including into the remains themselves and archival sources which may indicate which identification is most likely) may throw further light on this matter.

8.3.4. *Contextual Characteristics:* The Caledonian Maritime Research Trust (2015) record details of 213 trawlers built on the Clyde. *Characterising Scotland's Marine Archaeological Resource* identified 17 wrecks of trawlers within the south-west Scotland region (the second must numerous vessel function identified, surpassed only by steamships and primarily cargo carriers), and 26 records of wrecks of fishing vessels in total (Wessex Archaeology 2012: 24), 2 of which had been requisitioned during the wars.

8.3.5. In terms of the function of the vessel (as a trawler) the Bellevue does not appear to be particularly rare within this area. During the life of the *Bellevue* the vessel was taken into the ownership of the Royal Navy and converted for use as a boom defence vessel in 1916, associated with the anti-submarine boom which spanned the Clyde between Cloch Point and Dunoon (Caledonian Maritime Research Trust 2015). This aspect of its use places the wreck within the rarer group of trawlers requisitioned during the war. *Bellevue* later returned to trawling and was lost while carrying out these activities off Ailsa Craig in 1942. If the wreck remains do represent the trawler, *Bellevue,* within the wreck's fabric may be indications of her former military modifications and trawling activities which would hold significance associated with the relative rarity of these aspects of the vessel's use.

8.3.6. As with other vessel's discussed within this report, the *Bellevue* would also derive significance as the wreck of a Clyde built vessel within the Clyde, reflecting a particular relationship with this waterway.

8.3.7. *Associative Characteristics:* The vessel was built by Mackie & Thomson, Glasgow, a company who later specialised in the construction of fishing vessels, among other vessel types (Grace's Guide 2012). This association, in addition to the wartime associations both contribute to the significance of the *Bellevue* as regards her associative characteristics.

9. RIVER MANAGEMENT

9.1. Dredgers

9.1.1. Within the dataset this theme is represented by dredgers:

- *Greenock* (1876, Hopper Dredger)
- *Caledonian* (1874, Hopper Dredger)

9.1.2. These vessels are connected with the management, and specifically the deepening, of the River Clyde and the dredging of specific areas within the river such as harbours. In 1768 John Golborne made recommendations to address this issue, '*I shall proceed on these principles of assisting nature when she cannot do her own work, by removing the stones and hard gravel from the bottom of the river where it is shallow, and by contracting the channel where it is too wide'* (Golborne 1768 cited in Millar 1888: 149). Due to the importance of deepening the Clyde, to both trade and shipbuilding, Golborne's advice was quickly accepted and resulted in the Second Act for the Improvement of Clyde Navigation in 1770 (Riddell 1999). To this end jetties were constructed in order to narrow the channel, thereby increasing the scour and deepening the waterway. Where scour was not sufficient to remove material, dredging was undertaken. Early dredging operations were undertaken during the 1770's using a plough-like apparatus pulled from a boat (Riddell 1999). The first use of self propelled hopper-barges came in 1862, with William Simons & Co. Renfrew SS *No1*. This dredger was the first of 40 hopper dredgers owned and operated by Clyde Navigation (Clydesite.co.uk.n.d).

9.2. Assessment of Significance

9.2.1. The significance of vessels of this type within a Clyde context relates to the fundamental role dredgers played in increasing and maintaining the depth of the River Clyde. River management schemes and dredgers directly facilitated the expansion of the shipbuilding industry, and allowed the shipbuilders on the River Clyde to undertake the developments and work which placed them at the forefront of this industry.

9.2.2. The *Caledonian,* an iron hopper dredger built in 1874 (Figure 11), was lost in a collision with the *Nettle*, and, following the abandonment of her crew, the vessel exploded (Appendix B, Wreck Sheet 16.34). A wreck has been located to the west of Great Cumbrae Island, within the deep water channel. These remains have been equated with those of the *Calednonain* on the basis of the vessels loss position. The depth of the site, at approximately 105m, places the wreck too deep for recreational diving and the identity of the remains have not been confirmed. It is also likely, given the explosion of the vessel as she sank, that the remains would be badly damaged. The assessment of significance will focus on the remains of the *Greenock.*

9.3. Greenock

9.3.1. *Intrinsic characteristics:* In 1967 the UKHO recorded a diver report which appears to recount the investigation of two seabed anomalies found by echo-sounder (Appendix B, Wreck Sheet 16.33). The northernmost of these reportedly included a heavy gantry with a toothed wheel. The hull was not examined at this time, however in 1984 divers identified the remains as a hopper dredger (Figure 10). The next year 2 mines were reported on the wreck, with a further 2 noted in the vicinity. These were detonated by the Navy in 1996. Diver visits to the site in 2004-2006, following the detonation of the mines indicate that the wreck of the dredger may have been damaged toward the stern. It is thought that the

detonation had caused the back of the vessel to break. Away from this area, however, the remains were reported to be substantially intact and included the bucket gantry with large dredging buckets, associated supports, cogs, engines, boilers, accommodation areas, bucket well, anchors, steam winch and spare propeller. More recent reports indicate that deterioration on this site may have continued. It is possible that the detonation de-stabilised the remains leading to on-going deterioration. Diver reports from within the last 2 years indicate that structural remains survive on the wreck site, and extend to *c*. 4m above the seabed. Sections have, however, fallen away. Some divers indicate that features such as the buckets and possibly winches survive, and others suggest that there is little to indicate that these remains relate to those of a dredger. This wreck is noted to be a very dark dive, which may account for some discrepancies between recent reports.

9.3.2. In addition to natural decay, and deterioration possibly encouraged by the detonation of the mines, the UKHO record 'innumerable trawl scours' in association with an anomaly approximately 500m to the south of the wreck (UKHO ID 4108, surveying details 1987). It is possible that trawling may also have affected the remains of the dredger, however this is not verified.

9.3.3. These remains have been identified as those of the iron-hulled hopper dredger, *Greenock,* built in 1876 (Figure 11). This identification is on the basis of the vessel type (as indicated by remains recorded on the seabed including key features such as the bucket well and buckets), loss position, makers plate and builders plate which have been noted on the wreck site (Moir and Crawford, *pers. comm.* 2015).

9.3.4. *Contextual Characteristics:* The position of the dredger, and its contextual characteristics in terms of the relationship of the wreck to the wider physical environment and setting have a number of facets of significance. The first is derived from the fact that the wreck represents a Clyde-built vessel within the Clyde, and the second comes from a more direct relationship between the loss position of the *Greenock* and her specific use of the Clyde. The *Greenock* was designed and used for Gourock and Greenock harbours, and the Clyde estuary (Moir and Crawford 2004: 31). The vessel had been working in Gourock Bay on 18th November, 1902, and was returning from depositing her dredgings off Garroch Head when she collided with the steamer *Ape*, and sank. The loss position therefore represents a distinct route used by Clyde dredgers such as the *Greenock*, from the Inner Firth harbours, to the area where dredgings were deposited off Garroch Head. The important relationship between the vessel's function as a dredger and the development of the shipbuilding industry on the Clyde also comes into play here, contributing to the contextual characteristics of the *Greenock*.

9.3.5. Caledonian Maritime Research Trust (2015) indicate that over 500 dredgers have been built on the Clyde. Build details indicate that at least 21 of these were screw-steamer hopper dredgers, however it is likely that the number of vessels built with these specifications was much higher, as these details (vessel sue type, i.e. hopper, and propulsion method) are not recorded for many vessels. The RCAHMS record 6 losses of dredgers within the study area, and 4 wrecks (including the *Caledonian* and the *Greenock*).

9.3.6. *Associative Characteristics:* The *Greenock's* primary aspect of significance derived from its associative characteristics relate to the builder of the vessel. The dredger was built by William Simons & Co, Renfrew. This firm were recognised as pioneers at the forefront of dredging technologies, and designed many methods for dredging in difficult environments in order to aid navigation in rivers, estuaries, harbours, canals and docks (ClydeMaritime 2013).

9.3.7. The wreck also has associations with wartime activities. An anti-submarine boom, used during the First and Second World Wars was constructed from Cloch to Dunoon (Canmore ID 239524). It is thought that the mines found on and around the *Greenock* were also laid during this time, as part of the defences for the Clyde which included a large mine field in this area. It is possible that the *Greenock* may have represented a point of particular focus for defensive activities, as the wreck could conceal submarines hiding in the waters of the Clyde waiting to attack ships leaving the harbours (Moir and Crawford 2004: 31). Although the detonation of the mines has removed one physical representation of the wartime connections of the wreck, the damage to the stern of the vessel and possibly deterioration around the wreck remains serve as a reminder to the former presence of the mines and role the wreck of the *Greenock* may have played during both World Wars. Mooring blocks for the anti-submarine boom which survive at Cloch Point form a terrestrial element connected with the defences in which the *Greenock* played a part.

10. OVERALL CONSIDERATION OF SIGNIFICANCE

10.1.1. The assessments of significance highlight the variety of factors which can contribute to the significance of a shipwreck, and together with the tables in section 4 demonstrate that to some extent significance is dependent upon the perspective from which the remains are viewed.

10.1.2. On the basis of current understanding there are a number of potentially significant wrecks within the dataset of Clyde-built vessels within the Clyde. These primarily represent the wrecks with multiple strands of significance derived from their intrinsic, contextual and associative values. However, due to the sources of information which have informed this project, there is an emphasis on intrinsic value, and further archival research for example may illuminate other aspects of significance within the Clyde-built wrecks. Those considered to be of particular significance, listed below, typically have a high intrinsic value in addition to other aspects of significance such as rarity, ability to illustrate technological transitions, or important associations:

- *Lapwing* (survival and rarity in terms of the combination of form, propulsion and use in addition to value derived from associations with the development of the Clyde Puffer, and associations with significant persons in terms of paddle steamer and Puffer development);
- *Margaret Niven* (survival and transitional type with developmental sequence of the vessel reflecting the development of the Clyde Puffer);
- HMS *Breda* (survival and one of a diverse group of military vessels in the Clyde, use history of the *Breda* with Scottish connections and wartime associations);
- *Princess of Wales* (survival, potential of survival [wreck lies at a depth of 62m] and as a passenger carrying paddle-steamer the *Princess of Wales* represents a rare type in the wreck resource and a type with specific local associations with the Clyde);
- *Greenock* (survival of key features including buckets and although not in good condition this relates in part to important post-loss history of the vessel, significant in the context of the Clyde and through associations with key persons, also wartime connections);
- *Lady Margaret* (remains do not survive well but due to the date of the vessel and role as a West Indiaman, a type important to Glasgow's trade, and local associations between this and a Spanish wreck, vessel remains may be significant)

10.1.3. Although all wrecks considered do display some aspects of significance, for those not listed above the level of significance is considered to be lesser. This is for numerous reasons. Those vessels where the surviving features do not best represent important aspects of the wrecks significance (in terms of intrinsic, associative and contextual characteristics) include:

- the *Beagle* (with important associative characteristics and which survives with the hull form evident but has been largely stripped of high quality features with artistic value, which may have best expressed the associative characteristics, since the 1980s);
- the *New York* (potentially rare but whose remains are well broken up);

- the *Kintyre* (survives relatively well but has seen deterioration since the 1980s and associative values of particular relevance to the Clyde area);

10.1.4. The *Bellevue* may also be important due to wartime associations and local relevance as a steam trawler, however there is still slight uncertainty regarding the identification. The *Ethel Crawford* has similar associations but is more broken up. Additionally the *Lady Isabella*, although broken up, has many surviving features and may represent a rare type.

10.1.5. All are considered below in section 11 as all have significance in terms of their relationship with the Clyde and thus relevance to the Source to Sea project.

11. CLYDE-BUILT WRECKS AND SOURCE TO SEA

11.1. The Scottish Archaeological Research Framework (ScARF)

11.1.1. The ScARF Maritime and Marine Panel identified 'Source to Sea' as an area for future research. The panel recommended that 'River systems, from their source to the sea and beyond, should form the focus for research projects, allowing the integration of all archaeological work carried out along their course' with the aim of enabling study of a broad range of archaeological remains with which connections can be made (ScARF Marine and Maritime Panel 2012).

11.1.2. Of the themes identified by ScARF theme 4 addresses ships and vessels, and gives a number of recommendations. Within these the Clyde-built project has contributed to the following main recommendations:

- To promote collaboration between different individuals and institutions in order to ensure that the skills and relevant infrastructure are available to meet all future needs. Realising the potential of, what is almost always fortuitous, discovery requires enhanced archaeological capacity in survey, excavation, post-excavation and subsequent analysis and publication.

11.1.3. The contribution to this recommendation has primarily been through collaboration with the diving community. This has led not only to an enhanced understanding of the Clyde shipwrecks, but also to on-going relationships from which both divers and archaeologists can benefit. A particular example is the planned BSAC expedition which is due to be conducted in April 2015, and will include survey of a number of significant wrecks within the Clyde-built resource, including *Lapwing* and HMS *Breda.* The divers conducting this expedition requested input from archaeologists and an outcome of this project is the assistance given to facilitate this input. This is an important step in building capacity and ensuring that potential sources of information about important wreck sites are accessible.

11.1.4. The project has also been undertaken in a way which addressed the recommendation:

- To treat research and analysis into watercraft of any period holistically, integrated within the wider maritime environment.

11.1.5. This recommendation has been addressed through research conducted by the project which has shown the essentially interconnected nature of the Clyde shipwreck resource. It is clear that it is not only the development of boats and ships which are connected (for example through wider developments in shipbuilding such as methods of propulsion, hull material etc.) but that these vessels are also connected with wider events (such as wars), activities (e.g. fishing) and communities (for example the connection between the development of the Clyde Puffer and the communities on the west coast of Scotland). Attempts have also been made to draw out these connections with the wider landscape, through for example highlighting where shipwreck remains relate to terrestrial features or hold specific relationships with areas. An example of this is the possible connection between HMS *Breda* and the anti-submarine establishment in Campbeltown during World War II, or the relationship between Clyde Puffers, *Lapwing,* and the canals. This follows the concept that the maritime cultural landscape extends above the water line and includes associated structures (Westerdahl 1992; ScARF Maritime and Marine Panel 2012: 1), which

in this case may cover the buildings at Campbeltown, or remains of the anti-submarine boom which ran between Cloch Point and Dunoon.

11.1.6. Recent definitions have further expanded so that the term maritime cultural landscape covers the combination of sea and land, and that maritime cultures should form the first step toward the study of maritime archaeology, of which shipwrecks form only one part. Thus the wreck remains studied here have been considered as part of the wider maritime environment and contemporary societies. The research strands, discussed below, further bring out this holistic approach.

11.2. Research into human connections with the River Clyde

11.2.1. Study of the Clyde-built vessels encapsulates much of the area from the source of the Clyde, out to sea. These associations run from landward connections with the Scottish iron industry, outward to the river itself on which shipyards were situated. The vessels represent not only this, but also the developments in shipping and construction which took place on the Clyde, while the activities carried out by the vessels are testament to their spheres of operation within the Clyde, and outward from Scotland's seas to the world's oceans.

11.2.2. The structure of the report and overall project has been guided from inception by the themes identified within the Source to Sea Initiation Document (RCAHMS and Historic Scotland 2014), and falls under Theme 1- Connecting with the Past. The strands identified within these themes which the Clyde-built project has relevance to are discussed below (strands are shown in bold).

11.2.3. In particular the project sits under the strands **boats** and **ships,** and has addressed the aim for Theme 1, 'to demonstrate both continuity and change - past, present and potentially the future' (RCAHMS and Historic Scotland 2014: 6). Research into the Clyde-built wrecks within the Clyde has contributed to understanding of the **boats** and **ships** strands, and has ranged from the small gabbarts and Clyde Puffers to large ocean-going ships. Discussion of specific technological developments and wider changes in shipping demonstrate both continuity and change. Continuity is represented within the dataset by, for example, the continued use of sail for international vessels over the 19th century (such as is shown by the *Lady Isabella*), while change is highlighted by technological developments and the developments of vessel types such as the Clyde Puffer from the scow and gabbart, and possible alternative forms which fit the same environmental niche and functions of the Puffer, such as the paddle steamer *Lapwing*.

11.2.4. Other strands have been considered in discussions and understanding of the significance of Clyde-built wrecks, the specifics of which have been guided by the shipwrecks themselves.

11.3. Trade and the transportation of goods

11.3.1. Coastal **trade** and foreign trade were both of considerable importance to Scotland's economy (Moore 2008). The importance of the former is reflected by the number of wrecks involved in this trade, from Clyde Puffers to steam coasters. From Glasgow's ports the coastal trade mainly interacted with Irish ports, those in the west of England and the Scottish highlands. To the latter, basic necessities were the primary goods traded (Moore 2008: 494). The Source to Sea strand **navigating the Clyde including the canals** also comes into play here. The construction of the Forth and Clyde canal, opened in 1790, greatly improved Glasgow's economy giving it a connection with the eastern Scottish ports. Additionally the opening of the Crinan and Caledonian canals also facilitated shorter and safer sea crossings allowing greater levels of contact with remote Scottish communities

(Moore 2008: 500). A number of vessels which specifically relate to use of these canals are present within the dataset, including the *Lapwing* and Clyde Puffers.

11.3.2. Coal transport was important in the Clyde region from the 18th century (Moore 2008: 493). Foreign trade was also of importance, and during the 18th century Glasgow was the key player in Scottish trade with the Americas (Jackson 2004; Moore 2008: 489). This trade may be represented by the *Lady Margaret*, a West Indiaman wrecked in the Clyde in 1770. **Tobacco** dominated foreign trade in the 18th century and forms another Source to Sea strand with which the Clyde shipwrecks connect. Glasgow was at the forefront of the tobacco trade network which extended to the Americas (Moore 2008: 492) and to Europe. Ships such as the *Lady Margaret* may represent this trade, and dredging operations which began during the 18th century, facilitated the expansion of foreign trade associated with the Clyde. Thus dredgers form a part of this association (however the wrecks of Clyde-built dredgers within the study area are from the 19th century).

11.4. Passenger transport

11.4.1. Passenger transport vessels present within the Clyde-built dataset may be considered with respect to the strands: **emigrations, immigrations, migrant stories, Clyde and the Scottish diaspora,** particularly in light of international passenger vessels such as the *New York* which ran between the Clyde and New York. This passenger transport, and the *New York*, may reflect in part the on-going migration of people from Scotland to the wider world, including America, particularly from the 19th century (Knox n.d). Movement of people within Scotland may also be represented by local passenger vessels such as the *Kintyre* (also for cargo) and *Lady Gertrude.* Additionally the development of the shipbuilding industry as a whole, represented by all the Clyde-built wrecks, was fuelled by population movements and the migration of workers to urban areas and the dominance of the Clyde reflects movement of labourers and shipbuilders to the area (Slaven 1993: 155).

11.4.2. The passenger vessels and passenger-cargo vessels within the dataset which have been used primarily in a local context reflect the strands: **mobility** and **changing transport through time**. The wrecks of paddle steamers such as the *Iona I* and other steamships (such as the *Kintyre*) reflect mobility within the Clyde. The paddle steamers as a vessel type are associated with leisure activities and passenger transport within the Clyde and ran between numerous Clyde ports, while the *Kintyre*, referred to as the 'Campbeltown Yacht' was en-route to Tarbert, via Campbeltown when she was lost near Skelmorlie. These vessels and the routes they plied reflect the high level of mobility facilitated by maritime transport within the Firth of Clyde during the mid to late 19th century.

11.4.3. The passenger vessels, and passenger-cargo vessels, represented by the Clyde-built wrecks primarily date to the mid to late 19th century. Technological changes are represented through this time, such as changes in engine types, following wider trends in marine engineering (Body 1971: 139-140). However, it is not change through time which characterises marine transport over this period within the Clyde-built dataset, rather the variety of vessel forms are associated with differences associated with sphere of use. For example the form of *New York* reflects her role as an international passenger vessel, while the *Kintyre* and paddle steamers reflect local use.

11.5. Military Vessels

11.5.1. A single vessel has been considered under this heading, although others (requisitioned trawlers) also played a part in this arena. The history of the HMS *Breda*, particularly in terms of her use and loss, relate to the Source to Sea strand, **naval history.** The multiple

uses of the vessel shed light on specific aspects of the wartime efforts associated with the Clyde, and include connections with submarine training off the west coast and HMS Nimrod a training centre for anti-submarine warfare situated at Campbeltown. The trawlers, one of which was built as an Admiralty Strath Class trawler (*Ethel Crawford*), and *Bellevue,* which was taken into the ownership of the Royal Navy and used as a boom defence vessel in the First World War also allow understanding of the Clyde's naval history through its shipwreck resource. Additionally, the mines laid, and detonated, on the wreck of the dredger *Greenock,* probably due to its proximity to the anti-submarine boom, form another aspect of this evidence.

11.6. Fisheries

11.6.1. This heading, and the trawlers within the Clyde-built dataset which represent fishing activities, can be related to the Source to Sea strand **fish and fishing.** Fisheries are of particular relevance to the birth of shipbuilding on the Clyde, which prior to the 18th century had been focused around the construction of vernacular fishing vessels primarily associated with the herring industry which prospered on the Clyde in the 1700's (Coull 2008; Johnman & Murphy 2005:1). Trawlers were used in the Clyde from the mid-19th century onward (due to the construction of the rail networks linked with **changing transport over time**, which allowed fish to be transported over greater distances and thus increased demand, which trawling addressed), and steam power was used in trawlers from *c.* 1880 (Thurstan and Roberts 2010). The advent of steam trawlers and other indiscriminate methods of fishing in use during the latter part of the 19th century led to depletion of fish stocks on the Clyde, (connected to the strands '**was once full of fish now empty?**' and exploitation of **natural resources**) recognised by fishing restrictions in place by 1889. These restrictions included a trawling exclusion zone which extended three nautical miles around the coastline (Thurstan and Roberts 2010: 4). The trawler wrecks within the study area both lie just beyond the exclusion zones. Their locations and role as steam trawlers are representative of the fishing activities, and responses to depletion of fish stocks, during this period (both trawlers were lost before this regulation was repealed). The connection the steam trawlers *Bellevue* (built in 1897) and *Ethel Crawford* (built in 1919) have to the development of fishing industry and its long history in the area are therefore important for understanding the wreck remains in context.

11.7. River Management

11.7.1. The dredgers which are associated with management of the Clyde can be associated with the Source to Sea theme **river management and modification.** As has been discussed the dredgers formed part of the solution which would allow vessels with deeper draughts (connected with trade and shipbuilding) to navigate the Clyde from the latter part of the 18th century. Thus the impacts of vessels of these types (and other river modifications) played an integral part in the rise of the Clyde to the forefront of the shipbuilding industry, and allowed it to develop as an area of preeminent ports. Clyde ship and dredger builders William Simons & Co. Renfrew (responsible for the construction of the *Greenock* and *Caledonian*) are recognised worldwide as pioneering experts in the construction and development of dredger technology, contributing not only to river management within the Clyde, but also to the management of river systems, docks, harbours and estuaries worldwide (ClydeMaritime 2013).

11.8. Summary

11.8.1. There are many more Source to Sea strands with which the Clyde-built wrecks may connect. These, and the number of strands touched on here highlight both the interconnectedness of shipwrecks with many wider aspects of Scottish history, and their

ability to throw light on and represent many aspects of their 'parent societies on shore' (ScARF Marine and Maritime Panel 2012: 72). The numerous strands outlined above reflect a holistic view of a wide range of relationships with the Clyde, as understood through its shipwreck remains.

12. MANAGEMENT RECCOMENDATIONS AND FURTHER AVENUES OF WORK

12.1.1. This project has addressed deficiencies identified by the document *Towards a Strategy for Scotland's Marine Historic Environment*. In particular the study of Clyde-built wrecks within the Clyde has addressed the 'insufficient recognition of the remains of vernacular, indigenous craft of all periods which were important to the maritime history of Scotland…' (Historic Scotland 2009: 18). Of particular note here are the *Lapwing* and Clyde Puffers. In addressing this deficiency the project also contributes to all strands (investigating-recording; caring-protecting; sharing-celebrating) of Scotland's historic environment strategy *Our Place in Time.* These aims correlate with those of Scotland's strategy for the protection, management and promotion of marine heritage 2012- 2015:

- To help advance knowledge about marine heritage and make information widely available;
- To improve stewardship of key marine heritage assets; and
- To develop a wider understanding and enjoyment of marine heritage.

12.1.2. The discussion below is focused specifically toward these aims.

12.2. Advancement of knowledge and dissemination

12.2.1. This project has been a desk-based study to collate diver reports with previous research relating to Clyde-built wrecks within the Clyde. It first established the dataset, and then collated evidence relating to the intrinsic, contextual and associative characteristics of the wrecks in order to assess their significance. All of the wrecks displayed some aspects of significance, and a number of the wrecks displayed particular evidence for overall significance:

- *Margaret Niven;*
- *Lapwing*;
- HMS *Breda;*
- *Princess of Wales;*
- *Greenock;*
- *Lady Margaret.*

12.2.2. Additionally many of the Clyde-built Puffers survive well within the area (e.g. *Tuscan* and *Kaffir*), and have particular relevance to the region due to their use and development in this part of Scotland.

12.2.3. Research into these wrecks, including the methods for information gathering, and the assessments of significance have addressed objective 1 of Scotland's strategy for the protection, management and promotion of marine heritage 2012- 2015: *to collaborate with all relevant parties to pursue enhancement of the record of the marine historic environment and wise dissemination of this information to support planning.* Research has involved collaboration with relevant parties, in particular divers, and has led to an enhanced record and understanding of the wrecks within the Clyde.

12.2.4. There are a number of avenues which could lead on from this project, as regards investigating and recording the wreck remains within the Clyde, these include diver surveys, geophysical surveys and archival research.

12.2.5. **Diver Surveys:** During discussions with divers regarding the wrecks within the Clyde, a planned British Sub-Aqua Club (BSAC) expedition was brought to the attention of the author. Subsequent liaison with divers indicated that this expedition would involve surveys on a number of sites of archaeological significance including the *Lapwing* and HMS *Breda*, which are due to be surveyed in full. Other, more rapid, surveys will be carried out on the *New York*, *Glendale*, *Davaar* and *Glenhead* (in addition to other non-Clyde built wrecks including the *Norse* and *Adept*). A willingness for archaeological participation was shown by the divers, and may be provided as part of the Samphire project or the Nautical Archaeology Society (NAS). This expedition has the potential to provide detailed information on these important wreck sites, while continuing collaboration with divers. This will also address objective 6 of Scotland's strategy for the protection, management and promotion of marine heritage 2012- 2015: *'to develop awareness and capacity amongst professional organisations and amateur groups through targeted training and outreach'.*

12.2.6. The location of *Margaret Niven* close in to the shore may present a problem for geophysical survey, and the wreck site is known to be a popular diving location, with the nearby wreck of the *Arran III.* This may present a future target for diver surveys and could involve engagement with the clubs already diving the site, potentially through organisations such as the NAS.

12.2.7. Geophysical anomalies recorded in the area of the *Lady Margaret* by the ADU in 1989 could also be investigated (Dean 1989). This includes concretion recorded and anomalies masked by seabed deposits. Engagement with local communities may be a possibility with regards to this wreck, and contact may be made the Friends of Portencross Castle, who have been involved with research into the loss of a possible Spanish wreck in the area of the *Lady Margaret* (Glen 2010).

12.2.8. **Geophysical Survey:** It was initially anticipated that this project would incorporate geophysical survey data from the Clyde Port Authority (Peel Ports - Clydeport). However, discussion with Clydeport indicated that, with the exception of the *Iona I*, they did not hold surveys covering the wreck sites under study (J. Craig *pers. comm.,* 2015).

12.2.9. Geophysical survey may be of particular use on sites where divers experience issues such as darkness. This is a noted problem on the *Greenock,* and discrepancies between diver accounts indicate that geophysical survey may be of particular benefit on this site. Deep wrecks such as the *Princess of Wales*, beyond the reach of normal recreational diving, may also benefit from geophysical survey. Typically geophysical survey equipment is hired for a number of days and thus other wrecks may also be surveyed, with a view to perhaps producing wreck maps for divers to navigate around the wreck sites and in order to use in displays for the public in addition to advancing understanding of the wreck remains.

12.2.10. **Archival Research:** Figure 11 shows an example of the kind of archival material available for the wreck sites under discussion. The plans of the *Caledonian* and *Greenock* showing the dredging apparatus may be informative for divers and archaeologists trying to understand the wreck site. In addition to information and understanding of the wreck remains which can be gleaned from ships plans, archival research is also capable of giving further understanding of the build, use, loss, survival and investigation of the wrecks. A collision report for the HMS *Breda* for example is held at the National Archives, Kew (ADM 1/16873), and may hold information which could throw light on the relationship between HMS Breda and the anti-submarine activities focused at Campbeltown. Archival research could also throw light on the *Lady Margaret* and archives may hold details of her shipbuilder and specifications, of particular importance for understanding seabed remains and museum

holdings. All of the wrecks would benefit from the more detailed understanding archival research can provide.

12.3. Improvement of stewardship: Threats and Protection

12.3.1. Information recorded as part of this project has also taken steps toward addressing objective 4 of the strategy for the protection, management and promotion of marine heritage (2012-2015): *To improve understanding of the processes and operations that impact on marine heritage sites, determining which are likely to be most significant and to develop and implement effective mitigation for these where possible and desirable.* Metal wrecks dating to the 19th and 20th centuries, as characterise the Clyde-built dataset, have been identified as a possible priority in light of this objective, due to their rapid deterioration brought on by natural processes.

12.3.2. The full range of factors affecting the deterioration of metal wrecks, and interplay between these factors, is not properly understood, although detailed studies have been undertaken and trials geared toward underwater conservation of these remains have been conducted within Scottish waters (e.g. Gregory 1999). This project has aimed to record some of the factors which are currently understood to affect the preservation of shipwreck sites, such as the nature of the seabed (Muckelroy 1978: 162-163) and factors which specifically affect metal wrecks such as corrosion, related to physical and chemical factors including water depth, tidal flow, water salinity and oxygen concentration. While information regarding some of these factors (such as salinity and oxygen concentration) are not available from the data sources assessed during this study, others such as depth and tidal flow are (though the latter only variably). These latter two factors have therefore been recorded on the wreck sheets (in the section 'seabed type and marine environment') where information allows. Diver records and geological reports (Deegan *et al*. 1973) have been used to inform seabed type. Information on the depth of the seabed was obtained from the UKHO nautical charts, and diver information also informed tidal currents and flow in the area. Diver reports on the wrecks have also been arranged chronologically on the wreck sheets in order to allow an understanding of deterioration over time. Tracking deterioration of metal wrecks over time using diver reports has also been carried out in Scapa Flow (ORCA 2014: 3). Additional threats brought on by human activities, such as trawling, have also been recorded where it is thought they may threaten wreck sites. A number of examples are discussed below.

12.3.3. The wreck of the *Kintyre* lies on a sloping seabed, a factor found to affect the survival of shipwreck sites, though to a lesser extent that the nature of the seabed (Muckelroy 1978: 162), in an area of what are noted to be reasonably fast tidal currents. Records from the 1980's indicate that the hull was virtually intact with some superstructure surviving, however reports from 2000 onward indicate that deterioration has occurred and the wreck has decayed down to deck level. Plating has also fallen away. Although deterioration is not unexpected on a metal wreck site such as this, and to some extent the rate of deterioration is indicated by diver reports, detailed understanding of the full range of processes and a quantitative analysis of this rate are not possible with the data sources used by this study.

12.3.4. Diver reports can, however, give a qualitative idea of the deterioration on these wreck sites. An example of this is that while wreck remains are generally considered to survive better at greater depths, divers indicate that even the deeper wrecks are deteriorating within the Clyde (Moir and Crawford, *pers. comm.,* 2015).

12.3.5. Information from divers indicates that trawling may impact upon the remains of the *Tuscan* and *St Oran*. Trawl scours are also recorded in the vicinity of the *Greenock* and could potentially affect this wreck. It may be possible to gauge impacts and ascertain likely areas

of impact using monitoring data acquired by Marine Scotland (using Vessel Monitoring Systems [VMS]) for fishing vessels.

12.3.6. While the factors recorded by this project indicate some remains which may be at risk, such as those within areas of potential trawling, or within shallow, rocky areas or with strong currents (such as the *New York*, which does not survive well, or the *Kintyre*), the factors which it was possible to record during this study represent only part of the picture. A more complete understanding of the range of factors affecting the wreck sites would be necessary before successful management strategies can be put in place.

12.4. Wider understanding and enjoyment of marine heritage

12.4.1. In addition to the targeted outreach discussed above, with relation to the planned BSAC expedition or through the NAS, there may be other opportunities for the promotion of the underwater heritage within the Clyde.

12.4.2. While divers can access the wreck sites and see the archaeology for themselves, this is beyond the capabilities of the majority of the public. In these cases bringing underwater cultural heritage to the public may use other means. A number of the wreck sites studied here have connections with terrestrial features.

- For the Clyde Puffers, *Margaret Niven* and the *Lapwing,* the canal systems are of relevance, having guided the form of the Clyde Puffer and the dimensions of *Lapwing* itself, and allowing access out, westward, to the communities with which these vessels were connected;
- For HMS *Breda* the connection with local buildings in Campbeltown and other war time features including trenches are of relevance;
- The *Princess of Wales* sank while undertaking speed trials on the Skelmorlie Mile and thus has connections with that section of water (which can be experienced from the surface, looking out over the Clyde), and also with specific assets including the markers.
- The *Greenock* has connections with the anti-submarine boom which ran from Cloch Point to Dunoon, and of which terrestrial remains survive.
- The *Lady Margaret* has potential associations with cannons which have been raised and are displayed on land.

12.4.3. These areas and features could be used to display information on the wreck sites (via for example information boards), forming a point of connection between land and sea, at which the wreck remains may be best understood and connected with, through association with the presence of the physical terrestrial remains. Additionally wrecks which extend above the waterline, such as the *Kaffir* (a Clyde Puffer), or *Lady Gertrude* (the remaining hull of a paddle steamer) also form points of contact. The shipyards may also present a point of contact between the wreck remains and terrestrial world, and outreach could tie in to existing heritage trails such as the Clydebank heritage trail which takes in John Brown's Shipyard, in which the HMS Breda was constructed (West Dunbartonshire Council n.d.).

12.4.4. Additionally further research may be conducted into the remains of the *Lady Margaret* which could include communication with the Friends of Portencross Castle, local museums (in particular the Dick Institute and West Kilbride Museum) and interested divers, in order to bring the *Lady Margaret* in terms of her role as a West Indiaman and connection with the Clyde shipping industry, into public awareness.

13. CONCLUSION

13.1.1. This project has collated information from a range of sources and has enhanced knowledge of Clyde-built wrecks within the Clyde. In particular information from recreational divers has proved invaluable and has been the source of detailed information about the current condition of many Clyde-built wrecks, useful for on-going management.

13.1.2. A number of wrecks previously recorded as of unknown identity in the RCAHMS database were positively identified during the project (e.g. *Briton*) and more accurate positional information was established for a number of other wrecks. Additionally, the project identified a potentially significant wreck (*Margaret Niven*) the remains of which were not previously recorded by Canmore or the UKHO. This project has also identified a number of other potentially significant wrecks within the Clyde, which reflect both its unique contributions to world-wide shipbuilding and local connections. These wrecks include paddle steamers (*Lapwing* and *Princess of Wales*), Clyde Puffers (e.g. *Margaret Niven*), steam-yachts with military connections (HMS *Breda*), a dredger (*Greenock*) and an 18th-century West Indiaman (*Lady Margaret*). Numerous other wrecks have been identified by this project, and all display some degree of significance.

13.1.3. All of the wrecks can contribute in varied ways to the Source to Sea project, and provide a window through which to view many of the Source to Sea strands, from boats and ships, to migration, fish and fishing and river management and modification.

13.1.4. The project aims have been addressed, and in particular the project has enhanced understanding of the nature, extent, condition and significance of the Clyde-built wreck remains, in addition to providing information to aid management considerations. The project has also enhanced existing archaeological datasets (e.g. Canmore), and data downloads to that repository have been carried out. Additionally this project has nurtured relationships between archaeologists and divers and has resulted in valuable new wreck information and plans for on-going cooperation and outreach.

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15. APPENDIX A: SHIPBUILDERS ON THE CLYDE

1. A & J Inglis Pointhouse Glasgow
2. A Findlay & Co Old Kilpatrick
3. A G Cameron
4. A Kirkpatrick Port Glasgow
5. A M Dickie Tarbert
6. A McFarlane & Company Dumbarton
7. A McLachlan Dumbarton
8. A McMillan & Son Dumbarton
9. A Rodger & Company Port Glasgow
10. Abercorn Shipbuilding Company Paisley
11. Ailsa Shipbuilding Company
12. Ailsa Shipbuilding Company Ayr
13. Ailsa Troon Ltd
14. Aitken & Mansel Kelvinhaugh
15. Aitken & Mansel Whiteinch
16. Alexander Denny & Brother Dumbarton
17. Alexander Stephen & Sons Glasgow
18. Alley & McLellan Polmadie
19. Anderson & Gilmour Glasgow
20. Anderson & Lyall Govan
21. Anderson Rodger Port Glasgow
22. Arch Munn Hamiltonhill
23. Archibald Denny Dumbarton
24. Arclay Cartsdyke Mid Greenock
25. Ardmaleish Boatbuilding Company Ltd
26. Ardrossan Dockyard
27. Ardrossan Drydock & Shipbuilding Co
28. Ardrossan Shipbuilding Co
29. Ayr Shipbuilding Company
30. Ayrshire Dockyard Irvine
31. BAE Systems Govan
32. BAE Systems Scotstoun
33. Barclay Curle & Company Glasgow
34. Barr & McNab West Renfrew
35. Barr & Shearer Ardrossan
36. Birrell Stenhouse & Company Dumbarton
37. Blackwood & Gordon Paisley and Port Glasgow
38. Blythswood Shipbuilding Company Scotstoun
39. Bow McLachlan & Company Paisley
40. Boyd & Turner Dumbarton
41. Burrell & Son Low Woodyard Dumbarton
42. Burrell & Son Hamiltonhill
43. Bute Slip Dock Co Bute
44. Caird & Company Greenock
45. Calderwood Irvine
46. Campbeltown Shipbuilding Co
47. Campbeltown Shipyard
48. Carmicheal & MacLean Port Glasgow
49. Chalmers Rutherglen
50. Chambers Brothers Cartsdyke West Greenock
51. Charles Connell & Company Scotstoun
52. Charles MacBridge Cartside Greenock
53. Chas Wood Dumbarton
54. Chalmers & McKivett Govan
55. Clyde Navigation Trust Glasgow
56. Clyde Shipbuilding Company Greenock
57. Clyde Shipbuilding Company Port Glasgow
58. Clyde Shiprepairers Ltd Renfrew
59. Clydebank Engineering & Shipbuilding Company
60. Cooperative Iron Shipbuilding Company Irvine
61. Cornwallis & Company Greenock
62. Culzean Shipbuilding Company Troon
63. Cunliffe & Dunlop Port Glasgow
64. D & A Fullerton Ayr
65. D & W Henderson Ltd Glasgow
66. D McLeod Bay of Quick
67. David J Dunlop Port Glasgow
68. David McGill Bowling Bay
69. David Napier
70. David Rowan & Company
71. Davidson & Wood
72. Davie & McKendrick
73. Denny & Rankine Dumbarton
74. D M Cumming Blackhill
75. Dobie & Company Govan
76. Dobbie Hedderwick & McGaw Govan
77. Dumbarton
78. Dunlop Bremner & Co Port Glasgow
79. E B Mitchell Renfrew
80. Fairfield Govan
81. Ferguson Ailsa Ltd
82. Ferguson Shipbuilders Port Glasgow
83. Fleming & Ferguson Paisley
84. G & G Hamilton Brodick
85. G Mills Bowling
86. George Brown & Company Greenock
87. Gilkinson Thomson & Company Irvine
88. Govan Shipbuilders Ltd
89. Greenock
90. Greenock & Grangemouth Dockyard Co Greenock
91. Greenock Dockyard Co Greenock
92. Gush Cartside Greenock
93. H M McIntyre Paisley
94. H McLean Govan
95. H McLean Renfrew
96. Harland & Wolff Ltd Govan
97. Harland & Wolff Greenock

98. Hedderwick & Rankine Glasgow
99. Hedderwick & Ransome Glasgow
100. Henderson Coulborn & Co Renfrew
101. Henry Murray & Company Port Glasgow
102. Hunter & Dow Kelvinhaugh
103. I McLea Rothesay
104. Irvine Shipbuilding & Engineering Company
105. Irvine Shipbuilding Compnay
106. J & G Thomnson Clydebank
107. J & G Thomas Govan
108. J & J Hay Kirkintilloch
109. J & W Napier
110. J Adam Gourock
111. J Barnhill Cartsdyke West Greenock
112. J Bourne Port Glasgow
113. J E Scott Cartsdyke Mid Greenock
114. J G Lawrie & Company Whiteinch
115. J Henderson & Son Renfrew
116. J Hunter Port Glasgow
117. J Lang Dumbarton
118. J Lang William Denny Dumbarton
119. J MacMillan Greenock
120. J McArthur Paisley
121. J Munn Westburn West Greenock
122. J Neilson Hamiltonhil
123. J Norman Broomhill
124. J Reid & Co Port Glasgow
125. J Reid Whiteinch
126. J W Hoby Renfrew
127. James Hunter
128. James Lamont & Company Greenock
129. James Lamont & Company Port Glasgow
130. James Paterson Glasgow
131. James Paterson Port Glasgow
132. Jas Silver Rosneath
133. John Barclay Glasgow
134. John Barr Kelvinhaugh
135. John Brown Clydebank
136. John Elder & Co Govan
137. John Fletcher Govan
138. John Fullerton & Company Paisley
139. John Napier & Company Govan
140. John Shearer & Son Kelvinhaugh
141. John Wood Port Glasgow
142. Kirkpatrick & McIntyre Port Glasgow
143. Kvaerner Govan
144. Lambie Greenock
145. Laurence Hill & Company Port Glasgow
146. Lithgows Port Glasgow
147. Lloyd Royal Belge Scotstoun
148. Lobnitz & Company Renfrew
149. Lobnitz Coulborn & Co Renfrew
150. London & Glasgow Eng & Iron Shipbuilding Co
151. Lyon & Foster Cartside Greenock
152. MacCrindle Shipbuilding Ltd Ardrossan
153. Mackie & Thomson Govan
154. MacLaren Bros Dumbarton
155. MacNab & Company Greenock
156. Marine Investment Company
157. Martin Port Glasgow
158. Marshall & Co Maryhill
159. McCulloch & Paterson Port Glasgow
160. McDonald Rue End Greenock
161. McFadyen & Company Port Glasgow
162. McGill & Gilmour Irvine
163. McIntyre Cartside Greenock
164. McKellar & Chambers Dumbarton
165. McKellar McMillan & Company Dumbarton
166. McMillan et al Greenock
167. Mechans Scotstoun
168. Millen Brothers Paisley
169. Morton & Wilde Dumbarton
170. Moterhwell Bridge Patrick
171. Murdoch & Murray Port Glasgow
172. Murray Brothers Dumbarton
173. Murries & Clark Westburn West Greenock
174. Napier Shanks & Bell Yoker
175. Napier & Crichton Glasgow
176. Napier & Miller Old Kilpatrick
177. Napier & Miller Yoker
178. Neilsen Glasgow
179. Ninian Largs
180. P & W MacLellan
181. P McGregor & Sons Kirkintilloch
182. Paisley
183. Peter Love Greenock
184. Port Glasgow
185. Port Glasgow Shipbuilding Company
186. Portland Shipbuilding Company Troon
187. R & A Carsewell Greenock
188. R Chambers Dumbarton
189. R Craig
190. R Dixon Greenock
191. R Foster Greenock
192. R Taylorson Ladyburn
193. Randolf & Elliot Govan
194. Randolph Elder & Co Govan
195. Rankin & Son Dumbarton
196. Redpath Brown Meadowside
197. Reid & Hannah Bay of Quick
198. Reid & Hannah Paisley
199. Renfrew
200. Rennie Ritchie & Newport Rutherglen
201. Ritchie, Graham & Milne, Whiteinch
202. Robert Barlclay Glasgow
203. Robert Barclay & Curle Glasgow
204. Robert Duncan & Co Port Glasgow
205. Robert Duncan Greenock
206. Robert Napier Govan
207. Robert Steele & Company

208. Robertson & Company Greenock
209. Ross & Marshall Greenock
210. Russell & Co Port Glasgow
211. S McKnight Ayr Shipyard
212. Sandeman & McLaurin Whiteinch
213. Scotstoun Marine Ltd
214. Sott & Linton Dumbarton
215. Scott and Sons Ltd Bowling
216. Scott Lithgow Offshore Port Glasgow
217. Scott Sinclair & Company Greenock
218. Scottish Concrete Ship Company
219. Scottish Iron Works Irvine
220. Scotts Bowling
221. Scotts Greenock
222. Simons Lobnitz Limited Renfrew
223. Sir William Arrol Meadowside
224. Smith & Rodger Govan
225. Southfield Iron Company Pointhouse
226. Steele & Carsewell Greenock
227. Stuart & Rennie
228. Swans Glasgow and Dumbarton
229. T Wilson Faskine
230. T Wingate & Company Glasgow
231. Taylor & Mitchell Greenock
232. Thomas B Seath Glasgow
233. Thomas B Seath Rutherglen
234. Thomas Orr Greenock
235. Thomas & Spiers Cartsdyke West Greenock
236. Thomson & Spiers Glasgow
237. Tighnabruich
238. Tod & McGregor Glasgow
239. Troon Shipbuilding Company
240. Union Steamboat Company Kelvinhaugh
241. Upper Clyde Shipbuilders Ltd Clydebank
242. Upper Clyde Shipbuilders Ltd Govan
243. Upper Clyde Shipbuilders Ltd Scotstoun
244. W B Thompson Whiteinch
245. W M Johnston Bay of Quick
246. W Napier
247. W S Cumming Blackhill
248. W Smith Rue End Greenock
249. White Greenock
250. Whiteinch
251. William Denny & Brother Dumbarton
252. William Denny and A McLachlan Dumbarton
253. William Hamilton & Co Port Glasgow
254. William Hood Rowan & Co Glasgow
255. William Simons & Co Greenock
256. William Simons & Co Kelvinhaugh
257. William Simons & Co Whiteinch
258. William Simons & Co Renfrew
259. William Watson Port Glasgow
260. Wishart Port Glasgow
261. Wm Beardmore & Company Dalmuir
262. Wm Beadmore & Company Govan
263. Wm Fife Fairlie
264. Wood & Mills Glasgow
265. Wood & Reid Port Glasgow
266. Wood & Ritchie Port Glasgow
267. Woods & Barclay Port Glasgow
268. Yarrow Shipbuilders Scotstoun

16. APPENDIX B: WRECK SHEETS

16.1. Janet McNichol

<table>
<tr><td>Name</td><td colspan="5">Janet McNichol</td></tr>
<tr><td>Position</td><td>55.5309, -5.09193</td><td rowspan="2">Basis for identification</td><td colspan="3" rowspan="2">The brick cargo has been identified on the seabed. Identification not certain.</td></tr>
<tr><td>Positional accuracy</td><td>Accurate</td></tr>
<tr><td>Type</td><td>Wooden smack (UKHO states Fishing Smack)</td><td>Use</td><td colspan="3">Fishing/ Cargo vessel</td></tr>
<tr><td>Build Date</td><td>1875</td><td>Loss Date</td><td>1907</td><td>Years in use</td><td>32</td></tr>
<tr><td rowspan="2">Propulsion</td><td rowspan="2">Sail</td><td>Circumstances of Loss</td><td colspan="3">En route from Irvine harbour to Brodick with a cargo of bricks. The vessel was anchored in Lamlash Bay when she was struck by the steamer Glentow and sunk. Owned at time of loss by alexander McNicol of Brodick</td></tr>
<tr><td>Loss of life</td><td colspan="3">3</td></tr>
<tr><td>Hull material</td><td>Wood, carvel built.</td><td>Tonnage</td><td colspan="3">19.4nt</td></tr>
<tr><td>Dimensions</td><td>2.5’ x 14.8’ x 6.4’</td><td>Shipbuilder</td><td colspan="3">J & J Halliday, Rothesay.</td></tr>
<tr><td>Surviving features and condition</td><td colspan="5">Board of Trade (1907): The Board of trade report produced following the loss of the Janet McNichol stated: ‘William Hamilton, diver, at 2.30 p.m. of 9th October, went to the wreck of the "Janet McNicbol" in his diving suit for the purpose of ascertaining if any of the bodies were on board. He found her lying with a little list to port, heading about N.E. He went along the(b)owsprit on to the deck and into the cabin, having to clear away bed clothes and pillows to get below. Before doing so he examined the damage, and found the stern and four or five feet of the port quarter cut off; he was unable to get into the forecastle on account of the gear, and therefore could not see if there were there any bodies there; he saw a lamp hanging to the fore stay. The hatches had floated off, and the cargo seen was bricks. On Friday, the 15th October, he went down a second time and brought up a lamp from off the fore stay, the top of which was secured by a lanyard with a rolling hitch, about seven or eight feet above the deck, and the bottom by a piece of spunyarn fast to the stay’ (BOT 1907).

UKHO (1968): Although earlier UKHO records had recorded a buoy marking the wreck (in 1907) this was removed, and by 1968 the remains were not found by sounding.

Moir and Crawford (2003): Wooden debris and bricks are noted on site. UKHO refer to this record.

UKHO (2004): Located in 5531.854N, 0505.516W [WGD] using DGPS. Least MBES depth 15.4 in gen depth 16mtrs. No scour. Not seen on Dual Control Side Scan Sonar.
Moir and Crawford (pers. comm.,. 2015): Note that the pile of bricks on the seabed may represent the cargo of the Janet McNichol, although this is not verified.</td></tr>
<tr><td rowspan="2">Identifiers</td><td rowspan="2">Canmore ID: 102669
UKHO ID: 3927</td><td>Seabed type and marine environment</td><td colspan="3">The UKHO indicate the wreck lies in depths of 16m. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973)</td></tr>
<tr><td>Investigation</td><td colspan="3">Divers.</td></tr>
<tr><td>Key sources</td><td colspan="5">Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. The superficial deposits of the Firth of Clyde. Report of the Institute of Geological Sciences no. 73/9.
Moir and Crawford 2004: 105
Board of Trade 1907. Wreck Report for 'Janet McNicol' and 'Glentow'.
Moir and Crawford (pers. comm 2015)
UKHO Wrecks and Obstructions Database. Information from ‘surveying details’ field. Extracted 9th December 2014.</td></tr>
</table>

16.2. Kaffir

<table>
<tr><td>Name</td><td colspan="4">Kaffir</td></tr>
<tr><td>Position</td><td>55.47332, -4.63731</td><td rowspan="2">Basis for identification</td><td colspan="3" rowspan="2">Stranded in 1974. Known about since.</td></tr>
<tr><td>Positional accuracy</td><td>Accurate.</td></tr>
<tr><td>Type</td><td>Motor coaster (Clyde Puffer)</td><td>Use</td><td colspan="3">Kaffir was ordered by the Ministry of War Transport, and intended as a VIC class vessel. She was never put to this use.

Local cargo. Historic photographs show the Kaffir beached at Iona, unloading cargo (e.g. Moir and Crawford 2004: 141)
Owned by:
J Hay & Sons
1963 Hay Hamilton Ltd
1974 Glenlight Shipping</td></tr>
<tr><td>Build Date</td><td>1944</td><td>Loss Date</td><td>1974</td><td>Years in use</td><td>30</td></tr>
<tr><td rowspan="2">Propulsion</td><td rowspan="2">Motor- screw
2 cylinder compound engine. In 1961 the vessel was installed with an oil engine (clydesite.co.uk).</td><td>Circumstances of Loss</td><td colspan="3">Taken illegally from Ayr harbour and stranded. The vessels' stern gear was damaged and she could not be refloated. Constructive loss. Cargo of coal at time of loss.</td></tr>
<tr><td>Loss of life</td><td colspan="3">0</td></tr>
<tr><td>Hull material</td><td>Steel</td><td>Tonnage</td><td colspan="3">98gt</td></tr>
<tr><td>Dimensions</td><td>66.6'x18.3'x8.6' (Moir and Crawford 2004: 141)

66.8' x 18.4' (clydesite.co.uk)</td><td>Shipbuilder</td><td colspan="3">J & J Hay Kirkintilloch</td></tr>
<tr><td>Surviving features and condition</td><td colspan="5">UKHO (1977): At High Water both masts, funnel & superstructure are visible. At LWS she dries completely.

UKHO (1982, attributes information to BSAC Wreck Register): Sits upright, broken in two. Bridge & mast still intact. Cargo still in hold. Mast shows at high water.

Moir and Crawford (2004): Beginning to break up. Wreck lies in two sections.

Comparison of online photographs taken in 2010 and 2011, and historic photographs in Moir and Crawford (2004) show: Bridge and mast intact. Upright, broken in two. Cargo in hold. Winch, mast and derrick all present. The plating is beginning to deteriorate, and the wheelhouse no longer survives. Accessible at low tide, superstructure partially exposed at high tide. Comparison with historic photographs show that the wheelhouse is no longer present.

Moir and Crawford (*pers. comm* 2015): Survival good.

Summary: Wreck survives well, with features including the upper superstructure evident. Some deterioration is occurring and the wreck has broken in two.</td></tr>
<tr><td>Identifiers</td><td>Canmore ID: 113271

UKHO ID: 4069</td><td>Seabed type and marine environment</td><td colspan="3">In intertidal zone. Depth recorded by UKHO at 0m. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)</td></tr>
</table>

		Investigation	Divers, UKHO, members of the public who photograph the wreck (see flickr) UKHO Surveying details recorded in 1977 suggest the wreck did not warrant charting because she was to be removed. Later UKHO surveys indicate there are as yet no plans to remove her (1977).
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 141 Moir and Crawford, (*pers. comm* 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=13438 http://flickrhivemind.net/Tags/Puffer,wreck/Interesting (photographs taken 2010, 2011) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.		

16.3. Tuscan

Name	Tuscan				
Position	55.5819, -5.12558	Basis for identification	Recovery of the ships bell.		
Positional accuracy	Accurate				
Type	Motor vessel (Clyde Puffer)	Use	Local cargo		
Build Date	1935 (1934)	Loss Date	1955	Years in use	20
Propulsion	Originally steam compound 2 cylinder engine, converted in 1948 for use of oil fuel (clydesite.co.uk). Screw	Circumstances of Loss	Foundered in heavy seas while carrying coal to Brodick due to rail strike.		
		Loss of life	0		
Hull material	Steel	Tonnage	96grt		
Dimensions	65.6'x18.4'x8.7' (Moir and Crawford 2004: 113) 66.2' x 18.4' (clydesite.co.uk).	Shipbuilder	J & J Hay Kirkintilloch (clydesite.co.uk) Peter MacGregor Kirkintilloch (Moir and Crawford 2004: 113)		
Surviving features and condition	UKHO surveys (1970's onward) attached to this record indicate what was originally thought to be the wreck was later identified as a coil of wire. Later record is from Moir and Crawford's *Clyde Shipwrecks* (1997 Edition). Scottish Diver (2012, 4 dives by K. Waugh occurred in 1976, article printed in 2012): Features noted include the mast (derrick), main cargo hold, with coal cargo largely intact, the engine room (with steam gauge and pipes). Propeller and rudder partially buried in the seabed. Also noted that the wheel was not present on the wreck. Moir and Crawford (2004): Survives intact, with hull, derrick and deckhouse extant. From comparison of Moir and Crawford's wreck plan with historic photographs of the vessel it appears the wheelhouse and boiler may have gone. Moir and Crawford (*pers. comm* 2015) Fresh air vent base noted and casing for engine room. Coal cargo extant. Divers note that trawler activity in the area may affect the remains of this vessel. Summary: Considered by divers to be the most intact wreck of a Clyde Puffer.				
Identifiers	Canmore ID: 103037 UKHO ID: 3932	Seabed type and marine environment	Flat seabed. Depth of seabed recorded at 21m by UKHO. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973) Divers indicate trawlers work in this area and may present a threat to this wreck.		
		Investigation	Divers and UKHO.		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 113 Moir and Crawford, (*pers. comm* 2015) Scottish Diver, 2012. *A Familiar Dive*. Page 12. Available online at : http://dev.scotsac.com/html/scottish-diver/2012/SD_1206/SD_1206memorabledive.pdf (accessed 18th February 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=13432 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.4. Saxon I

Name	Saxon I				
Position	55.33665,-5.34498	Basis for identification	Unknown		
Positional accuracy	Accurate.				
Type	Steamship (Clyde Puffer)	Use	Local cargo. Used in coastal trade, and in 1906 ran aground on the Isle of May. Written off as a constructive total loss, she was bought by J & J Hay, repaired, and brought back into service as a coastal cargo ship.		
Build Date	1894	Loss Date	1912	Years in use	18
Propulsion	Compound 2 cylinder engine, screw.	Circumstances of Loss	Collision with SS *Waterloo*		
		Loss of life	2 (crew)		
Hull material	Iron	Tonnage	85gt		
Dimensions	65.8'x18.0'x8.4'	Shipbuilder	J & J Hay Kirkintilloch		
Surviving features and condition	UKHO (1980): Identified probable wreck on sonar. UKHO (1981): Investigation using Trisponder recorded a wreck in gen depth 48.7mtrs. Scour 0.9mtr deep. Dual Control Side Scan Sonar recorded the height at 2.3mtrs, length 35mtrs approx. Intact, lying 010/190degs. UKHO (1999): Foul in this position thought to be this wreck. Moir and Crawford (2004): Divers indicate wreck may have sunk into soft mud. Scour of up to 1m is noted around the wreck. Moir and Crawford (*pers. comm* 2015): Hull, with mast sticking up out of the mud. Outline of the gunwale can be seen. Summary: Little of the wreck is exposed. More may survive beneath the seabed, but this is unverified				
Identifiers	Canmore ID: 102693 UKHO ID: 3964 Both for 'Unknown' wreck in the position divers have recorded Saxon I.	Seabed type and marine environment	Soft muddy seabed. Strong tidal streams. Depth of seabed recorded as 49m by UKHO. Surface sediments of Mud and Sand recorded by the Institute of Geological Sciences (Deegan et. al. 1973) .		
		Investigation	Divers and UKHO		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 111 Moir and Crawford, (*pers. comm* 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=13402 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.5. Briton

<table>
<tr><td>Name</td><td colspan="5">Briton</td></tr>
<tr><td>Position</td><td>55.31275, -5.4631</td><td rowspan="2">Basis for identification</td><td colspan="3" rowspan="2">Ship’s bell</td></tr>
<tr><td>Positional accuracy</td><td>Moderately accurate (there is a c. 30m discrepancy between diver position, given above, and UKHO position for an Unknown wreck.)</td></tr>
<tr><td>Type</td><td>Steamship (Clyde Puffer)</td><td>Use</td><td colspan="3">Local cargo carrier. Built to pass through the canals, to serve the Clyde and west coast.</td></tr>
<tr><td>Build Date</td><td>1893</td><td>Loss Date</td><td>1931</td><td>Years in use</td><td>38</td></tr>
<tr><td rowspan="2">Propulsion</td><td rowspan="2">Steam- screw, 2cylinder, 17nhp</td><td>Circumstances of Loss</td><td colspan="3">Lost following a collision with trawler, Ernesta. It is thought that the vessel was inbound from Carnlough to Glasgow, with a cargo of limestone.</td></tr>
<tr><td>Loss of life</td><td colspan="3">Unknown</td></tr>
<tr><td>Hull material</td><td>Iron</td><td>Tonnage</td><td colspan="3">34nt</td></tr>
<tr><td>Dimensions</td><td>65.6’ x 18.0’ x 8.2’</td><td>Shipbuilder</td><td colspan="3">J & J Hay Kirkintilloch</td></tr>
<tr><td>Surviving features and condition</td><td colspan="5">UKHO (1954): Surveys found a ‘large non-sub contact’

UKHO (1968): Surveys investigated this contact but could not find it.

UKHO (1969): Wreck located using Decca in 1968. Least depth over wreck by echo 155ft. General depth of seabed by echo 164ft. No scour visible on response. Only a single run over wreck made. Investigation not complete.

UKHO (1981): Surveyed in 1980. The remains had no scour. Side scan sonar showed the height to be 4.1mtrs, length 40mtrs. Lying 060/240degs. Intact and on edge of a bank.

UKHO (1986): surveyed in 1985. The wreck was found to have scour less than half a metre. Side scan sonar showed height at 4.6mtrs, length 30mtrs, beam 10mtrs. Lying 300/120degs with bows NW

Moir and Crawford (2003 and pers. comm 2015): The wreck is almost completely intact. Upper wooden superstructure is missing from the top of the engine casing. Large hold still full of limestone cargo. Small forecastle cabin also noted.</td></tr>
<tr><td rowspan="2">Identifiers</td><td colspan="2" rowspan="2">Canmore ID: 102514 (for unknown wreck in position Moir and Crawford record the Briton)
324663 (possible wreck of the Briton. This point is c.580m to the NE of the UKHO/ Moir and Crawfords point for the wreck)
UKHO ID: 3889 (for unknown wreck in approx.. position Moir and Crawford record the Briton)</td><td>Seabed type and marine environment</td><td colspan="2">Sloping muddy seabed. The depth of the seabed in this location is recorded at 51m by the UKHO. Surface sediments of Sand recorded by the Institute of Geological Sciences (Deegan et. al. 1973)</td></tr>
<tr><td>Investigation</td><td colspan="2">UKHO and Divers</td></tr>
</table>

Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford (*pers. comm* 2015) Moir and Crawford (2003: 22-23) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=13400 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.

16.6. Glenhead

Name	Glenhead				
Position	55.45333, -5.51967	Basis for identification	Ship's bell and makers plate.		
Positional accuracy	Accurate (divers)				
Type	Iron steamlighter (Clyde Puffer)	Use	Local cargo carrier used within the Clyde.		
Build Date	1887	Loss Date	1890	Years in use	3
Propulsion	Steam- screw. 2 cylinder, compound engine, single boiler. (wrecksite.eu)	Circumstances of Loss	The Glenhead left with her cargo of coal en route to Campbeltown she was struck and capsized by a large wave and sank.		
		Loss of life	0		
Hull material	Iron	Tonnage	34nt		
Dimensions	66.0'x17.5'x6.4'	Shipbuilder	Scott and Son, Bowling		
Surviving features and condition	UKHO (1981) Surveyed in 1980. Side scan sonar indicates the wreck is 2.55mtrs high. No scour. Lying intact on heading 020/200degs. Length 40mtrs. Not swept due close proximity to Otterard Rock. UKHO (1996, information attributed to Shipwrecks of the West of Scotland and shipwreck Index of British Isles): Wreck is intact and upright. Moir and Crawford (2003): The wreck survives intact with the exception of the upper wooden superstructure. Damage to the vessel is visible in the bow area, possibly relating to the point of impact upon the seabed. Coal cargo is extant. The engine room and forecastle cabin have been noted (UKHO 2004 references this information.). Moir and Crawford (*pers. comm* 2015). Note that this is a well preserved Puffer. Features, in addition to those detailed in *Argyll Shipwrecks* include the wheel hub, propeller, rudder, boiler and winch. UKHO (2010): Surveyed in 2009: length 16mtrs, width 6mtrs. Lies 010/190 degs.				
Identifiers	Canmore ID: 115241 UKHO ID: 3970	Seabed type and marine environment	Mud and shingle. The depth of seabed is recorded at 35m by the UKHO. Surface sediments of Gravel and Sand recorded by the Institute of Geological Sciences (Deegan et. al. 1973).		
		Investigation	Divers		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford (2003: 36-37) Moir and Crawford (*pers. comm* 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=8854 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014. Wrecksite (n.d.) SS Glenhead. Available online from: http://www.wrecksite.eu/wreck.aspx?63753 (accessed 23rd Feb 2015).				

16.7. Delta

Name	Delta				
Position	55.38332, -5.50107	Basis for identification	Ship's bell has confirmed identity.		
Positional accuracy	Accurate (divers)				
Type	Clyde Puffer (steamlighter)	Use	Local cargo vessel.		
Build Date	1881	Loss Date	1895	Years in use	14
Propulsion	Steam- screw.	Circumstances of Loss	While en route to the Forth and Clyde Canal from Glenarm, the vessel began to leak and sunk quickly with her limestone cargo, off Ru Stafnish, Kintyre.		
		Loss of life	0		
Hull material	Iron	Tonnage	32nt		
Dimensions	65.5' x 17.5' x 7.5'	Shipbuilder	J & J Hay Kirkintilloch		
Surviving features and condition	UKHO (1986) The UKHO do not appear to have located these remains. In 1986 they cite information from P Moir regarding the loss of the Delta, but do not include any surveying details. Moir and Crawford (2003): State that the remains of the Delta have been located. The stern section is partially intact however there has been much deterioration over the wreck as a whole. The vertical boiler has been noted, and extends to 1.5m above seabed level. Remains at the stern include the rudder, propeller and engine. The limestone cargo is extant in the bow region. Sections of hull and the bow winch are noted in this area. Moir and Crawford (*pers. comm.,*. 2015): The remains consist of the hull with an engine, and cargo noted.				
Identifiers	Canmore ID: 102509 UKHO ID: 4026	Seabed type and marine environment	Mud and shingle. Depth of seabed recorded at 30m by UKHO. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	Divers		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2003: 30 Moir and Crawford (*pers. comm* 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=13387 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.8. Arthur

Name	Arthur				
Position	56.00192, -4.86103	Basis for identification	UKHO record wreck in vicinity of loss location given for *Arthur*. Identity not verified by diving accounts.		
Positional accuracy	Accurate (UKHO)				
Type	Steam lighter (Clyde Puffer)	Use	Local cargo carrier		
Build Date	1887	Loss Date	1903	Years in use	16
Propulsion	Steam- screw, 1cy oscillating 10nhp	Circumstances of Loss	Foundered off Cove		
		Loss of life	Unknown		
Hull material	Iron	Tonnage	30nt		
Dimensions	65.7' x 16.2'	Shipbuilder	J & J Hay Kirkintilloch		
Surviving features and condition	UKHO (1997): Surveyed in 560006.9N, 045139.7W[WGD] using DGPS. Least e/s depth 26.8 in gen depth 28mtrs. Anomaly on side scan sonar with a height of 1.5mtrs, length 25mtrs, width 7mtrs. Lies 015/195degs. Upright and intact. Bottom deepens from 24 to 34mtrs along wk. Wreck has distinctive barge appearance with a mast at the south end. Moir and Crawford (2004): Documentary details. Have not dived the site. Moir and Crawford (*pers. comm* 2015): Have not dived the site but plan to. Sewell (*pers. comm* 2015): Has not dived the site but knows of a search for the site which used a hand sounder, but could not locate the wreck.				
Identifiers	Canmore ID: 102593 UKHO ID: 2783	Seabed type and marine environment	Sloping seabed. The depth of the seabed is recorded at 28m by the UKHO. Surface sediments of Gravel, Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	UKHO		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford (2004: 48) Moir and Crawford (*pers. comm* 2015) Sewell (*pers. comm* 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=13384 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.9. Louise

Name	Louise				
Position	55.84743, -5.02116	Basis for identification	The Louise is the only boat of this type known to have been lost in this area.		
Positional accuracy	Accurate.				
Type	Steamship (Clyde Puffer)	Use	Cargo carrier between Upper Clyde Ports.		
Build Date	1870	Loss Date	1893	Years in use	23
Propulsion	steam	Circumstances of Loss	En route from Rothesay to Falkirk the Louise was lost due waved inundating an open hatch		
		Loss of life	2		
Hull material	Iron	Tonnage	43gt		
Dimensions	65.2'x14.3'x5.5'	Shipbuilder	Swan & Co, Maryhill		
Surviving features and condition	UKHO (1986): Record position of loss for filing only. No surveys noted. Moir and Crawford (2004): Boiler is highest point. Stern section surviving. The remains extend up to 2m above the seabed. Remains are noted to be fragile and the wreckage is silted and breaking up. Moir and Crawford (*pers. comm.* 2015). Boiler, winch (forward part of vessel), outline of hull can be seen. Sits up to 2m from seabed.				
Identifiers	Canmore ID: 102715 UKHO ID: 4024	Seabed type and marine environment	Silty- muddy, sandy seabed, some seabed movement. Depth of seabed recorded at 35m by UKHO. Surface sediments of Gravel, Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973).		
		Investigation	Divers		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 72 Moir and Crawford (*pers. comm* 2015). UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.10. Margaret Niven

Name	Margaret Niven				
Position	55.894883, -5.4066	Basis for identification	The vessel is the only known loss of a steamlighter with a chipped stone cargo, to hit this reef and sink (Moir *pers. comm* 2015). Salvage association records indicate that Margaret Niven was sunk near Barmore Point with a cargo of crushed granite.		
Positional accuracy	Accurate (divers)				
Type	Steamlighter (Clyde Puffer) cited in some sources, iron gabbart cited in others	Use	Local cargo. Engine fitted in 1881. Before this date the vessel may have been powered by sail, representing a traditional gabbart vessel.		
Build Date	1866	Loss Date	1908	Years in use	42
Propulsion	Steam- screw. Engine fitted in 1881.	Circumstances of Loss	Carrying stone chips from Crarae to Glasgow when lost. Thought to have hit reef in poor visibility and sank.		
		Loss of life	Unknown		
Hull material	Iron	Tonnage	24nt		
Dimensions	63.2'x16.5'x5.0' (Moir and Crawford 2004: 73) 60.2'x16.6'x5.0' (cited on Clyesdite)	Shipbuilder	Port Glasgow		
Surviving features and condition	Moir and Crawford (2004): small wreck, hull largely intact. Stern, propeller and single boiler noted. Cargo (gravel ships) in place. Some scattered wreckage on seabed. Divernet (from article which appeared in Diver in 2012): the article reports that the Margaret Niven sits upright and is largely intact, with winches and bollards on the bow, rudder and propeller at the stern and stone chips in the hold. Coyle, (2013a-b, you tube videos published 2013). These videos show the winch machinery and a section of the hull of the Margaret Niven. The remains appear to be in good condition. The videos also show the stern and boiler (with a hole through which internal components are visible) of the wreck. FynePioneer (n.d). The description on the website indicates that the small wreck of the Margaret Niven includes the bow, large winches and bollards, hold with stone chip cargo, and a large boiler with a small one-cylinder engine behind. Propeller and rudder are extant, the latter hard to starboard. It is though that this may relate to the loss of the vessel, and may show the attempts to avoid the rocks on which the Margaret Niven wrecked. Images on the website date to 2014, (Roberts 2014) show the winches. Roberts (2014): Video shows the wreck including the hull and winches. Moir and Crawford (*pers. comm.,.* 2015) Bow split open. Condition probably as in *Clyde Shipwrecks* (the area is not really tidal and deterioration in this area is thought to be lesser). There are lots of elements of this wreck surviving including propeller, rudder post, vertical boiler, deck beams, winch, gravel cargo. Exley (*pers. comm* 2015). Dived in 2013. Reasonably intact. Winches situated at front of wreck. Glass dome noted by divers (*c.* 10 inches wide), appears similar to a compass but situated near winch, at front of vessel. Possibility that this feature has been moved. There is something within the glass dome (possibly compass) but it has not been possible to identify what this is.				
Identifiers	Canmore ID: 112344	Seabed type and marine	Shingle, sloped seabed. Site not subject to tidal flows. Divers indicate the wreck lies in depths of 28-		

	(documented loss ID) UKHO ID: Not recorded by UKHO	environment	30m. Surface sediments of Gravel, Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)
		Investigation	Divers Possibly sold in 1908 for salvage to Mclean & Co. Diver activity on the site. Regularly dived by Fyne Pioneer. ON on clydesite 55439
Key sources	Coyle, (2013a). *Winch on the Margaret Niven Wreck near Tarbert Scotland, you tube video.* Available online from https://www.youtube.com/watch?v=9dzQxqPYcqs (accessed 23rd February 2015). Coyle, (2013b). *Stern of the Margaret Niven Wreck, you tube video.* Available online from https://www.youtube.com/watch?v=ZTmfcBLheUY (accessed 23rd February 2015). Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Divernet, 2012. *Diver article: Fyne chance*. Available online from http://www.divernet.com/UK_Diving/1414891/fyne_chance.html (accessed 23rd February 2015). Exley (*pers. comm* 2015) Fyne Pioneer (n.d.) and Roberts (2014). *Margaret Niven.* Available online from http://www.fynepioneer.co.uk/sites/wreck/Margret_Niven-s-42.html (accessed 23rd February 2015). Moir and Crawford (*pers. comm* 2015) Moir (*pers. comm* 2015) Email correspondence, 18 February 2015. Moir and Crawford (2004: 73) Roberts, 2014. *Wreck of the Margaret Niven- Loch Fyne, you tube video.* Available online from https://www.youtube.com/watch?v=va36Pf-dsgU (accessed 23rd February 2015). http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=23520 http://www.fynepioneer.co.uk/sites/wreck/Margret_Niven-s-42.html http://canmore.rcahms.gov.uk/en/site/112344/details/margaret+niven+barmore+bay+loch+fyne+firth+of+clyde/ UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.		

16.11. Enterprise

Name	Enterprise				
Position	55.96388, -4.82137	Basis for identification	Identity uncertain, however loss records indicate that this may be the Enterprise. The boiler is also the right size.		
Positional accuracy	Accurate				
Type	Steam lighter (Clyde Puffer?)	Use	Local cargo		
Build Date	1865	Loss Date	1882	Years in use	17
Propulsion	Steam	Circumstances of Loss	Travelling to Tarbert from Greenock with herring boxes the Enterprise was in a collision with the *Strathendrick*, which hit the *Enterprise* amidships section.		
		Loss of life	2		
Hull material	Wood	Tonnage	30nt		
Dimensions	Unknown	Shipbuilder	Glasgow		
Surviving features and condition	Moir and Crawford (2004): Wreck has almost completely disappeared. Boiler survives and stands upright, with debris in the vicinity including copper sheathing (from ship's hull). Moir and Crawford (*pers. comm.,*. 2015): Boiler, bricks from furnace also noted, and copper sheathing thought to have been from the ships hull.				
Identifiers	Canmore ID: Not recorded UKHO ID: Not recorded	Seabed type and marine environment	Sandy/ muddy. Tidal flow variable (dependant on state of tide). Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973) The UKHO does not record this wreck, but comparison between the diver position and nautical chart indicate that the wreck may lie at a depth of *c.*30m.		
		Investigation	Divers.		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 27 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database.				

16.12. St Oran

Name	St Oran				
Position	55.29445, -4.94421	Basis for identification	The bell has been recovered by divers.		
Positional accuracy	Accurate				
Type	Steamship	Use	Local cargo, between ports in Scotland and Northern Ireland.		
Build Date	1911	Loss Date	1920	Years in use	9
Propulsion	Steam- screw, 2 cylinder.	Circumstances of Loss	En route from Troon to Larne in poor visibility the vessel was struck by the *Eveleen.*		
		Loss of life	Unknown		
Hull material	Steel	Tonnage	89nt		
Dimensions	122.0' x 21.6' x 9.4'	Shipbuilder	Scott & Son, Bowling		
Surviving features and condition	UKHO (1969). Wreck located- depth 132 in general depth 160ft. Scour depth 162ft. UKHO (1980): Wreck located using trisponder, least e/s depth 41.3 in gen depth 48mtrs. No scour. Dual Control Side Scan Sonar indicated the height is 6.3mtrs, length 65mtrs, approx., and the wreck is intact, lying 050/230 deg. Moir and Crawford (2004): Wreck largely intact. The engine room, stern, accommodation, forecastle and hold are visible. Deck structures, funnel and mast have collapsed. Moir and Crawford (*pers. comm* 2015). Have dived the wreck 3-4 times. The wreck lies in an area of trawling.				
Identifiers	Canmore ID: 102518 UKHO ID: 4063	Seabed type and marine environment	Silty seabed. The depth of the seabed id recorded at 48m by the UKHO. Divers have noted trawling gear in this area and indicate that it is possible the wreck may be threatened by this activity. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973) .		
		Investigation	Divers.		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 148-9 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=8926 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.13. Kyle Skye

Name	Kyle Skye				
Position	55.440283, -5.26	Basis for identification	Identification uncertain. There are a number of wrecks in this area with uncertain identities, however this wreck is more recent than the others, so identification of the Kyle Skye is probable.		
Positional accuracy	Uncertain. Wreckage dispersed and UKHO record a position 550m to the SE of this position as dead.				
Type	Steamship	Use	Cargo		
Build Date	1922	Loss Date	1940	Years in use	18
Propulsion	Steamship	Circumstances of Loss	Unknown		
		Loss of life	Unknown		
Hull material	Steel	Tonnage	116nt		
Dimensions	130.3' x 22.6' x 9.8'	Shipbuilder	Rennie, Ritchie & Newport, Glasgow.		
Surviving features and condition	UKHO (1986): Earlier UKHO entries indicate the UKHO position is the one given for the grounding of the vessel. Wreck remains were not found during investigations, but may be masked by kelp/ rocks in this area. (Note: These surveying details relate to the UKHO position for this wreck which lies *c.* 550m to the south-east of the one given by Moir and Crawford. Wreckage is recorded by divers at Moir and Crawford's position, and thus this is the one reported on here). Moir and Crawford (2004): The remains are dispersed. Part of the stern section survives, on its side. Port side is buried in shingle. Wreck remains are exposed at very low tides. Moir and Crawford (*pers. comm.,*. 2015). No further information to add.				
Identifiers	Canmore ID: 102506 UKHO ID: 4012 (dead. Position given for this record is c. 550m to the south-east of the one given by Moir and Crawford.)	Seabed type and marine environment	Rocky seabed. Comparison between diver positions and marine charts indicate the wreck remains lie at 2-5m. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973).		
		Investigation	Divers.		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 105-6 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=14077 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.14. Arran III

<table>
<tr><td>Name</td><td colspan="4">Arran III</td></tr>
<tr><td>Position</td><td>55.89158, -5.40555</td><td rowspan="2">Basis for identification</td><td colspan="2" rowspan="2">Unknown.</td></tr>
<tr><td>Positional accuracy</td><td>Accurate</td></tr>
<tr><td>Type</td><td>Steamship</td><td>Use</td><td colspan="2">Cargo carrier between Clyde ports. The vessel is defined in some places as a Clyde Puffer, and while she appears to have served the same function the dimensions of the vessel indicate that the Arran III is too large to have fitted through the canal locks, and so is not a true Puffer.</td></tr>
<tr><td>Build Date</td><td>1926</td><td>Loss Date</td><td>1932 | Years in use | 6</td><td></td></tr>
<tr><td rowspan="2">Propulsion</td><td rowspan="2">Steam screw</td><td>Circumstances of Loss</td><td colspan="2">While carrying a cargo of empty beer bottles a gale caused the vessel to ground on Barmore Island.</td></tr>
<tr><td>Loss of life</td><td colspan="2">Unknown</td></tr>
<tr><td>Hull material</td><td>Steel</td><td>Tonnage</td><td colspan="2">49nt</td></tr>
<tr><td>Dimensions</td><td>99.7’ x 21.1’ x 9.2’</td><td>Shipbuilder</td><td colspan="2">Ayrshire Dockyard Co Ltd, Irvine.</td></tr>
<tr><td>Surviving features and condition</td><td colspan="4">UKHO (1982, attributes description to BSAC Wreck Register): Wreck lies in two sections, each over 40ft long, close to the NW of Sgeir Leathann. Stands 4mtrs high in 10mtrs. Other wreckage and anchors lie around Sgeir Mhaola Cinn & Sgeir Nam Bo to the NW and SE respectively.

Moir and Crawford (2004): Thought to have been substantially salvaged after loss. Stern at 12m and bow at 5m. The wreck reportedly lies on its port side. It is well broken up, but the keel, main ribs and stern are evident and largely intact. (Note: Moir and Crawford, pers. comm 2015, indicate that they have not dived the wreck for around 20 years and there may have been deterioration in this period.)

Divernet (2006): Notes that the stern section is the only intact part of the wreck. The bows are reportedly broken up. Spars, lifeboat davits and mooring bollards are also noted. An image on the website also shows an anchor hawsepiper on the wreck.

Fyne Pioneer (undated website entry, however S. Exley is associated with Fyne Pioneer and thus his description of the condition of the wreck, given below, is taken to be the most up to date): States that the wreck has been substantially salvaged, following her loss. The vessel remains are in two sections, each at least 12m in length. The bow section is very broken up, but the keel stern and main ribs are noted to be largely intact. Other features noted aft of the bow include coasted spars, mooring bollards and lifeboat davits. There is other wreckage noted in the area including anchors.

Edinburgh Divers, BSAC. (2014). A short description of the Arran III suggest the wreck is very broken up. Metal plates are noted to survive on the wreck site, but no further detail is given.

Exley (pers. comm 2015). Wreck is well broken up. The twisted wreckage stands quite proud of the seabed, but the remains are mainly girders etc. No intact hull form.</td></tr>
<tr><td rowspan="2">Identifiers</td><td rowspan="2">Canmore ID: 103038

UKHO ID: 3979</td><td>Seabed type and marine environment</td><td colspan="2">Rocky/ sandy seabed. The UKHO record the depth of the seabed at 10m however divers indicate the Arran III lies at a maximum depth of 17m.
Surface sediments of Gravel, Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973).</td></tr>
<tr><td>Investigation</td><td colspan="2">Divers and UKHO</td></tr>
<tr><td>Key sources</td><td colspan="4">Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. The superficial deposits of the Firth of Clyde. Report of the Institute of Geological Sciences no. 73/9.
Moir and Crawford 2004: 53</td></tr>
</table>

	http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=20490 Moir and Crawford, (*pers. comm* 2015) Divernet, 2006. Deep Down Loch Fyne: Arran III (appeared in Diver, October 2006). Available online from : http://www.divernet.com/UK_Diving/158820/deep_down_loch_fyne.html (accessed 18th February 2015) Edinburgh Divers, 2014. *Loch Fyne, 11/12 Jan, posted 2014*. Available online from : http://www.edinburghdivers.org/dive-reports/lochfyne1112jan-fynepioneer (accessed 18th February 2015) Exley (*pers. comm* 2015) Fyne Pioneer (n.d.) *The Arran III*. Available online from : http://www.fynepioneer.co.uk/sites/wreck/Arran_III-s-30.html (accessed 18th February 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.

16.15. Lapwing

<table>
<tr><td>Name</td><td colspan="5">Lapwing,(ON 31405)</td></tr>
<tr><td>Position</td><td>55.33445,-5.5186</td><td rowspan="2">Basis for identification</td><td colspan="3" rowspan="2">Identified by vessel type pottery noted on the wreck site. The name ‘David Hutchinson’, the owner of Lapwing (from 1851), has been found on pottery on the wreck site.</td></tr>
<tr><td>Positional accuracy</td><td>Accurate</td></tr>
<tr><td>Type</td><td>Paddle Steamer</td><td>Use</td><td colspan="3">Local cargo passenger vessel used on the routes between Oban, Fort William, Glasgow and Inverness.
Clydesite note that the vessel was a consort to Cygnet, built to ply between Inverness and Glasgow via the Crinan Canal.
Owner history:
• Glasgow & Liverpool Steam Shipping Co.
• From 1851 David Hutcheson & Co, Glasgow
Engine, and boilers ex Helen McGregor, a wooden paddle steamer, made 1835 by Murdoch, Aitken & Co. (Caledonian Maritime Research Trust 2015).</td></tr>
<tr><td>Build Date</td><td>1848 (engine and boilers 1835)</td><td>Loss Date</td><td>1859</td><td>Years in use</td><td>11</td></tr>
<tr><td rowspan="2">Propulsion</td><td rowspan="2">Steam- paddle.
One funnel (visible on image of sister ship, PS Cygnet).
one Steeple engine 44 nhp (Caledonian Maritime Research Trust 2015)</td><td>Circumstances of Loss</td><td colspan="3">En route between Glasgow, Oban, Fort William and Inverness. Lapwing was lost in collision with another steamship, Isleman, near Sanda in poor weather. Isleman struck Lapwing forward of her starboard paddle.</td></tr>
<tr><td>Loss of life</td><td colspan="3">2</td></tr>
<tr><td>Hull material</td><td>Iron</td><td>Tonnage</td><td colspan="3">68nt</td></tr>
<tr><td>Dimensions</td><td>77.5’ x 14.5’ x 10.0’ (Moir and Crawford 2003: 45)
82.7ft x 14.6ft (Clydesite.co.uk)</td><td>Shipbuilder</td><td colspan="3">John Reid & Co. Port Glasgow.</td></tr>
<tr><td>Surviving features and condition</td><td colspan="5">UKHO (1986): The UKHO records a wreck in this area (c. 30m from Moir and Crawford’s position, given above) which they have identified as the possible Quesada. However, given its proximity to the recorded position of the Lapwing, the details are given here. The surveying details state that nothing was found in the charted position, but a small dispersed wreck was located 11.7.85 in 552003n, 053104w [OGB] using trisponder ranges. Least e/s depth 30.3 in general depth 34mtrs. Height 4mtrs, length 30mtrs, width 7mtrs. Lying 080/260degs in shallow depression. These dimensions do not match those of the Lapwing (in either Moir and Crawford’s publication or on Clydesite), and thus these survey details could relate to another wreck (possibly the Quesada) in close proximity to the Lapwing, or may be inaccurate.

Moir and Crawford (2003): Wreck lies within a 2m scour, probably created due to upstanding engine and boiler. Central section of the wreck survives well, including machinery and paddle wheel hub. The hull has fallen away in other areas.

Moir and Crawford (pers. comm 2015) Further to detail in book, the wreck remains are recorded to extend to a maximum height of 2.5m. However extensive sediment movement has been noted on the wreck, and ‘parts of the wreck continually disappear and reappear on successive visits’ (Moir and Crawford 2004: 45). Paddle hub, steering wheel hub, toilets and jars noted on the wreck.

Jackson (you tube video uploaded 2011): The video is consistent with Moir and Crawford’s</td></tr>
</table>

<table>
<tr><td></td><td colspan="3">description of the wreck. Features noted comprise a paddlewheel hub, engine block and cylindrical boiler. Plating and structural remains are also visible. The crankshaft and drive shafts survive. Possible bulkheads are also visible, and the outer hull of the vessel. Debris on the seabed appears similar in form to the remains of the paddle wheel observed on the Iona I, and may represent comparable remains.

Fyne-Diving (n.d.): Online sources show photographs of the wreck remains, on which the paddlewheel hub and engine room are visible in addition to much scattered debris.

Numerous artefacts and features have been recorded from this wreck, including ones reported to the Receiver of Wreck during the 2001 amnesty, and noted by divers on the site. The latter include crockery, a basin, steering wheel hub, toilet and jars.</td></tr>
<tr><td rowspan="2">Identifiers</td><td rowspan="2">Canmore ID: 116510 (for documented loss)
UKHO ID: Wreck in this location is recorded as the Quesada (possibly),UKHO ID: 3907</td><td>Seabed type and marine environment</td><td>The wreck lies at 36m on a seabed of broken shell, sand and shingle. Strong tidal currents run around the wreck, and have created a c. 2m scour. The depth of the seabed is recorded at 34m by the UKHO. Surface sediments of Sand recorded by the Institute of Geological Sciences in the area of Lapwing with an area of mud and sand nearby (Deegan et. al. 1973).</td></tr>
<tr><td>Investigation</td><td>Divers and possible UKHO</td></tr>
<tr><td>Key sources</td><td colspan="3">Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. The superficial deposits of the Firth of Clyde. Report of the Institute of Geological Sciences no. 73/9.

Caledonian Maritime Research Trust, 2015. Lapwing. Available online from: http://www.clydeships.co.uk/view.php?ref=19010 (accessed 2 March 2015)
Jackson (2011), Dive on the Paddle Steamer Lapwing, youtube video. Available online from: https://www.youtube.com/watch?v=57cdEKy5f60 (accessed 24th Feb 2015)
Moir and Crawford 2003: 45
http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=19918
http://www.fyne-diving.co.uk/pages/wreck.html
Moir and Crawford (pers. comm 2015)
UKHO Wrecks and Obstructions Database. Information from ‘surveying details’ field. Extracted 9th December 2014.</td></tr>
</table>

16.16. Kintyre

Name	Kintyre				
Position	55.88659, -4.89979	Basis for identification	Identification is based on known losses in this area and features of the wreck remains.		
Positional accuracy	Accurate				
Type	Steamship	Use	Local Cargo passenger used on the Clyde		
Build Date	1868	Loss Date	1907	Years in use	39
Propulsion	Steam- screw	Circumstances of Loss	En route from Tarbert to Campbeltown the *Kintyre* was Lost in collision with a steamer, the *Maori*, which was on speed trials.		
		Loss of life	1		
Hull material	Iron	Tonnage	94nt		
Dimensions	84.7' x 22.9' x 11.5'	Shipbuilder	Robertson & Co, Greenock.		
Surviving features and condition	UKHO (1982, description attributed to P. Moir): Wreck lies, with hull virtually intact and some superstructure aft of forward hold, on steep sand slope. Bow lies at the shallowest depth (c. 36m). UKHO (1986 using trisponder): Least e/s depth 34m in general depth of 33-43mtrs. No scour. Dual Control Side Scan Sonar recorded remains 4m in height, length 50mtrs. Lying 100/280deg, upright and on a steeply sloping seabed. UKHO (2000, description attributed to 'Diver Magazine', April) Plating fallen away from hull. Hull more intact on port side. Wreckage embedded in seafloor. Large gash caused by collision on starboard side just behind engine room. Roof of engine room missing giving good view of large boiler. Moir and Crawford (2004): Wreck largely intact, apart from an area aft of the engine room on the starboard side. Clipper bow extant. Divers have noted deterioration since 1980s. Telegraph and other features recovered from wreck. Features including toilets and winch noted. Nicolson (2006): Features noted include the bow of the vessel, three toilets around the midships area. Scubadave1701 (2009,video uploaded to you tube in 2009): Show a short clip of the hull of the wreck with framing visible, plating has fallen away. Scobie (2013): At the bow only the ribs survive. The plating has fallen away in this area. Wheelhouse no longer extant. Wreck has deteriorated down to deck level. Split at fore end of aft hold. The stern end has broken up further, and possibly slid deeper. Brass toilet fittings noted. However brass cannon, the ship's bell, portholes and brass rims, passageway edges and toilets have all been removed since the 1980s (Scobie *pers. comm* 2015). Etchells (2014): Dived stern of the vessel and bollard protruding from seabed in *c*. 50m depth toward end of stern. Noted considerable structural remains associated with the vessel. Spine of the wreck noted. Sewell (*pers. comm.* 2015). Last dived 2013/2014. The shape of the wreck can clearly be made out. The bow is prominent and well defined. Toilets are visible amidships. The wreck stands proud of the seabed and is quite intact. Moir and Crawford (*pers. comm* 2015): The bow and the deck are silting up. Stern has broken up. Plates have fallen away but frame survives. Bowsprit present.				
Identifiers	Canmore ID: 102741	Seabed type	Sandy. Tidal area, reasonably fast currents run		

	UKHO ID: 4099	and marine environment	around the wreck. Wreck lies on a steep slope (c. 30- 60m). the UKHO record the general depth of the seabed in this area at 38m. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)
		Investigation	Divers.
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Etchells, G. 2014. *Finstrokes: Kintyre.* Available online from : http://www.finstrokes.com/shore-dive/38-kintyre.html (accessed 18th Feb 2015) Moir and Crawford 2004: 66-67 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=20853 http://www.finstrokes.com/shore-dive/38-kintyre.html Sewell (*pers. comm.* 2015). Scobie (*pers. comm* .2015) Scubadave1701 (2009, video uploaded to you tube in 2009) *Kintyre Wreck, Clyde, Scotland April 2009. You tube video.* Available online from: https://www.youtube.com/watch?v=0kTcBLpHi-8 (accessed 23rd Feb 2015) Moir and Crawford (*pers. comm* 2015) Nicolson, J (2006). *Finstrokes: Kintyre.* Available online from : http://www.finstrokes.com/shore-dive/38-kintyre.html (accessed 18th Feb 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.		

16.17. Beagle

Name	Beagle				
Position	55.78827, -4.94395	Basis for identification	Ships bell.		
Positional accuracy	Accurate.				
Type	Steamship	Use	Cargo passenger vessel working mainly between Belfast and Glasgow. First class cabins available. Owned by G. & J. Burns. (Moir and Crawford 2004; Clydeships.co.uk)		
Build Date	1864	Loss Date	1865	Years in use	1
Propulsion	Steam-screw	Circumstances of Loss	Inbound to Glasgow, collided with the SS Napoli and sank quickly. Napoli tore a hole in the Beagle aft of the forecastle.		
		Loss of life	0		
Hull material	Iron	Tonnage	454gt		
Dimensions	185.9' x 26.3' x 13.6'	Shipbuilder	Tod McGregor, Patrick		
Surviving features and condition	UKHO (1976): Wreck located, least depth by leadline 36mtrs in general depth 39.6mtrs. Approx 125ft long, 30ft beam. Upright on even keel. Lies 340/160degs. No superstructure or upper deck. Hull only. UKHO (1983, attributes information to Moir): Hull intact and upright with average height 2mtrs above seabed. No superstructure and little decking or cross members remain. Collision damage port bow. UKHO (1985, attributes information to diver report from Clawson, 1985): Wreck stands 5.5mtrs high in general depth 32mtrs. High points are solid post at bow and emergency steering position at stern. UKHO (1986): Investigated using Trisponder least e/s depth 26.6 in general depth 32mtrs. No scour. Dual Control Side Scan Sonar measured the height at 4.5mtrs. Lying 350/170deg, upright with apparently nothing standing above deck level. Moir and Crawford (2004): Survives well. Lies on an even keel. Stem extends 4.5m above the seabed. Forecastle and main anchor noted, and bow steam winch. Forehold area discernible. Collision damage on port side visible. Russel (online video, uploaded to youtube 2007). Shows sections of the hull standing proud of the seabed. Marine growth evident. Scobie (*pers. comm*. 2015). Last dived the *Beagle* in 2013. *Beagle* is upright and extends to 3-4m above the seabed. The wreck has deteriorated down to the gunwales all round. Collision hole visible. Boilers and engine are all that remain in the central area. A brass cannon ,probably a signal gun, taken from the stern area is now with the Scottish National museum. Sewell (*pers. comm*. 2015): Last dived in 2013. RS has done survey work on the *Beagle.* A large section of the hull is missing on the port side. Features of the wreck noted include the bow and cabin area. Aft of this there is a large empty space. An anchor is visible toward one end of the wreck (possibly the bow), and winch wheels are present. Railing is also present, and a section of the railing is missing near the port side toward the bow. Moir and Crawford (*pers. comm.,*. 2015): Note the high quality of the fittings. Deck previously surviving, scupper, ships wheel. High quality features noted on the wreck including a cast iron stand with 2 dolphins, in which the ship's bell fitted. Portholes with glad and deadlight also noted. Last dived by Moir in 2013/ 2014. Deck has fallen in. Boiler stands. Stern features surviving, signal cannon. Rapid deterioration noted. Crockery in area. (divers note that G & J Burns, owners of the Beagle, were involved in the consolidation of a number of shipping				

<table>
<tr><td></td><td colspan="3">companies, into the Cunard Line, and that crockery on this wreck has a crest similar to the Cunard Line crest).

Fyne Pioneer (nd. Undated website information): Hull form extant. The bow post and emergency steering position at the stern form the wreck's high points. Other features noted include the boiler stack, engine room, anchor and steam winch (toward the bow), propeller and rudder. Collision damage visible. Cross-decking and support structure has largely deteriorated. The aft bulkhead has disintegrated. Superstructure of the vessel has collapsed. The website also indicates that the following material has been recovered from the wreck and declared to the Receiver of Wreck: Bronze or brass signal cannon, two cast iron sides of carriage, portholes (one with a deadlight), pottery and cutlery.</td></tr>
<tr><td rowspan="2">Identifiers</td><td rowspan="2">Canmore ID: 102739
UKHO ID: 4095</td><td>Seabed type and marine environment</td><td>Muddy seabed. The depth of the seabed is recorded at 32m by the UKHO. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)</td></tr>
<tr><td>Investigation</td><td>Divers and UKHO</td></tr>
<tr><td>Key sources</td><td colspan="3">Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. The superficial deposits of the Firth of Clyde. Report of the Institute of Geological Sciences no. 73/9.
Fyne Pioneer (n.d) The Beagle. Available online from http://www.fynepioneer.co.uk/sites/wreck/Beagle-s-29.html (accessed 20th Feb 2015).
Moir and Crawford 2004:54
http://www.clydeships.co.uk/view.php?ref=22616
Moir and Crawford (pers. comm 2015)
Russel, 2007. You tube video. Available online from https://www.youtube.com/watch?v=tY5cGGhyo5w (accessed 20th Feb 2015).
Sewell (pers. comm 2015)
Scobie (pers. comm 2015)
UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.</td></tr>
<tr><td>Notes</td><td colspan="3">Lloyds register from 1864 and 1865 doesn't have records of the Beagle. It has not been possible to locate builders records of photographs, but a painting shows the vessel sinking. However the Mirimar Ship Index confirm the details given in the table above (accessed 16th Feb 2015). Launched 21 6 1864.</td></tr>
</table>

16.18. Davaar

Name	Davaar				
Position	55.28333, -5.54106	Basis for identification	Identified by engine makers plate (Dunsmuir and Jackson, Govan, Engine Works, Glasgow).		
Positional accuracy	Accurate				
Type	Steamship	Use	Local passenger cargo. On maiden voyage from Clyde to Limerick, Ireland.		
Build Date	1878	Loss Date	1878	Years in use	0
Propulsion	Steam	Circumstances of Loss	En route from Glasgow with a general cargo and 2 passengers the vessel ran aground on Paterson's Rock.		
		Loss of life	Unknown		
Hull material	Iron	Tonnage	268nt		
Dimensions	165' x 24' 11'	Shipbuilder	Campbeltown Shipbuilding Co Ltd.		
Surviving features and condition	UKHO (2010, attributes description to Moir and Crawford, *Argyll Shipwrecks*, 1994 Edition). Due to salvage activities the only large item remaining is the boiler amid scattered & flattened debris in gen depth 12mtrs. Moir and Crawford (2003) The vessel was heavily salvaged. A boiler remains in addition scattered and flattened debris. The wreck lies in an area where numerous wrecks are known. Moir and Crawford (*pers. comm* 2015). Wreck condition thought to be as in book. Very broken up, boiler surviving.				
Identifiers	Canmore ID: 102520 UKHO ID: 4025	Seabed type and marine environment	Rocky. The depth of the seabed is recorded at 12m by the UKHO. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	Divers.		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2003: 29 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=20505 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.19. Lady Margaret

Name	Lady Margaret				
Position	55.698055, -4.904445 (Canmore); 55.69911, -4.90562 (Dead UKHO posn for cannon)	Basis for identification	Identification is based on historical documentation of loss position and presence of 18th century table-top slab on seabed.		
Positional accuracy	Uncertain. But ADU have dived the site. UKHO refer to ADU dives. Thus second position (UKHO) may be most accurate.				
Type	West Indiaman	Use	International cargo		
Build Date	1769	Loss Date	1770	Years in use	1
Propulsion	Sail	Circumstances of Loss	Carrying mixed valuable cargo to Virgina the Lady Margaret was hit by a storm and hit the rocks south of Portencross Castle. The ship was scuttled on the rocks in order that the owners could salvage the valuable cargo.		
		Loss of life	Unknown		
Hull material	Wood	Tonnage	Unknown		
Dimensions	Unknown	Shipbuilder	Unknown (but owned by Mr George Kippen of Glasgow)		
Surviving features and condition	No seabed remains are recorded by the UKHO in the exact position given by Canmore for the Lady Margaret however *c.* 120m to the north the UKHO record diver sightings of a wreck from which cannon are thought to have been salvaged in 1790. Documentary evidence records the loss of a Spanish vessel and the Lady Margaret in this location. UKHO (1989, information attributed to G. Spence): Cannon found at depth of 3mtrs and magnetic anomalies detected in 4mtrs. Application made to have site designated under terms of 1973 PWA. ADU 1989. Following the application for the designation of the possible Spanish wreck subsequent surveys by the ADU in 1989 including a diver and magnetometer survey, recorded no evidence for the Spanish wreck. Only a table-top tomb slab from an 18th century wreck was recorded (from UKHO ID 4084). Additionally the magnetometer survey recorded an anomaly on the rocks near to the table-top tomb slab, which may represent a small cannon, concreted to the rocks. Other anomalies were also identified further offshore. These were buried in sediment and thus the nature of their origins was not determined. There was found to be no evidence for a Spanish Armada wreck but the evidence recorded on the wreck site may be indicative of the presence of an 18th century wreck, potentially the Lady Margaret (Dean 1989). UKHO record was amended to dead. Moir and Crawford (1999): Seabed remains are reported to include small pockets of concretion and a large inscribed tombstone. Moir and Crawford (2004): No account of diving the site. However, salvage history is discussed. The cargo is reported to have been salvaged following the loss of the vessel, which included scuttling the vessel to remove cargo from holds. After which the vessel is thought to have broken up on the rocks. Moir and Crawford (*pers. comm* 2015) A stone slab reportedly survives on the seabed. Pewter				

	artefacts and other objects are reportedly held at the Dick Institute museum (see list of holdings below). A cannon is also reported at Portencross Castle and may be from the Lady Margaret (The Friends of Portencross Castle 2007). The ADU report indicates that the cannon post-dates the Armada and probably dates from the late 17th/early 18th century (Dean 1989). A list of the holdings of the Dick Institute, and information from museum staff (Morgan, *pers. comm.,* 2015), are included here. **List of holdings relating to the Lady Margaret held by the Dick Institute** East Ayrshire Council Collection – Dick Institute, Kilmarnock. Recovered from sea bed off Portencross by I. Winchester 1981. Deposited at Dick Institute 1982.HM Customs are referred to on record cards. AR B55 Brass handle or button or buckle? AR B 56 " AR B 57 " AR B 58 " AR B 59 Brass handle AR B 60 " hinge AR B 61 " handle AR B 62 " " AR B 63 " fragment AR B 64 " fragments AR B 65 Lead Nameplate J Kelly saddler Girven AR B 66 Brass pin AR B 67 " pin AR B 68 Bronze buckle AR B 69 " AR B 70 Buckle AR B 71 Brass handle/ button/ buckle? AR B 72 " AR B 73 " AR B 74 " AR B 75 Fragments of a brass buckle AR B 76 Brass button AR B 77 " AR B 78 " tacks AR B 79 Pewter? fragment AR B 80 Brass hinge AR B 81 Lead shot AR B 82 Small lead shot AR B 83 Bronze weight AR B 84 Pewter table spoon AR B 85 " AR B 86 " AR B 87 Brass cooking pot leg AR B 88 Bronze lid AR B 89 Pewter plate AR B 90 Small tankard (pewter) AR B 91 Brass tacks AR C 27 iron bar AR C 28 cooking pot iron fragment AR C 29 " " " " AR C 30 " " " "

	AR C 31 " " " " AR C 32 " " " " AR C 33 iron fragments AR C 34 iron cooking pot fragment AR C 35 " " " " AR C 36 " " " " AR C 37 " " " " AR C 38 iron button AR E 155 pottery sherd AR E 156 " " AR E 157 " " AR E 158 " " AR E 159 " " AR E 160 " " AR E 161 " " AR E 162 " " AR E 163 " " AR E 164 " " AR E 165 " " AR E 166 base of plate? Pottery sherd AR E 167 " " " " AR E 168 " " " " AR E 169 pottery sherd AR E 170 " " AR E 171 rim pottery sherd AR E 172 " " " AR E 173 pottery sherd AR E 174 " " AR E 175 maiolica pottery sherd AR E 176 base of plate pottery sherd AR E 177 pottery sherd AR E 178 base of plate? pottery sherd AR E 179 pottery sherd AR E 180 rim pottery sherd AR E 181 " " " AR E 182 " " " AR E 183 pottery sherd AR E 184 " " AR E 185 " " AR E 186 " " AR E 187 " " AR E 188 pottery sherd AR E 189 " " AR F 13 cufflink, glass and brass AR F 14 missing AR F 15 cufflink, glass and brass AR F 16 glass fragment of cuff link AR F 17 " " " " glass and brass AR F 18 glass and brass cuff links AR K 14 tooth AR L glass nameplate seal AR L " " " AR L glass bottle piece

<table>
<tr><td></td><td colspan="3">AR Z fossilised brush imprint

Transcribed from handwritten list 25.03.2015 by K. Bruce L. Morgan (East Ayrshire Leisure Trust Cultural Services). Date of original list and circumstances under which this list was compiled is uncertain.
Discussion with Mr Morgan (pers. comm. 2015) indicates that references to bronze, brass etc should be read as ‘copper alloy’ because no sophisticated technical examination is known to have taken place, and these terms seem to have been arbitrarily assigned. Lots of these metallic objects may be associated with horse harnessing and shoes which were part of the cargo of the ship. The material corresponds closely to the cargo which the Lady Margaret was carrying and which is on record.

Mr Morgan noted that ‘AR E 175 refers to a maiolica sherd. It was suggested that a piece of pottery within this group might have come from the Portencross Spanish wreck as it resembled Hispano-Moresque ware. The Lady Margaret is recorded as carrying delft ware and the ceramic fragments which I have seen confirm this. As delft and Hispano-Moresque are both basically tin glazed earthenware it is possible that a piece of delft has been mistaken for something more exotic. The ceramic fragments which I have seen, have localised accretions of iron corrosion products but there seems to be a lighter staining across the glaze which I believe is also oxidised iron and this creates a faintly iridescent effect. This may have been misidentified as a Hispano-Moresque lustre.’ However, Mr Morgan noted that all of this material needs to be looked at by the appropriate experts in order to verify this discussion.

AR F 13 – AR F 18 are identified as cuff links-This seems improbable.(Moran, *pers. comm*., 2015)

Discussion with Elizabeth Colquhoun (*pers. comm.,* 2015), West Kilbride Museum, regarding the holdings of the museum relating to the Lady Margaret. EC gave a description of the holdings for the Lady Margaret at West Kilbride Museum. These include copies of documentation, including a letter of manifest, details of the cargo of the ship, details of the launch of the vessel (at Greenock) and details of the disagreements between the ship’s owner and others, following the wrecking of the vessel. The museum also holds artefacts from divers including bottles, lead shot etc. which are from this wreck.</td></tr>
<tr><td>Identifiers</td><td>Canmore ID: 112271

UKHO ID: 4084 (ID for cannon)</td><td>Seabed type and marine environment</td><td>The depth of the seabed in this area is recorded as 3m by the UKHO. Surface sediments of Sand and Gravel are recorded by the Institute of Geological Sciences (Deegan et. al. 1973). The ADU reported that the seabed was rocky from the inshore area down to 9m, from which depth sands were found, and silt occurred on the seabed to seabed depths of c. 25m.
Kelp and other marine growth was also noted on site. The ADU also noted that there were no notable currents inshore and further offshore they were limited such that they did not affect diving operations (Dean 1989).</td></tr>
<tr><td></td><td></td><td>Investigation</td><td>Divers (archaeological and recreational); magnetometer survey (archaeological).</td></tr>
<tr><td>Key sources</td><td colspan="3">Colquhoun, E. (*pers. comm.,* 2015), West Kilbride Museum
Dean, M. 1989. Report No. ADU 043. *Assessment of the Possible Armada Wreck Site at Portencross, Ayrshire.*
Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9.
Moir and Crawford 1999. Tall Shipwrecks. *The Scottish Diver.* July/ August 1999.
Moir and Crawford 2004: 71</td></tr>
</table>

	Morgan, B. (*pers. comm.*, 2015),Dick Institute. #The Friends of Portencross Castle, 2007. *Portencross Castle, Portencross, Conservation Management Plan.* *http://www.portencrosscastle.org.uk/documents/PortencrossCMP.pdf* Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.

16.20. Charlemagne

Name	Charlemagne				
Position	55.359167, -5.5195	Basis for identification	Loss location. Remains in this location of a large sailing vessel with general cargo. Additionally a figurehead, recovered in the 19th century may be from this wreck, but this is not verified (Moir *pers. comm* 2015). There have been other losses in this location (RCAHMS note: *Elizabeth* [20th century Steamship]; *Minerva* [19th century Schooner]; *Clyde* [19th century Schooner] and *Dottrel* [20th century Steamship]).		
Positional accuracy	Unknown, accurate to general area.				
Type	Sailing ship	Use	International cargo carrier.		
Build Date	1857	Loss Date	1857	Years in use	0
Propulsion	Sail	Circumstances of Loss	On Maiden voyage to Australia with a valuable cargo including horses and breeding sheep, and 10 passengers, she ran aground on the rocks south of Campbeltown, apparently due to a faulty compass.		
		Loss of life	0		
Hull material	Iron	Tonnage	1017grt		
Dimensions	195' x 30' x 21' (Moir and Crawford 2003: 27); the measurements 205.1' x 33.2' x 21.0' are cited on Clydesite.	Shipbuilder	Alexander Stephen & Sons Glasgow,		
Surviving features and condition	There are no UKHO records in this area. Partial salvage occurred following the loss of the vessel (Moir and Crawford 2003) and may have included sails and cargo. Moir and Crawford (2003): Wreck remains lay close to shore. Some larger sections of hull and metal remains survive on areas of the reef. Artefacts recorded on the wreck include broken pottery, bottles and clay pipes. Moir and Crawford (*pers. comm* 2015): The remains lie on a reef, and are principally situated in the sandy gulley areas between the rocks. Not much of the structure of the ship survives, although the pieces that do survive lie within the gulley's. The site is marked by artefacts. It is though that the bottles and clay pipes which scatter the seabed in this area may have been part of the cargo. The ship's figurehead, sold at an Edinburgh antique shop, may be at Campbeltown Museum. P. Moir has video of the site.				
Identifiers	Canmore ID: 114927 UKHO ID: Not recorded by UKHO	Seabed type and marine environment	Reef and sandy gullies. Rock and shingle also noted. Comparison between diver records of wreck site location and nautical charts indicate the remains lie at 2-10m. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	Divers		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford (2003: 27-28) Moir and Crawford (*pers. comm* 2015) Moir (*pers. comm* 2015) Email correspondence, 18 February 2015. http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=3024 UKHO Wrecks and Obstructions Database.				

16.21. Lady Isabella

<table>
<tr><td>Name</td><td colspan="5">Lady Isabella</td></tr>
<tr><td>Position</td><td>55.711933, -4.9583</td><td rowspan="2">Basis for identification</td><td colspan="3" rowspan="2">Loss position. The Lady Isabella is the only large sailing vessel to be lost in this area, and hull not salvaged. The location of the remains correlates with the general description of the loss, and a photograph depicting the stranded vessel (Moir and Crawford 2004: 70).</td></tr>
<tr><td>Positional accuracy</td><td>Considered accurate (Moir and Crawford's position) but alternate positions are given in other sources. See below.</td></tr>
<tr><td>Type</td><td>3 masted iron sailing ship</td><td>Use</td><td colspan="3">Cargo vessel
Owner history:
North British Shipping Company, Glasgow.
1883 Henry Grierson (G. Cowper, manager), Glasgow.
1885 Henry Grierson became manager.
By 1899 G. Gordon, Glasgow.</td></tr>
<tr><td>Build Date</td><td>1882</td><td>Loss Date</td><td>1902</td><td>Years in use</td><td>20</td></tr>
<tr><td rowspan="2">Propulsion</td><td rowspan="2">Sail</td><td>Circumstances of Loss</td><td colspan="3">En route from New Caledonia to the Clyde with a cargo of nickel ore and a crew of 23. On this journey the vessel had hit a number of storms and had lost 100tons of cargo and a crew member. The vessel was finally wrecked on Little Cumbrae.</td></tr>
<tr><td>Loss of life</td><td colspan="3">Unknown</td></tr>
<tr><td>Hull material</td><td>Iron * steel plates noted in area of wreck.</td><td>Tonnage</td><td colspan="3">1396nt</td></tr>
<tr><td>Dimensions</td><td>255.7' x 38.3' x 20.6'</td><td>Shipbuilder</td><td colspan="3">A McMillan & Son, Dumbarton</td></tr>
<tr><td>Surviving features and condition</td><td colspan="5">UKHO (1976, description attributed to C. Easton, University of Glasgow): Wreck lies off Gull Rock. She lies in 30-40ft of water, at an angle to the shore. Wreck very broken up & only a mass of steel plates remain. Appears to be a metal-hulled sailing ship.

UKHO (1986). Wreck located during a survey.

Moir and Crawford (2004): Part of the keel and plating remain, as do pieces of machinery, wood and ropes, and non-ferrous metal. Extensive salvage by James Gush, of Greenock following wrecking.

Calvin89m (2011, youtube video uploaded 2011.) Video is at speed, Lady Isabella is shown from around 3mins 14 seconds in. The video shows quite substantial sections of ribs and keel surviving, with some plating. Spars, ropes and debris are also evident on the wreck site.

McGuire (2013, youtube video uploaded 2013): The video shows the wreck of the Lady Isabella. The hull is broken up but relatively large sections survive, with plating and ribs and framing. The plating is deteriorating exposing ribs in some areas. Riveting is visible on some of the plates, and decking can be seen.

Fyne Pioneer (2014). Images, dating to 2014, show the wreck remains including ribs, hull and areas of intact wooden decking. An undated report of the wreck on the same website indicates the remains extend to up to 2m above the seabed. Remains are broken include some hull plates, spars and part of the keel. Machinery, wooden decking and ropes are noted, in addition to some artefacts.

Moir and Crawford (pers. comm., 2015): Note that condition is thought to be the same as in Moir and Crawfords' book, but more detail on the remains discussed: Capstan, rigging, spars, dead eyes, steel rope, wooden decking and machinery have been noted in addition to artefacts. Quite large pieces of hull remaining including hull plates and ribs. Part of the keel</td></tr>
</table>

<table>
<tr><td></td><td colspan="3">also remains. Remains sit up to 1m above seabed. The rudder can be seen at c. 15m. Although the remains are jumbled some features are discernible.
Sewell (pers. comm.,. 2015). Wreck last dived around December 2014. Outline of the wreck can be seen. Plating is visible, and entrances into the holds are visible. It is thought that the wreck has sunk into the seabed. Remains stand up to 1m above seafloor. Metal debris is noted on the site.</td></tr>
<tr><td rowspan="2">Identifiers</td><td rowspan="2">Canmore ID: 112255 (this position is c. 650m to the south-south-east of Moir and Crawford's position)

UKHO ID: 4087 (this represents remains of an Unknown Steel SV c 100m to the SE of Moir and Crawfords position. May relate to the Lady Isabella.</td><td>Seabed type and marine environment</td><td>Sloping sandy and rocky. The depth of the seabed in this area is recorded at c. 15m by the UKHO. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)</td></tr>
<tr><td>Investigation</td><td>Divers.</td></tr>
<tr><td>Key sources</td><td colspan="3">Calvin89m, 2011. You tube video. Available online from https://www.youtube.com/watch?v=L8UY6CasKEM (accessed 20th Feb 2015).
Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. The superficial deposits of the Firth of Clyde. Report of the Institute of Geological Sciences no. 73/9.
Fyne Pioneer (2014.) Lady Isabella. Available online from http://www.fynepioneer.co.uk/sites/wreck/Lady_Isabella-s-107.htmll (accessed 20th Feb 2015).
McGuire (2013), The Lady Isabella 20130119_MK2. You tube video. Available online from https://www.youtube.com/watch?v=OxgvFCo3iIw (accessed 23rd Feb 2015).
Moir and Crawford 2004: 69-70
http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=12338
http://www.fynepioneer.co.uk/sites/wreck/Lady_Isabella-s-107.html
http://www.clyde-scuba.co.uk/wrecks.htm#lady_isabella
https://www.youtube.com/watch?v=L8UY6CasKEM
Moir and Crawford (pers. comm 2015)
Sewell (pers. comm.,. 2015)
UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.</td></tr>
</table>

16.22. Auchmountain

Name	Auchmountain				
Position	55.97547, -4.76454	Basis for identification	Loss location. Following the loss of *Auchmountain* the remains were considered a hazard to shipping and after attempts to remove failed, the wreckage was covered by dredging's.		
Positional accuracy	Unknown (position marks area of wreck now covered by dredgings.				
Type	Barque	Use	International cargo carrier.		
Build Date	1892	Loss Date	1892	Years in use	0
Propulsion	Sails	Circumstances of Loss	On maiden voyage from Glasgow to Sydney, she was moored to a powder buoy off Gareloch whilst 20 tons of gunpowder were loaded on-board. A fire started and the vessel exploded.		
		Loss of life	Unknown.		
Hull material	Steel	Tonnage	1456gt.		
Dimensions	235.5' x 36.0' x 21.6'	Shipbuilder	Russel & Co., Port Glasgow		
Surviving features and condition	UKHO (1983): The UKHO note that the wreck is shown on a chart dating to 1896 at 555832N, 044548W and sank at the tail of the bank, Greenock. Dispersed in 1893 and covered with sand dredging's. Foul area may remain. UKHO (1993): Nothing found by surveys, wreck amended to dead. Moir and Crawford (*pers. comm* 2015) note that parts of the wreck may survive beneath the dumping's. However, given the force of the explosion which sank the vessel (which was heard over twenty miles away, and papers from the vessel were found 6 miles away [Moir and Crawford 2004: 19]) remains would likely have little coherence and may just be debris.				
Identifiers	Canmore ID: 102758 UKHO ID: 4153	Seabed type and marine environment	Depth of seabed in this area is recorded at 21m by the UKHO.		
		Investigation	UKHO		
Key sources	Moir and Crawford 2004: 58 Moir and Crawford (*pers. comm* 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=17620 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.23. Elmbank

Name	Elmbank (O.N. 97622)				
Position	55.432033333, -5.188316667 (position approximate)	Basis for identification	Identification of the remains based on diving in location of wreckage in historic photograph (Moir and Crawford 2000: 100). Moir and Crawford (1999: 13) note 'small…sections of wreckage remain in shallow water' at this location. Other wrecks are known along this stretch of coastline and the UKHO record the possible wreck of the *Glenaan* (HO Identifier 3914) along the same stretch of coastline, though approximately 2km from the Elmbank position. The RCAHMS also record numerous losses in the area.		
Positional accuracy	Position approximate				
Type	Barque, 4 masted.	Use	International cargo carrier.		
Build Date	1890	Loss Date	1894	Years in use	4
Propulsion	Sail	Circumstances of Loss	En route from Le Havre to Greenock and under tow by tug *Hercules* the vessel was pushed, in a violent storm, onto Arran at Shannochie.		
		Loss of life	0		
Hull material	Steel (BOT 1894)	Tonnage	2188nt		
Dimensions	279.0' x 41.9' x 24.25'	Shipbuilder	Russel & Co. Port Glasgow		
Surviving features and condition	Initial salvage is thought to have been undertaken, but it is thought that little other than the ropes and fittings were retrieved (Moir and Crawford 2004: 100) and the vessel became a total loss. Moir and Crawford (1999): Some sections of wreckage have been noted at this location. Moir and Crawford (2004): No reports of wreck remains. Moir and Crawford (2015): Surviving remains are not substantial, and the wreckage appears to have been well salvaged.				
Identifiers	Canmore ID: 112472 (documented loss record) UKHO ID: -	Seabed type and marine environment	The depth of the seabed in this area is c. 2-5m, as indicated by comparison of diver location of the wreck site and nautical charts. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	Divers		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford (*pers. comm* 2015) Moir and Crawford 1999. Tall Shipwrecks. *The Scottish Diver.* July/ August 1999. Moir and Crawford (2004: 99-100) Board of Trade, 1894. *Wreck report for 'Elmbank'*, 1894. http://www.plimsoll.org/images/16375_tcm4-219209.pdf http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=16667 UKHO Wrecks and Obstructions Database. Extracted 9th December 2014.				

16.24. Iona I

Name	Iona I				
Position	55.96833,-4.78555	Basis for identification	Detailed study (Wessex Archaeology 2009)		
Positional accuracy	Accurate				
Type	Paddle Steamer	Use	Passenger steamer and blockade runner in the American Civil War.		
Build Date	1855	Loss Date	1862	Years in use	7
Propulsion	Steam- paddle. Oscillating engines. Two funnels.	Circumstances of Loss	Run down while en route out of the Clyde. For full details see Wessex Archaeology (2009)		
		Loss of life	0		
Hull material	Iron	Tonnage	325grt		
Dimensions	225.2' x 20.4' x 9.0'	Shipbuilder	J & G Thomson, Govan,		
Surviving features and condition	Substantial sections survive. For full details see Wessex Archaeology (2009)				
Identifiers	Canmore ID: 102456 UKHO ID: 4155	Seabed type and marine environment	Sand and silt with some broken shell and gravel. For further details see Wessex Archaeology (2009)		
		Investigation	Divers , geophysical survey and UKHO. The site has been subject to a detailed undesignated wreck assessment (Wessex Archaeology 2009).		
Key sources	Wessex Archaeology 2009 Moir and Crawford 2004: 35-7 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=6478				

16.25. Lady Gertrude

Name	Lady Gertrude				
Position	55.86742, -5.02367	Basis for identification	Loss position.		
Positional accuracy	Accurate.				
Type	Paddle Steamer	Use	Gillies & Campbell's flagship on the route between Wemyss Bay and Rothesay		
Build Date	1872	Loss Date	1877	Years in use	5
Propulsion	Steam- paddle. 1 cylinder, diagonal engine. Single funnel	Circumstances of Loss	Mechanical problem encountered when the captain attempted to reverse the engines caused the Lady Gertrude to run aground. Attempts were made to refloat the vessel but she broke her back.		
		Loss of life	0		
Hull material	Iron	Tonnage	167 gt		
Dimensions	190.0' x 18.0' x 7.6'	Shipbuilder	Blackwood and Gordon		
Surviving features and condition	UKHO (1975): Outline and centre spine of wreck sticking up through sand in Achavoulin Bay, in 555203n, 050121w [ogb]. length approx. 200ft. lying n/s. (HMS hecate, aerial photo, index 1114/171, dtd 22.3.75). Hulk, pecked outline. UKHO (1978): Wreck thought to have been covered by sand. Moir and Crawford (2004): Salvage conducted and engines removed. It is reported that sections of the hull can occasionally be seen above the sand. The outline and spine can be seen on aerial photographs dating to 2005, 2010, 2011 and 2012. Sand cover is variable and the hull is most exposed on the 2005 aerial photograph (information from google earth, historic view). Moir and Crawford (*pers. comm* 2015). Metal debris near pier may be from this wreck, but not definite.				
Identifiers	Canmore ID: 102689 UKHO ID: 3951	Seabed type and marine environment	Sand. The wreck remains are sometimes exposed at low tide (depending on sand cover).		
		Investigation	UKHO, divers. Reports indicate that when sands uncover the wreck, the remains are visible at low tide.		
Key sources	Moir and Crawford 2004:68-9 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=14918 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.26. Princess of Wales

Name	Princess of Wales				
Position	55.87576, -4.90118	Basis for identification	Loss position and wreck remains. The Princess of Wales is the only known paddle steamer to be lost off Wemyss Bay pier. The wreck has been identified as the bow section of paddle steamer, which fits with the loss description (Moir *pers. comm* 2015).		
Positional accuracy	Accurate.				
Type	Paddle Steamer	Use	Intended as Royal Mail Steam Packet vessel between Southampton and Isle of Wight.		
Build Date	1888	Loss Date	1888	Years in use	0
Propulsion	Steam- paddle. 2 cylinder, compound engine. 220nhp. Two funnels	Circumstances of Loss	Lost on speed trials along the measured mile in Skelmorlie. In collision with *Balmoral Castle*, who cut through the vessel aft of her engine room. Stern section sank first. Attempts were made to tow the bow section to shore but it was lost off Wemyss Bay Pier.		
		Loss of life	3		
Hull material	Steel	Tonnage	324 grt		
Dimensions	216.0' x 21.15' x 8.2'	Shipbuilder	Barclay Curle & Co Ltd.		
Surviving features and condition	UKHO (1987): Investigated using a trisponder: least e/s depth 55.7 in gen depth 56-61mtrs. No scour. Dual Control Side Scan Sonar indicated the height of the wreck is 5mtrs, length 32mtrs. Lying 165/345 deg, on slope on east side of main channel UKHO (2000, description attributed to diver R Waring, 2000): Dived and positively identified as the fore section of princess of wales not the stern as previously thought. Lying upside down, remains of paddle wheel visible. Heavily netted. Moir and Crawford (2004) Bow section located. Reportedly lying in an inverted position on the seabed in 62m. Beyond recreational diving limits and not commented on further. Stern section may have been lost in deep water. Moir and Crawford (*pers. comm* 2015). Not dived this site. Bow section is thought to have been located in an inverted position off Wemyss Bay Pier. Side scan sonar responses may show the remains of the stern section. Silver tea urns have been noted but generally this wreck is beyond the limits of recreational diving. Mahoney (n.d.) (990 UK Diving in Depth magazine). Reports dive undertaken on the Princess of Wales. Bow section, with plating, hull form, two paddle wheels evident and the spars and struts were noted. A large hole was reported on one side of the wreck. The stern is missing (in line with the loss details for the Princess of Wales). An illustration showing the remains of the wreck are included in the article, showing the intact bow section lying in an inverted position. Some scattered debris on the seabed. However some dive sites report information which suggest that the vessel is inverted and there has been some breakup of the remains (UKdiving.co.uk). The date of this report is unknown. A UKHO comment also notes that part of the paddle wheel is visible. This note is undated.				
Identifiers	Canmore ID: 102757 UKHO ID: 4152	Seabed type and marine environment	Muddy/ silty seabed (bow section). The seabed is recorded at a depth of 59m by the UKHO. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973). Trawling is reportedly conducted in the area and trawler nets have been recorded on the site (covering the paddle wheels).		

		Investigation	Divers and UKHO
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004:81 Moir (*pers. comm* 2015) Email correspondence, 18 February 2015. http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=4123 Details of propulsion from Mirimar Ship Index http://www.miramarshipindex.org.nz/ship/show?nameid=186410&shipid=110207 http://www.ukdiving.co.uk/wrecks/wreck.php?id=276 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014. Mahoney, n.d. Paddle Power and Extended Range in the Clyde. *990 UK Diving at Depth,* 8-14		

16.27. Glendale

Name	Glendale (ex. Paris, Ex Flamingo, ex. La Belgique) ON 1063047				
Position	55.288611, -5.759167	Basis for identification	Identification is based on known losses in this area.		
Positional accuracy	Accurate				
Type	Paddle Steamer	Use	National passenger vessel, used initially on the Newhaven to Dieppe route, but was outstripped by other vessels and sold back to the Fairfield Company, who installed new boilers. She later worked the Liverpool to North Wales route, then in Germany, and was finally acquired by D MacBrayne who used the Glendale on routes to the West Highlands.		
Build Date	1875	Loss Date	1905	Years in use	30
Propulsion	Steam- paddle. Steam, oscillating compound 2 cylinder engine (41 & 72 x 60in), 2 funnels. 220hp	Circumstances of Loss	En route to Islay to collect passengers the vessel ran aground at Cove Point in fog. The passengers disembarked to the shore.		
		Loss of life	Unknown but probably none.		
Hull material	Iron	Tonnage	483grt		
Dimensions	220.0' x 25.2' x 11.0'	Shipbuilder	J Elder & Co, Glasgow		
Surviving features and condition	Clyde Maritime indicate the Glasgow Herald, 1905 (29th August) refers to salvage of the Glendale by Mr James Gush of Greenock. Moir and Crawford (2003): The wreck is very heavily broken up and is thought to have been salvaged. Plates and pipes have been observed. Moir and Crawford (*pers. comm* 2015) The wreck is very broken up, and well salvaged.				
Identifiers	Canmore ID: 114953 UKHO ID: - (an unknown wreck is nearby with 100m, but thought to be a French Trawler. UKHO ID 3870).	Seabed type and marine environment	Boulders, thick kelp and strong tidal currents. The UKHO record seabed depths of 20m in this area. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	Divers		
Key sources	Clyde Maritime, available online from: http://themackenzies.pwp.blueyonder.co.uk/Puffers/Beamer.htm (accessed 20th Feb 2015) Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2003:35 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=1233 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database				

16.28. New York

Name	New York				
Position	55.28861, -5.750556	Basis for identification	Identification based on crockery on wreck site.		
Positional accuracy	Accurate				
Type	Iron Steamship with sails.	Use	Built for the New York Steam Ship Company. Used as a troop transport ship for French troops to the Crimea and then for transatlantic crossings with passengers.		
Build Date	1854	Loss Date	1858	Years in use	4
Propulsion	Sail and steam	Circumstances of Loss	En route from Glasgow to New York the vessel struck land at Rubha Clachan in fog. The Court of Enquiry found the fault lay with a problem in the ships main compass.		
		Loss of life	0		
Hull material	Iron	Tonnage	2050gt		
Dimensions	283.2' x 40.5' x 14.4'	Shipbuilder	Tod & MacGregor, Glasgow		
Surviving features and condition	Moir and Crawford (2003): Wreck well broken up. Spread between the boulders. Crank shaft noted. Stern faces shoreward, with a section surviving. Parts of the ships machinery, cargo, and crockery survive. Remains broken up. Moir and Crawford (*pers. comm.,*. 2015): Moir and Crawford have not dived the wreck in a long time. However, in addition to the information they record in their book they also note that pulley blocks have been recorded on the site. Wreck remains survive in gullies. They also note that the vessel was possibly salvaged following loss.				
Identifiers	Canmore ID: 119041 UKHO ID: Not recorded by UKHO	Seabed type and marine environment	Rocky. The seabed in this area is at depths of 10-20m and divers indicate the wreckage extends to c. 18m. The location of the wreckage, on the end of the Kintyre peninsula, indicates that there may be strong currents in this area. Surface sediments of Sand and Gravel recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	Divers.		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2003: 50 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=13916 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database.				

16.29. HMS Breda

Name	HMS Breda				
Position	55.41553, -5.58383	Basis for identification	Identification is based on known losses in this area. No other vessels of this type lost in the area.		
Positional accuracy	Accurate				
Type	Steam yacht	Use	Private yacht owned by the Duke of Bedford and used for ornithological studies around the Scottish islands. Used as an auxiliary patrol vessel during WWI and used as a convoy leader and submarine tender in WWII. Regional Pleasure/ Military vessel. • '8/1/1915 the vessel was requisitioned and converted into an Auxiliary Patrol Vessel • 11/2/1915 renamed SAPPHIRE II and served at Gibraltar • 20/2/1919 returned • 1939 purchased by the Admiralty and converted to an Auxiliary Patrol Yacht and Convoy Leader. Commissioned as HMS BREDA and operated on Norwegian Convoys • 1940 converted to a Submarine tender and operated off the West Coast of Scotland with training submarines' (Caledonian Maritime Research Trust 2015)		
Build Date	1912	Loss Date	1944	Years in use	32
Propulsion	Steam yacht (triple expansion)	Circumstances of Loss	'18/2/1944 involved in a collision with a submarine off Campbeltown and beached. She was refloated in an attempt to salvage her but this failed and she sank' (Caledonian Maritime Research Trust 2015)		
		Loss of life	Unknown		
Hull material	Steel	Tonnage	546nt		
Dimensions	285.0' x 35.2' x 14.0'	Shipbuilder	J. Brown and Co Ltd.		
Surviving features and condition	UKHO (1964): Wreck was dispersed a number of years ago and a certain amount of wreckage remains. UKHO (1980): Least e/s depth 1.3mtrs in gen depth 7-9mtrs. Lying intact on heading 010/190 degs. Not swept due to proximity to shoreline. Length 78mtrs, beam 20mtrs [taken off fair sheet]. UKHO (2004, attributes information to 'Dive West Scotland, published 1984, and Moir and Crawford). The 1984 source indicates that the wreck had been dispersed. Moir and Crawford (2003): Forward of the midships area the wreckage is noted to be tangled metal, relating to impact upon seabed following sinking of vessel and salvage. Stern intact (undercut form can be clearly seen). UKHO (2004, attribute information to Argyll and Bute Council Survey, December 2003): Wreck shown with depths of 4.5-7.6m above the wreck remains. General depth 7m Moir and Crawford (*pers. comm.,*. 2015): The vessel survives well although the superstructure is gone. Bow area does not survive as well as further aft on the wreck. The stern, stem, rudder and some non-ferrous metals used to fit the hull survive. Cabling and crockery have also been noted on the site. Fyne Pioneer (undated website entry): Note that the hull is full of silt.				
	Canmore ID: 102671	Seabed type	Silty seabed. The seabed is recorded at a depth of		

Identifiers	UKHO ID: 3911	and marine environment	8m in this area by the UKHO. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973).
		Investigation	Divers.
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Fyne Pioneer (n.d.). HMS Breda: Kintyre Peninsula. Available online from: http://www.fynepioneer.co.uk/sites/wreck/HMS_Breda-s-83.html (Accessed 18th Feb 2015). Moir and Crawford 2003: 20-2 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=2297 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.		

16.30. Osprey

Name	Osprey (Fore Part)				
Position	55.97333, -4.8092	Basis for identification	Basis for identification uncertain and unverified. Problems with identification. Remains are badly distorted, and Moir and Crawford note that the wreck is steel but noted hull material for Osprey was iron. Thus identification tentative.		
Positional accuracy	Accurate (UKHO and diver verification)				
Type	Steam yacht	Use	Private yacht, owned by Mr R. Brooman White. Clydesite notes that W J Normand may have owned the vessel.		
Build Date	1877	Loss Date	1889	Years in use	12
Propulsion	Screw	Circumstances of Loss	Returning from Glasgow in the evening, without any light showing. The vessel was cut through by *Madge Wildfire* and sank.		
		Loss of life	3 (possibly)		
Hull material	Iron	Tonnage	22nt		
Dimensions	56.0' x 9.5' x 5.5'	Shipbuilder	Inglis & Co. Glasgow		
Surviving features and condition	Moir and Crawford (2004) note that no salvage is thought to have been undertaken and the wreck may not have been located following its loss. UKHO (1993): Small wreck examined in 555824.3N, 044828.8W [OGB] using trisponder. Least E/S depth 23.4 in gen depth 25.5mtrs. No scour. Side scan sonar indicated that the height was 1.7mtrs, length 8mtrs. Sonar trace indicates boat-shaped contact orientated 105/285degs on sand and mud seabed. UKHO (1994, information attributed to Mr Hall, HMS Neptune): Reported to be fore part of the iron steam yacht `Osprey'. Moir and Crawford (2004): note that the wreck of a small steel vessel, badly distorted, has been located in this position. The vessel lies upright and measures c. 10-12m in length.				
Identifiers	Canmore ID: 102767 UKHO ID: 4181	Seabed type and marine environment	Wreck lies along the western edge of a bank. The UKHO indicate that the seabed is at a depth of 26m at this position. Surface sediments of Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	Divers and UKHO		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 41 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=1808 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.31. Bellevue

Name	Bellevue (formerly SS Escort)					
Position	55.323517, -4.935867	Basis for identification	Wreck of a trawler has been identified in this position (Moir and Crawford, *pers. comm* 2015). There are no other known trawler losses in this area. Additionally the dimensions of the beam of the wreck recorded by Moir and Crawford match those of the *Bellevue*, and a navigation lamp recorded on the wreck is from a Leith manufacturer. Thus these elements support the identification of this wreck as the *Bellevue*.			
Positional accuracy	Accurate (divers)					
Type	Steam trawler	Use	Trawler, working on the west coast at the time of her loss. Owner history: 1916. (June) Royal Navy and converted to a Boom Defence Vessel. 1920 Great Northern Steam Fishing Co.Ltd. Hull. 1923 W. Flockhart Jnr, Granton (Caledonian Maritime Research Trust 2015)			
Build Date	1897	Loss Date	1942	Years in use	45	
Propulsion	Steam	Circumstances of Loss	Not known in detail.			
		Loss of life	At least 3			
Hull material	Steel	Tonnage	51nt			
Dimensions	104.2' x 21.0' x 10.7'	Shipbuilder	Mackie & Thomson, Glasgow (Moir and Crawford 2004: 126)			
Surviving features and condition	UKHO records a wreck at this position. However, the UKHO has suggested this wreck may be that of the St Kenan. This is not verified. UKHO (1981): Surveys in 1980 located an intact wreck at 551923.8N, 045604.7W [OGB] using trisponder. Least E/S depth 40.8 in gen depth 54mtrs. No scour. Side scan sonar anomaly is 10.9m in height and approximately 60metres in length lying 130/310 degs. Moir and Crawford (2004): record the wreck of a trawler in this position. Stern section may be badly damaged (possibly indicating she struck a mine). The deck lies at an angle of 45 degrees, and bow points upward. The engine room was noted, as was the bridge area and bow post. The telegraph has also been found. Moir and Crawford (*pers. comm* 2015): Added to the above, Moir and Crawford suggest the vessel may have gone down stern first.					
Identifiers	Canmore ID: 102515 UKHO ID: 4139 (wreck in this location, but thought by UKHO to be possibly *St Kenan*)	Seabed type and marine environment	The depth of the seabed is recorded at 54m by the UKHO. Surface sediments of Mud and Sand recorded by the Institute of Geological Sciences (Deegan et. al. 1973).			
		Investigation	Divers			
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Caledonian Maritime Research Trust 2015, http://www.clydeships.co.uk/view.php?official_number=&imo=&builder=&builder_eng=&year_built=&launch_after=&launch_before=&role=&type_ref1=&propulsion=&category=&owner=&port=&flag=&disposal=&lost=&ref=12664&vessel=ESCORT Moir and Crawford (*pers. comm* 2015) Moir and Crawford (2004: 127) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field and 'circumstances of loss' field. Extracted 9th December 2014.					

16.32. Ethel Crawford

Name	Ethel Crawford				
Position	55.21748, -5.24991	Basis for identification	Identification is based on historical documentation of loss position. The remains represent a trawler and there are no other trawlers known to have been lost in this area.		
Positional accuracy	Accurate (UKHO and diver verification)				
Type	Steel steam trawler (built as an Admiralty Strath class). 1 3cylinder triple expansion engine.	Use	Built as an Admiralty Strath Class, and originally to be named *John Langshaw*. Completed too late for wartime use, and so was sold to owners in Fleetwood and renamed *Ethel Crawford*. Use as a commercial trawler. Owner and Registration History: 1919 R. W. Crawford, Scarborough (SH 75). 19xx Ethel Crawford Steam Fishing Co.Ltd. (J. Nierinck) Fleetwood. 1922 Registered at Fleetwood (FD404). March 1922 1924 Richard Lewis, Aberdeen (A36). 1941 Ardrossan Trawling.		
Build Date	1919	Loss Date	1945	Years in use	26
Propulsion	Steam – screw. triple expansion engine (Mirimar)	Circumstances of Loss	Thought to have hit or snagged on a mine during trawling activities off Ailsa Craig.		
		Loss of life	10 (crew)		
Hull material	Steel	Tonnage	200 grt		
Dimensions	115.8' x 22.2' x 12.2' (Moir and Crawford 2004)	Shipbuilder	Scott and Son, Bowling		
Surviving features and condition	UKHO (1953): Survey located a non- dangerous wreck (position approximate) UKHO (1967): Small wreck with least e/s depth 141ft in gen depth 159 ft Moir and Crawford (2004): Record the remains of a trawler in a number of sections at this position. Bow mostly intact. Lying on starboard side. Wreck rises c. 2-3m from seabed. UKHO (1969-1972): Surveys during this period located the wreck remains but did not investigate them. Last 1972 survey reported the wreck was in a general depth of 49m (least ES depth 44m), on a seabed of mud/ clay. The survey also noted the wreck appeared to be broken up, and about 50ft long. UKHO (1981): Investigated using HIFIX: depth 43.4 in gen depth 49mtrs. Side scan sonar showed height of wreck to be 5.4mtrs. Broken up with one main section & 5 small pieces. Main section lying 140/320degs. Moir and Crawford (2004): Remains of a trawler in the area where Ethel Crawford was lost suggest that these remains may represent that vessel. The vessel lies in a number of sections. The bow is on its side and forms the most intact section. Remains extend between 2-3m above the level of the seabed. Moir and Crawford (*pers. comm* 2015): PM notes that the wreck has a broken back and is badly damaged (consistent with having been mined). The engine and stern were noted. However, there is nothing to identify the remains securely to the Ethel Crawford. Wheel house not found.				
Identifiers	Canmore ID: 102522 UKHO ID: 3854	Seabed type and marine environment	Mud/ clay. The seabed is recorded at 49m depth by the UKHO.		
		Investigation	Divers and UKHO		

Key sources	Moir and Crawford 2004: 136 Moir and Crawford (*pers. comm* 2015) http://www.miramarshipindex.org.nz/ship/show?nameid=66150&shipid=194392 http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=21252 Moir and Crawford (*pers. comm* 2015) UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.

16.33. Greenock

Name	Greenock				
Position	55.93269, -4.89396	Basis for identification	Identification based on vessel type and loss position. The makers plate and builders plate (containing the shipbuilders name and date) have also been recorded.		
Positional accuracy	Accurate (UKHO and diver verification)				
Type	Screw steam hopper dredger.	Use	The dredger was built for Greenock Harbour Trust and was used in the harbours of Gourock, Greenock and the estuary, having been specifically designed for use in these areas. The dredger also has a post-loss use associated with wartime activities. The Greenock lay along the line chosen for an anti-submarine boom which ran from Dunoon to Cloch, and was an important line of defence for the Clyde anchorages. It is thought that the Greenock was perceived as a possible hiding place for submarines, and thus mines were laid in the area of the wreck (Moir and Crawford 2004: 31).		
Build Date	1876	Loss Date	1902	Years in use	26
Propulsion	Twin propellers, two compound engines.	Circumstances of Loss	On return from dumping dredging's at Garroch Head she was struck by a steamer, which cut through the dredger on her starboard side, amidships, into the bucket well.		
		Loss of life	1		
Hull material	Iron	Tonnage	461nt		
Dimensions	181.5' x 38.6' x 14.2'	Shipbuilder	Wm Simons & Co. Renfrew		
Surviving features and condition	No salvage is thought to have been undertaken in the period following her loss (Moir and Crawford 2004: 31). UKHO (1967): Report from divers, least depth by E/S 50ft general depth seabed by E/S 90ft. No scour. Divers report. Northern object [main] consists of heavy gantry with a massive toothed wheel possibly a crane jib, or main drive wheel of a dredger. Tide running too fast for divers to examine base or hull. Southern object, least depth by e/s 76ft, could not be examined by divers and has not been swept. UKHO (1984, information attributed to P. Moir): Identified as 460 reg. ton bucket hopper dredger Greenock. UKHO (1985, information attributed to P. Cartwright): Wreck believed to be of dredger Greenock contains 2 mines with 2 other mines on seabed adjacent to wreck. UKHO (1987) Surveyed using trisponder, least E/S depth 14 in gen depth 27mtrs. No scour. Dual control Side Scan Sonar measured the wreck at a height of 3mtrs, length approx. 55mtrs. Lying 145/325degs. 1996: The Navy detonated two unexploded mines which had been laid during the war. Moir and Crawford (2004): report that despite the detonation of the mines, the wreck remained substantially intact. The bucket gantry is reported as a tangle of metal which leaned over to the starboard. Little deck structure. Two engines and boilers exposed aft of the gantry. Spare propeller noted. Stores are also visible. A winch has been noted. Moir and Crawford (2004: 32) also indicate changes to the wreck and note that 'in recent years the stern section including the engine room have become much more open'. Remains of the pilot				

<table>
<tr><td></td><td colspan="3">bridge, including steering equipment, wheel hub and telegraphs have been noted. As have ‘two smoke stack bases, coal chute grantings and bunkering deck plates’ other features include the gantry, accommodation areas and bucket well. At the bow there is a steam winch, anchors, deck house remains and lifting equipment.

Divernet (2006): The article which appeared in Diver, 2006, noted deterioration to the wreck since the detonation of the mines. At the stern a mine had broken the back of the dredger, and destroyed much of this area. However away from this area intact features survive, including the bucket gantry with large dredging buckets, associated supports, and cogs. The deck is largely caved in. According to the article the engines, boilers and spare propeller are still extant, however were not noted in this dive.

McGuire (2013, you tube video of dive in 2013): The video shows the remains of the Greenock, in dark condition and with marine growth over the hull. The video shows structural remains survive on site, standing proud of the seabed.

Moir and Crawford (pers. comm 2015): Note that there may have been deterioration to the stern end since their book was published in 2004. The detonations may have rattled the wreck structure encouraging deterioration.

Scobie (pers. comm 2015). Had dived the site prior to the detonation of mines, and has dived it subsequently, in 2013. Condition in 2013 noted to be poor, no recognisable features of the dredger. Noted to have seen considerable deterioration. Wreck remains in some areas extend to c. 4m above the seabed, but recognisable features not noted.

Sewell (pers. comm 2015): Dived in 2010, 2013/2014. Comparison with the plan in Clyde Shipwrecks shows that sections have fallen away and there has been deterioration since this plan was produced. RS noted from previous dives (c. 2010) that the winches and buckets were present. The buckets can still be seen.</td></tr>
<tr><td>Identifiers</td><td>Canmore ID: 102745

UKHO ID: 4109</td><td>Seabed type and marine environment</td><td>Grey mud and broken shell. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)
UKHO description for nearby foul (4108), 500m to the south of Greenock, report that area is covered by innumerable trawl scours.
Reportedly lies on the edge of a small shallow bay, which causes an eddy.
The depth of the seabed is recorded at 27m by the UKHO.</td></tr>
<tr><td></td><td></td><td>Investigation</td><td>Divers and UKHO</td></tr>
<tr><td>Key sources</td><td colspan="3">Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. The superficial deposits of the Firth of Clyde. Report of the Institute of Geological Sciences no. 73/9.
Divernet (2006) http://www.divernet.com/UK_Diving/158816/clyde_by_night.html
McGuire, 2013. You tube video. https://www.youtube.com/watch?v=OnHoDpLl3Cg Available online from (accessed 23rd Feb 2015).
Moir and Crawford 2004: 30-33
Moir and Crawford (pers. comm 2015)
Sewell (pers. comm 2015)
Scobie (pers. comm 2015).
UKHO Wrecks and Obstructions Database. Information from ‘surveying details’ field. Extracted 9th December 2014.</td></tr>
</table>

16.34. Caledonian

Name	Caledonian				
Position	55.75, -4.985	Basis for identification	Identification uncertain. Based on wreck remains located by UKHO and loss position. Not confirmed by divers.		
Positional accuracy	Accurate (UKHO)				
Type	Hopper dredger	Use	Caledonian Railway Company dredger		
Build Date	1874	Loss Date	1907	Years in use	33
Propulsion	Screw. One boiler, compound expansion engine of 60hp, single shaft.	Circumstances of Loss	While discharging dredgings the dredger collided with the *Nettle.* The *Caledonian* began to sink. The crew abandoned the vessel leaving the engines running which caused an explosion as she sank. Lost in deep water.		
		Loss of life	0		
Hull material	Iron	Tonnage	122nt		
Dimensions	133.6' x 24.6' x 12.2'	Shipbuilder	Wm Simons & Co. Renfrew		
Surviving features and condition	UKHO (2001): Wreck located in 5545.0N, 0459.1W [WGD] using DGPS. Length 11mtrs. Excellent contact. Due to loss position may be *Caledonian.* Moir and Crawford (*pers. comm* 2015) note that the wreck is too deep for recreational diving, and that the explosion when she sank may mean the wreck is badly damaged.				
Identifiers	Canmore ID: 102483 UKHO ID: 4023	Seabed type and marine environment	Deep wreck. UKHO note the depth of the seabed in this area at 105m. Surface sediments of Sand and Mud recorded by the Institute of Geological Sciences (Deegan et. al. 1973)		
		Investigation	UKHO		
Key sources	Deegan, C. E. Kirby, R. Rae, I. and Floyd, R. 1973. *The superficial deposits of the Firth of Clyde*. Report of the Institute of Geological Sciences no. 73/9. Moir and Crawford 2004: 58 Moir and Crawford (*pers. comm* 2015) http://www.clydesite.co.uk/clydebuilt/viewship.asp?id=9398 UKHO Wrecks and Obstructions Database. Information from 'surveying details' field. Extracted 9th December 2014.				

16.35. Newshots Diving Bell Barge

Name	Newshots Diving Bell Barge				
Position	N 55 54.22 W 4 26.12	Basis for identification	On-going study by NAS as part of Scotland's Coastal Heritage At Risk Project (SCHARP)		
Positional accuracy	Approximate				
Type	Diving Bell Barge	Use	Specifics are unknown but as a diving bell barge the vessel type indicates a narrow field of use.		
Build Date	Possible mid 19th century	Loss Date	Unknown	Years in use	Unknown
Propulsion	Unknown	Circumstances of Loss	Unknown		
		Loss of life	Unknown		
Hull material	metal	Tonnage	Unknown		
Dimensions	Unknown	Shipbuilder	A and J Inglis.,		
Surviving features and condition	On-going study by NAS as part of Scotland's Coastal Heritage At Risk Project (SCHARP)				
Identifiers	Canmore ID: NS47SE 8001-4	Seabed type and marine environment	Muddy foreshore		
		Investigation	On-going study by NAS as part of Scotland's Coastal Heritage At Risk Project (SCHARP)		
Key sources	SCHARP, 2014. Newshots Ship Graveyard Parts 1 and 2. Available here: https://scharpblog.wordpress.com/2014/10/23/the-newshot-ship-graveyard-part-2-a-very-special-vessel/				

APPENDIX C: CLYDE PUFFERS AND LOCAL COASTERS: CHRONOLOGY AND COMPONENTS

16.36. *Clyde Puffers*

16.36.1. Engines and propulsion: The Clyde Puffer was introduced with the *Thomas*, in 1856. This vessel represented a steam scow powered by a two cylinder simple steam engine (MacKenzie 2012). From around the 1870's condensers and compound engines were fitted to Puffers to ensure they could be used as sea-going vessels. Toward the end of World War II Puffers began to be fitted with diesel engines. The Puffers were propelled by a single screw (Brown 2013; MacKenzie 2012).

16.36.2. Dimensions: The original Clyde Puffer, the *Thomas,* measured under 66ft in length in order to fit through the locks of the Forth and Clyde canals. These dimensions were used for both the Inside and Shorehead Puffers which could not exceed 66 feet 6 inches in length (Lavery 2005: 81). The Outside boats were of lengths of 88ft, in order to deal with the more exposed marine crossings to the Western Isles, while still being able to fit through the locks of the Crinan Canal (Clyde Puffers n.d.; Scottish Canals n.d.).

16.36.3. Hull construction: The earlier Puffers were iron hulled and riveted. Steel Puffers were introduced later, in line with the wider trends which saw steel increasingly favoured as a hull material from the late 1880s (Wessex Archaeology 2011: 38), although in smaller vessels such as the Puffers the adoption of steel tended to be a little later. Steel hulled examples are known from around the turn of the century (a surviving example, *Basuto*, was steel and built 1902). Some of the later VIC vessels were welded instead of riveted (MacKenzie 2012).

16.36.4. Development in the helm configuration has also been noted. Initially Puffers had an exposed helm from which the tiller could be manned. MacKenzie (2012) notes that by the time World War II dawned the helm had been raised, and a wheel controlled the rudder via a chain. Wheelhouses were introduced following the close of the war.

16.36.5. Taking into account these developments, key features to consider when assessing remains of Clyde Puffers therefore include:

- Dimensions
- Engine type
- Bulwark height
- Steam winch (presence/ absence)
- Hull material
- Riveting/ welding
- Wheel house/ helm/ location of wheel/ tiller

16.36.6. Information about these details can inform understanding of the use of the vessel (in terms of its area of use) and date of the vessel.

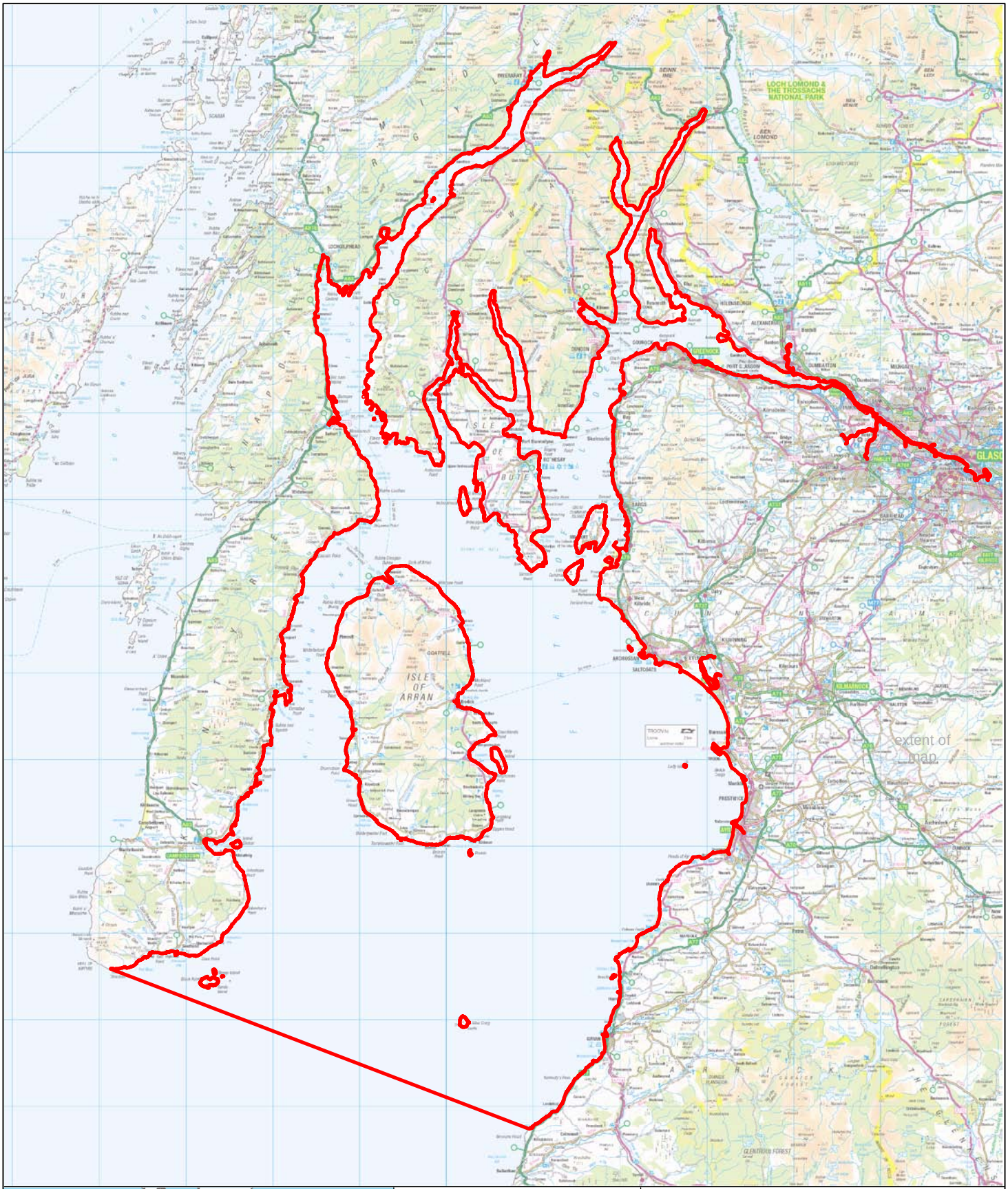
16.37. *Coasters*

16.37.1. While the other coasters are similar in many ways to the Clyde Puffers, their dimensions, not dictated by the canal locks, differ from those of the Puffers. Within the dataset the specifications for three coasters which do not class as Clyde Puffers are:

Name	Dimensions	Tonnage	Engine and propulsion
St Oran	122.0' x 21.6' x 9.4'	89nt	1-screw. Compound 2 cylinder engine
Kyle Skye	130.3' x 22.6' x 9.8'	116nt	1-screw. Compound 2 cylinder engine
Arran III	99.7' x 21.1' x 9.2'	49nt	1-screw. Compound 2 cylinder engine

16.37.2. All are larger than the Clyde Puffers, with greater tonnages. All also carried general cargo. Steel has been used as a hull material for all within the dataset, and the *St Oran, Kyle Skye* and *Arran III* were propelled by screw compound 2 cylinder engines, as was typical for coasters of their size (Fenton 2011).

16.37.3. The coasters are also later in date than the majority of the Puffers, and all date to the 20th century. The *St Oran* was built in 1911, the *Kyle Skye* in 1922 and the *Arran III* in 1926. Earlier vessels, whose specifications parallel those of the *St Oran*, *Kyle Skye* and *Arran III*, were built on the Clyde, such as the steel hulled *Jane Rowland,* constructed in 1905, at 150.0' x 24.4 x 10.4ft with a compound 2 cylinder engine and single propeller (Caledonian Maritime Research Trust 2015).



N

Clyde study area

0 20 km

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PROJECT TITLE

Clyde-built wrecks within the Clyde

FIGURE TITLE

Clyde study area

DRAWN BY	JB	PROJECT NO.	770001	FIGURE NO.
CHECKED BY	JB	DATE	09/03/2015	**1**
APPROVED BY	SE	SCALE @ A4	1:600,000	

Arthur
Iona I
Auchmountain
Enterprise
Osprey
Greenock
Margaret Niven
Arran III
Kintyre
Lady Gertrude
Princess of Wales
Louise
Beagle
Caledonian
Lady Isabella
Lady Margaret
Tuscan
Janet McNichol
Glenhead
Kyle Skye
Kaffir
Elmbank
HMS Breda
Delta
Charlemagne
Lapwing
Saxon I
Briton
Bellevue
Glendale
New York
Davaar I
St Oran
Ethel Crawford

N

Clyde study area

Clyde-built wrecks within the Clyde

0 16km

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PROJECT TITLE
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FIGURE TITLE
Clyde-built wrecks within the Clyde

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CHECKED BY	JB	DATE	09-03-2015	2
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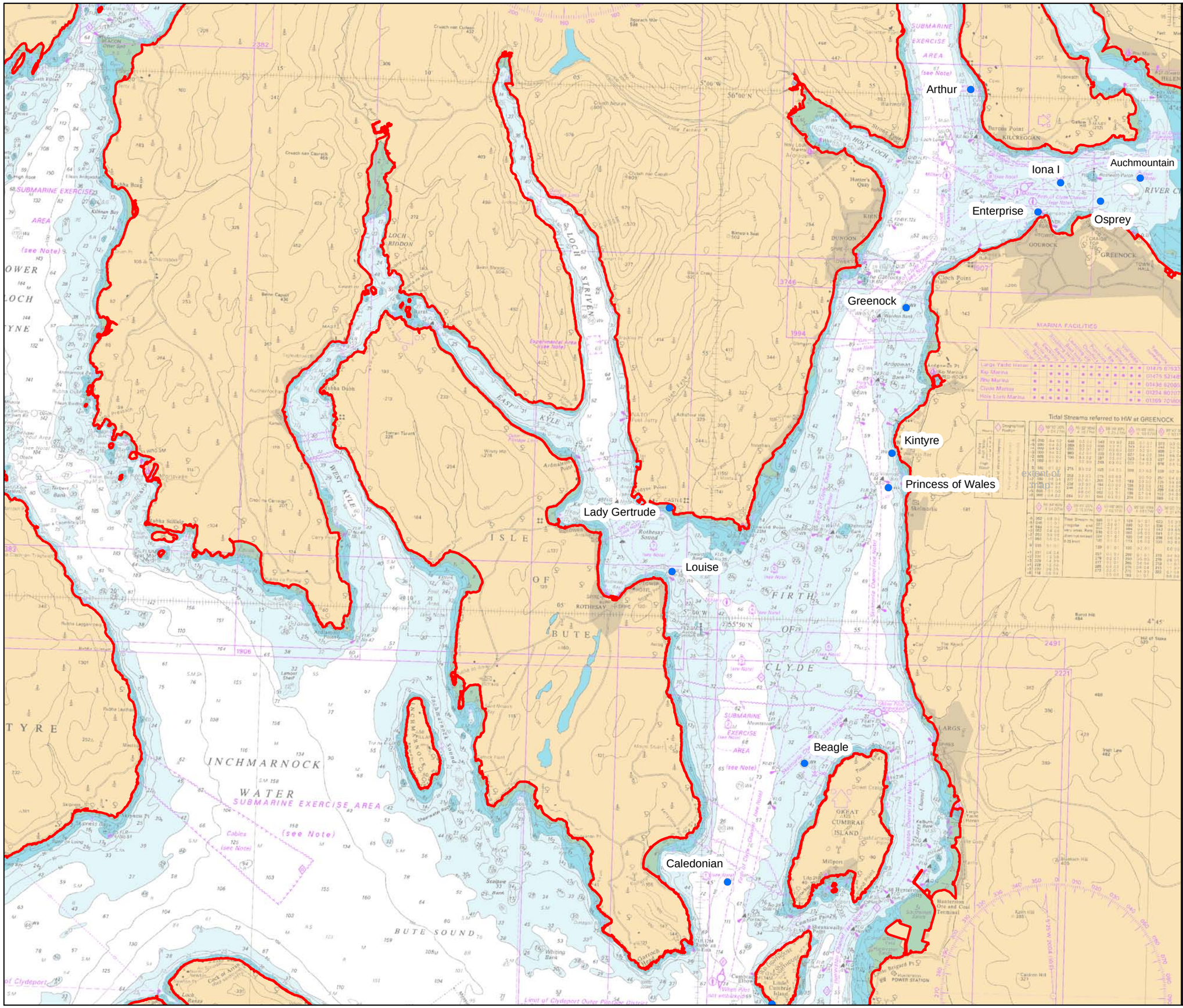

Coordinate sytem: WGS 1984 UTM Zone 30N

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PROJECT TITLE

Clyde-built wrecks within the Clyde

FIGURE TITLE

Clyde-built wrecks within the River Clyde and Inner Firth of Clyde

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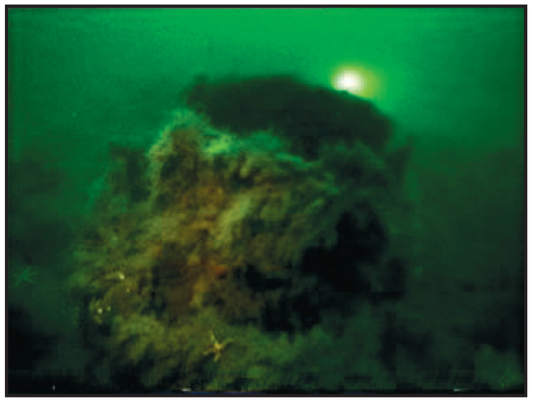
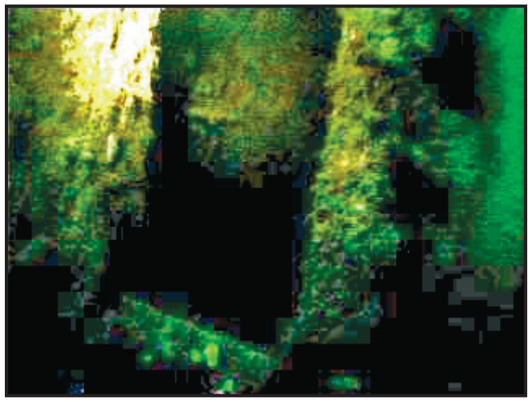
APPROVED BY	**SE**	*SCALE@A3*	**1:125,000**		

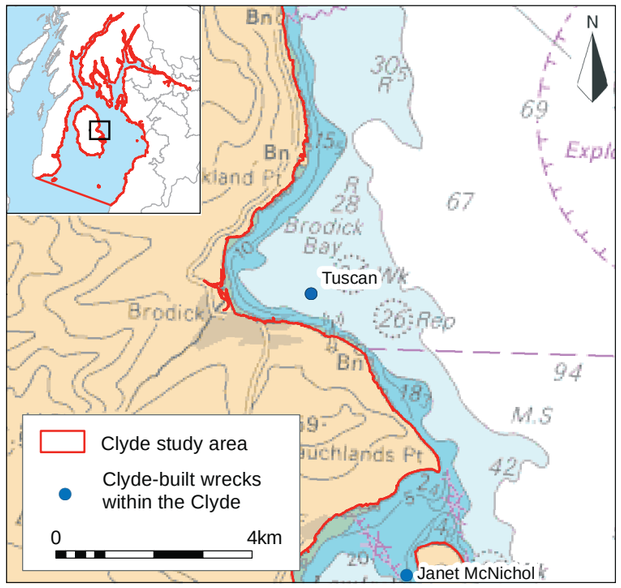


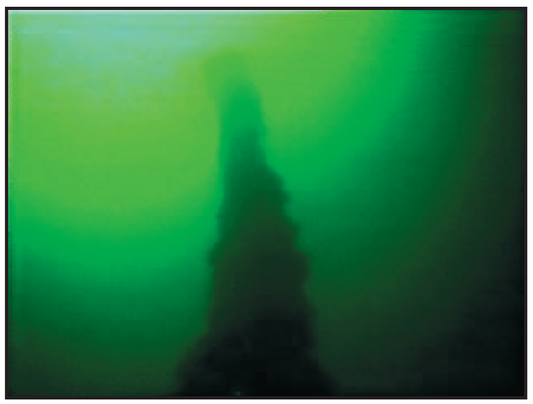
Base of funnel

Diver port side of engine casing



Tuscan door to engine rooma





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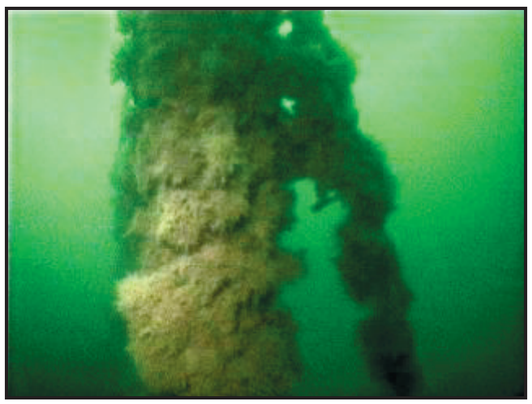

Mast

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PROJECT TITLE

Clyde-built wrecks within the Clyde

FIGURE TITLE

Wreck of the Clyde Puffer 'Tuscan'

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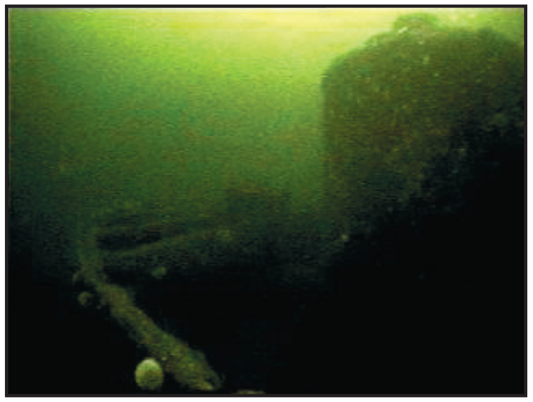
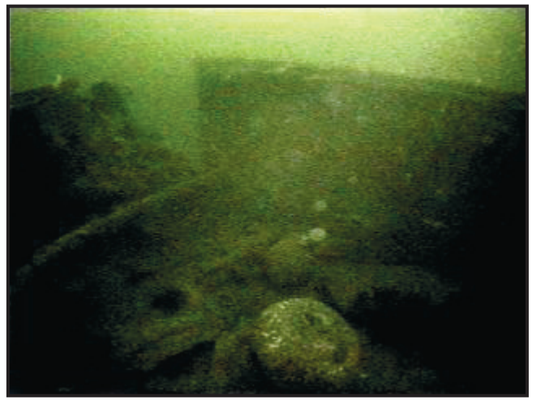
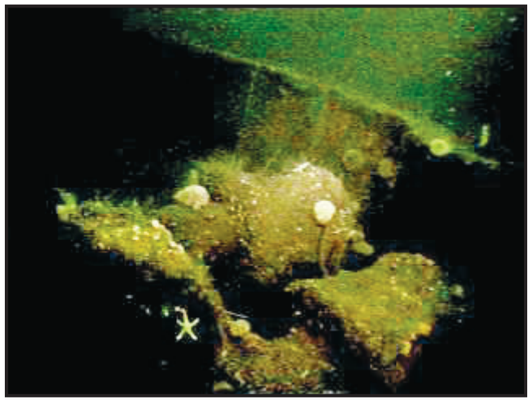
CHECKED BY	**JB**	*DATE*	**13-03-2015**	**4**
APPROVED BY	**SE**	*SCALE@A3*	**as shown**	



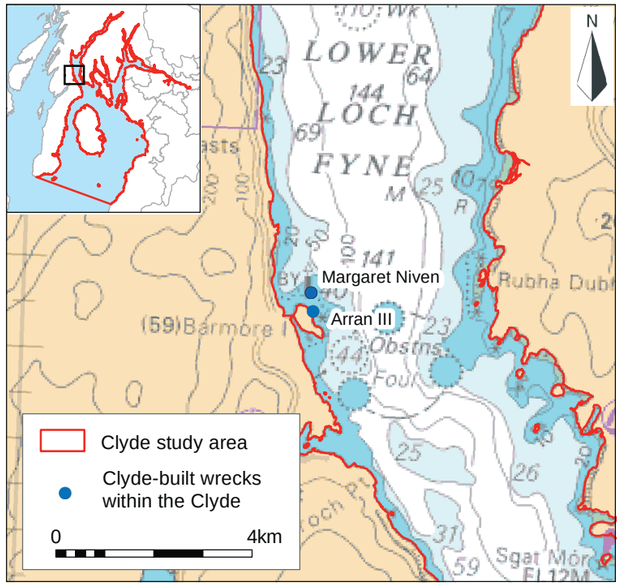
Boiler

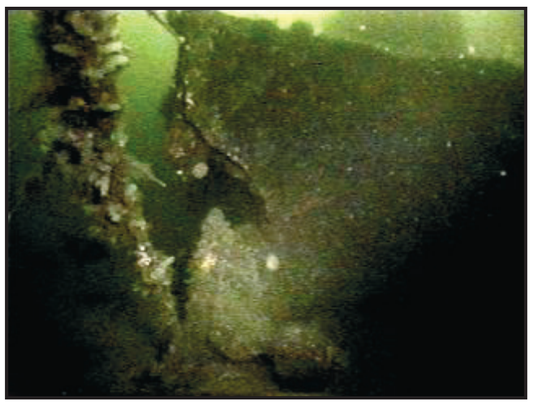


Bow from hold stem split

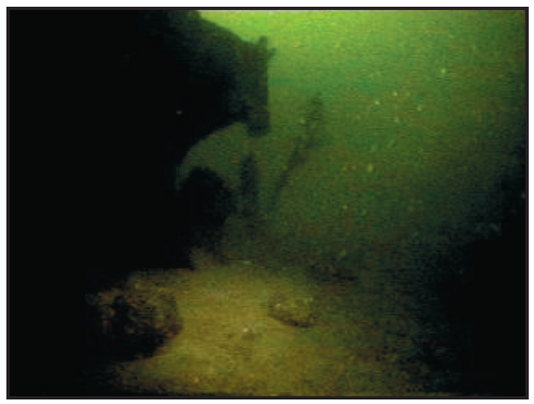


Bow winch

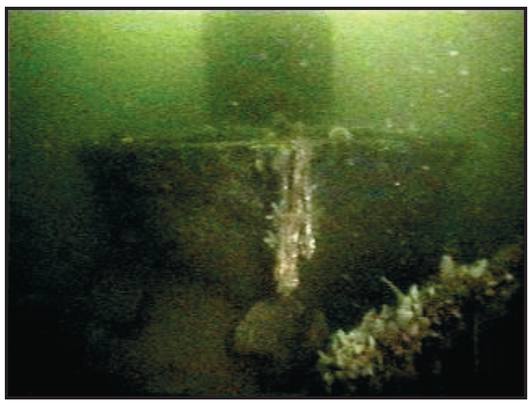




Bow



Port quarter rudder and propellor



Stern view rudder at 45 degree angle

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PROJECT TITLE
Clyde-built wrecks within the Clyde

FIGURE TITLE
Wreck of the 'Margaret Niven'

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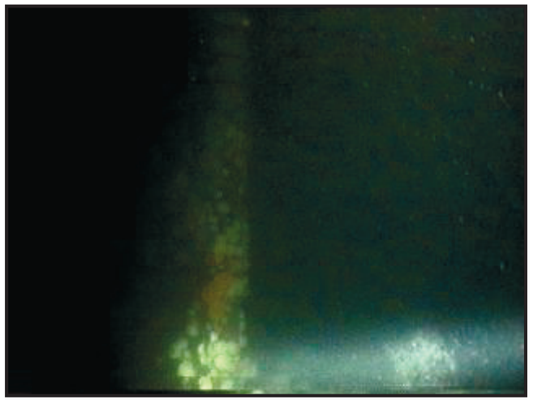

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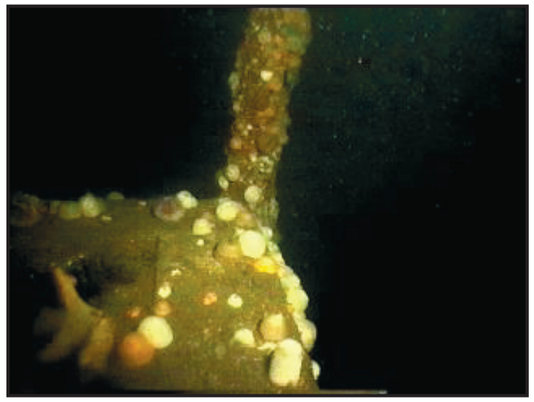

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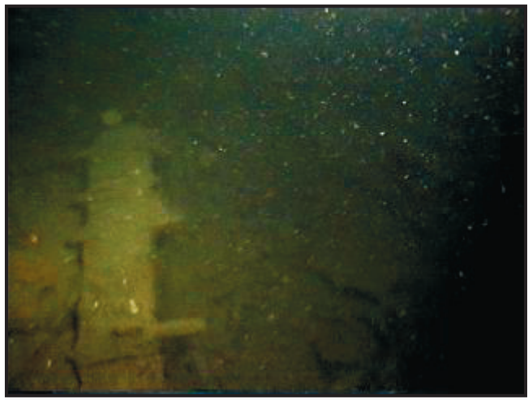

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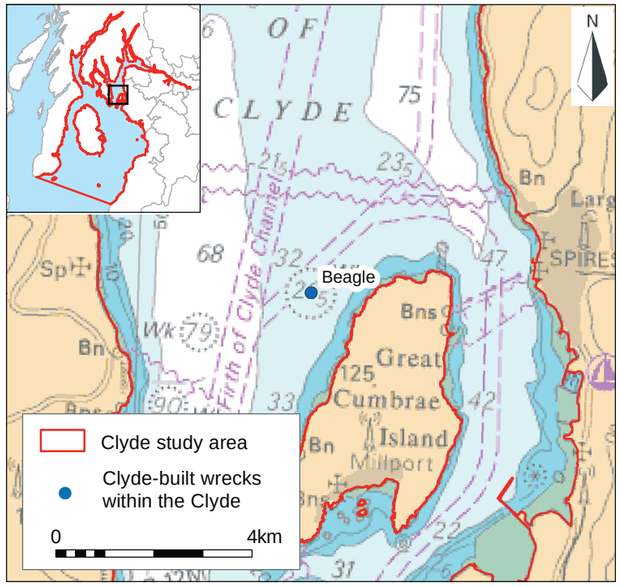
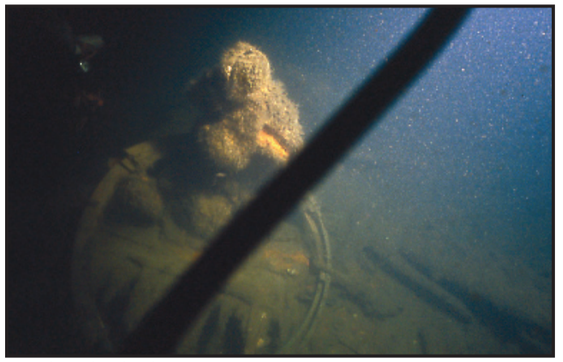


Beagle emergency steering post



Beagle main wheel

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PROJECT TITLE

Clyde-built wrecks within the Clyde

FIGURE TITLE

Wreck of the 'Beagle'

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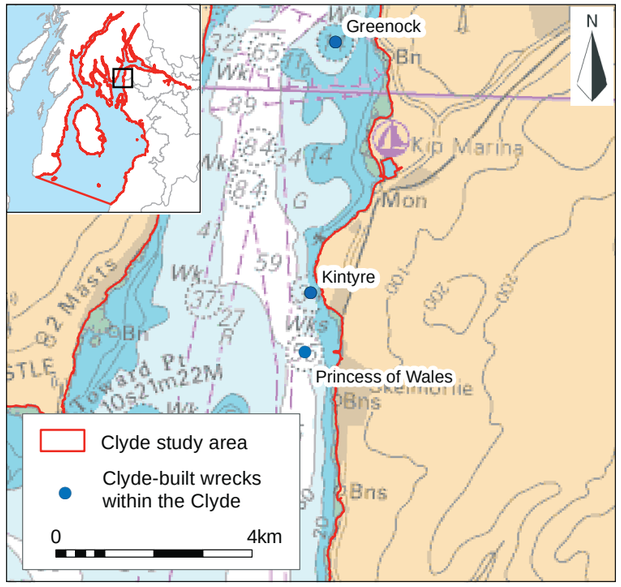
CHECKED BY	**JB**	*DATE*	**13-03-2015**	**6**
APPROVED BY	**SE**	*SCALE@A3*	**as shown**	

Bow

Bow



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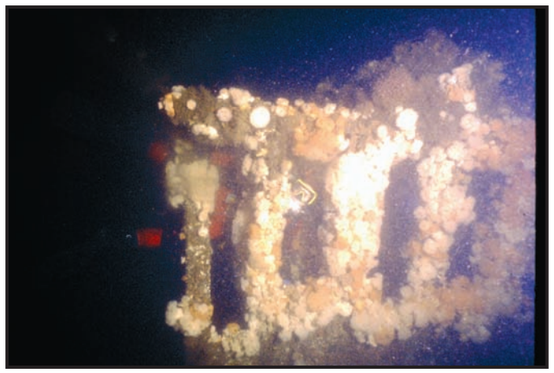

Bow

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PROJECT TITLE

Clyde-built wrecks within the Clyde

FIGURE TITLE

Wreck of the 'Kintyre'

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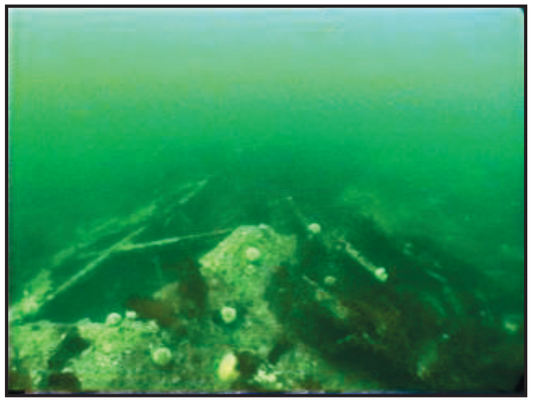
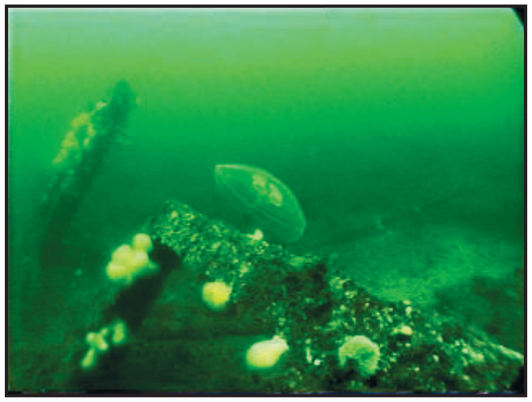
CHECKED BY	**JB**	*DATE*	**13-03-2015**	**7**
APPROVED BY	**SE**	*SCALE@A3*	**as shown**	

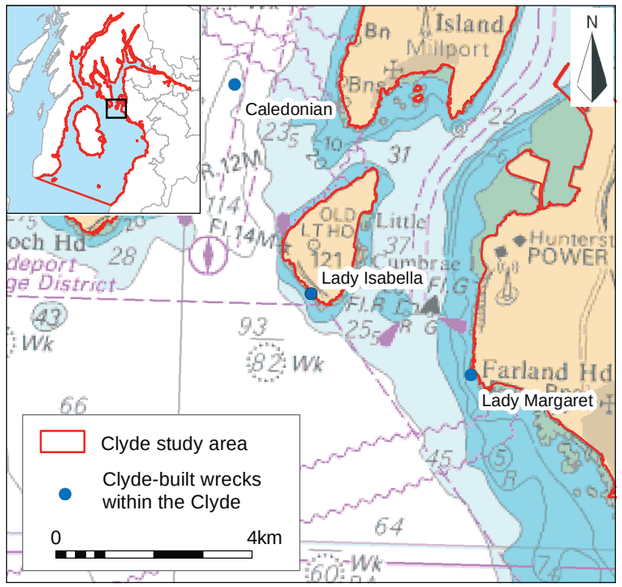


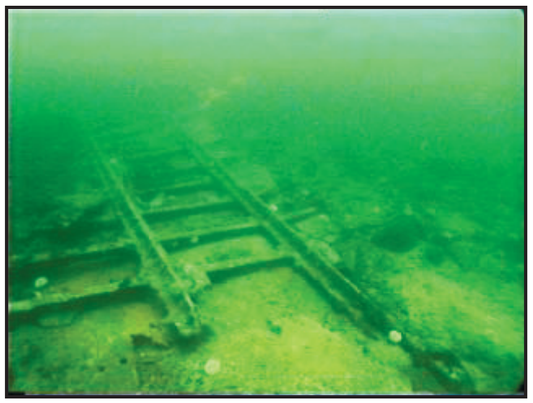
Hull structure

Hull

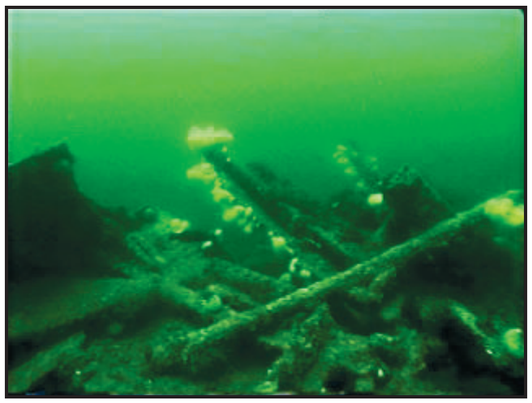


Ribs





Structure



Structure

Coordinate sytem: WGS 1984 UTM Zone 30N

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PROJECT TITLE

Clyde-built wrecks within the Clyde

FIGURE TITLE

Wreck of the 'Lady Isabella'

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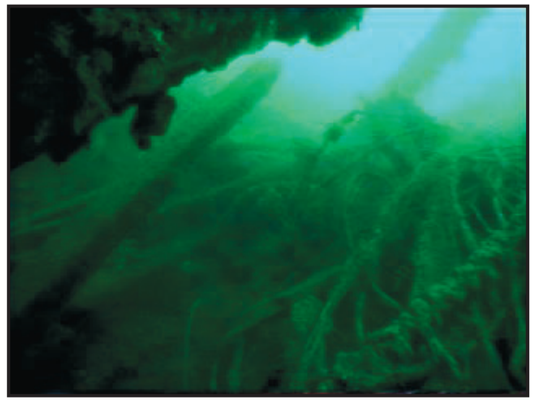
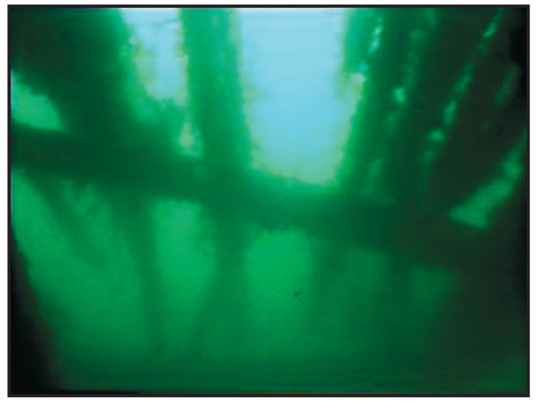
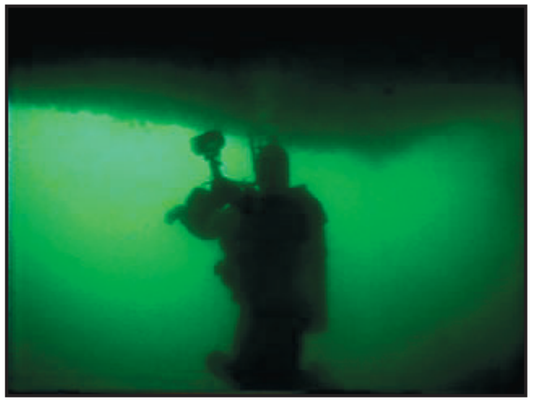
CHECKED BY	**JB**	*DATE*	**13-03-2015**	**8**
APPROVED BY	**SE**	*SCALE@A3*	**as shown**	



Debris



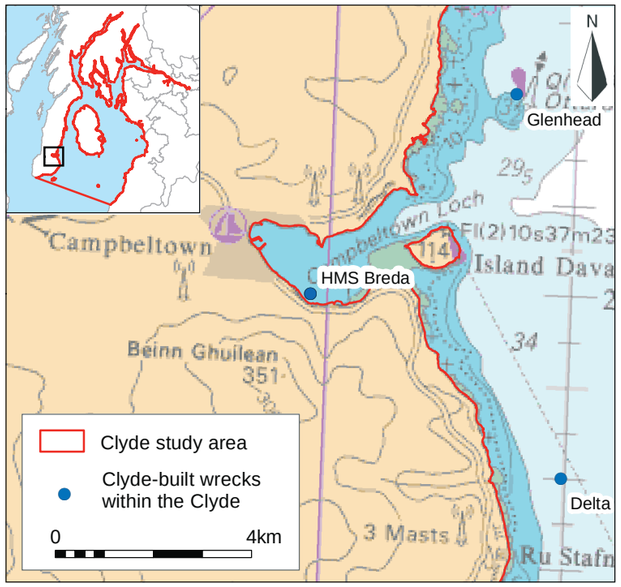
Deck structure

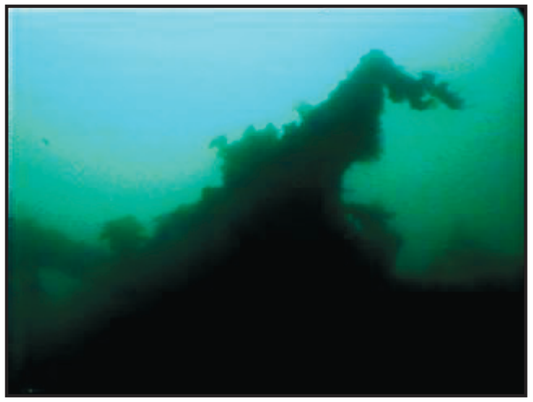


Diver under stern

top of rudder quadrant

Hull

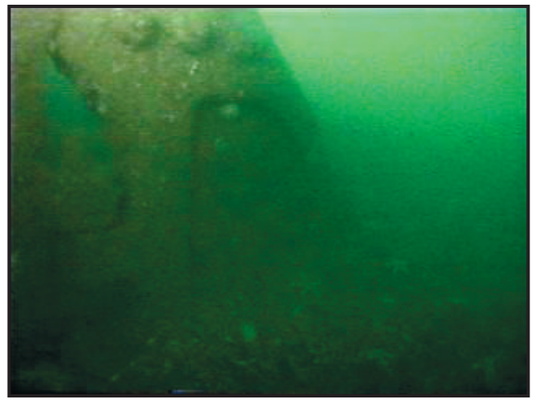




Structure

Top of stern

Porthole



Rudder

Structure

Coordinate sytem: WGS 1984 UTM Zone 30N

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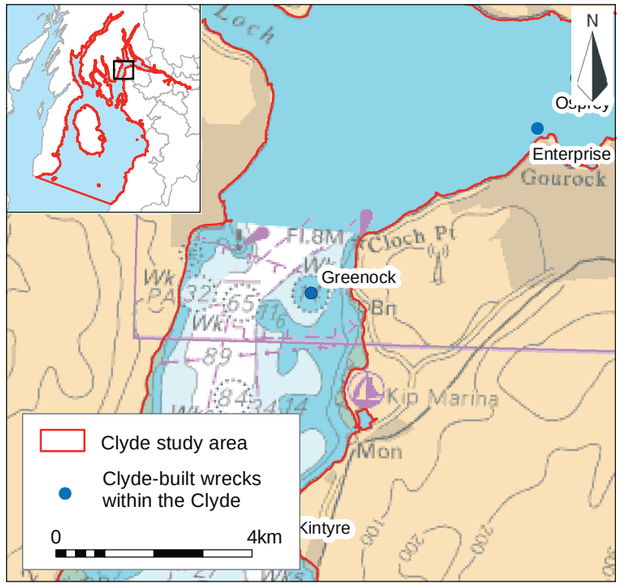
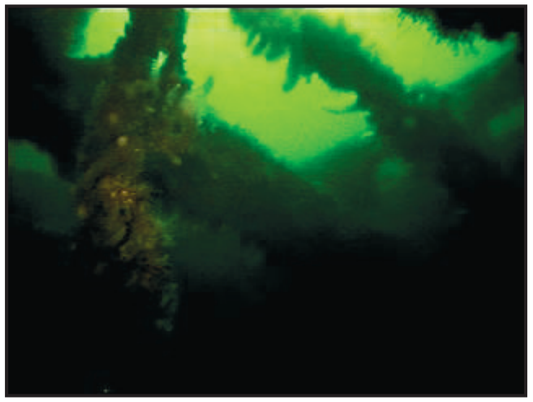
PROJECT TITLE
Clyde-built wrecks within the Clyde

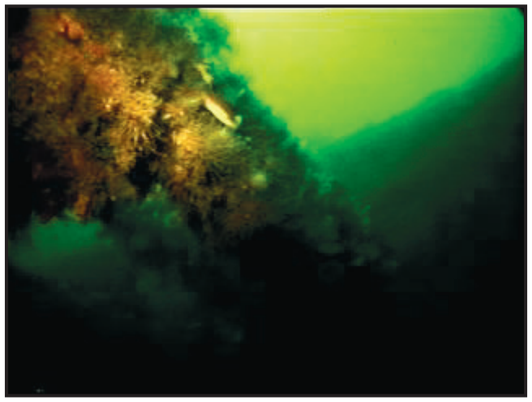
FIGURE TITLE
Wreck of 'HMS Breda'

DRAWN BY	JB	PROJECT NO.	770001	FIGURE NO.
CHECKED BY	JB	DATE	13-03-2015	9
APPROVED BY	SE	SCALE@A3	as shown	





Structural remains



Structural remains

Coordinate sytem: WGS 1984 UTM Zone 30N

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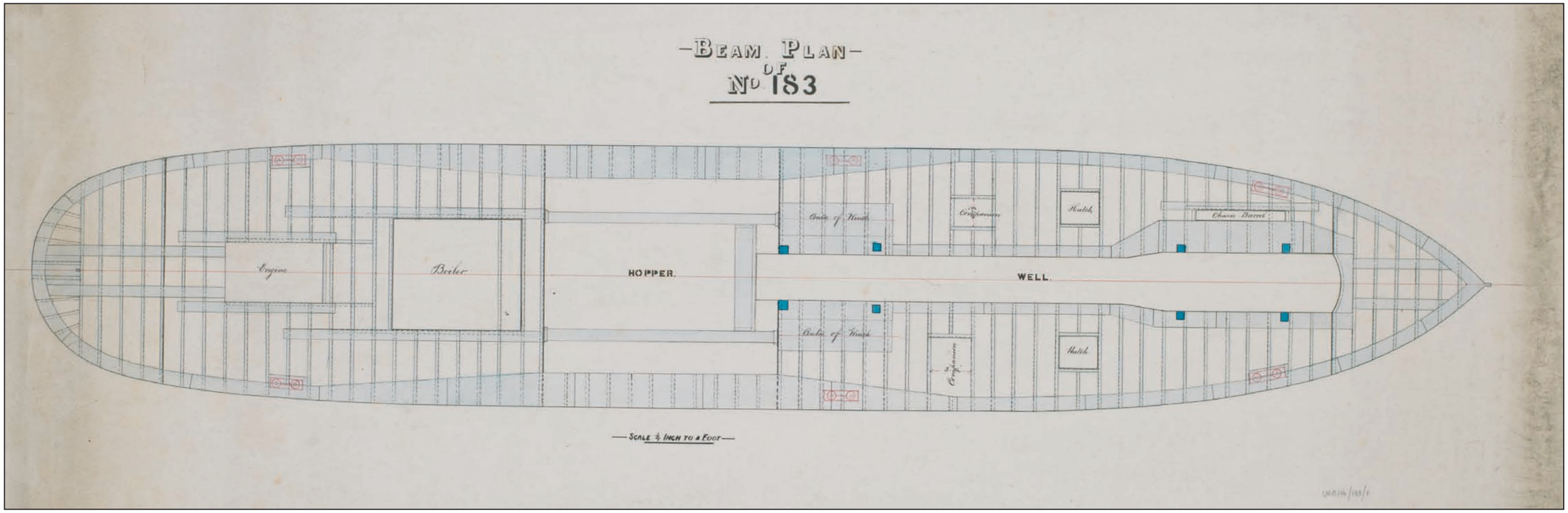
PROJECT TITLE

Clyde-built wrecks within the Clyde

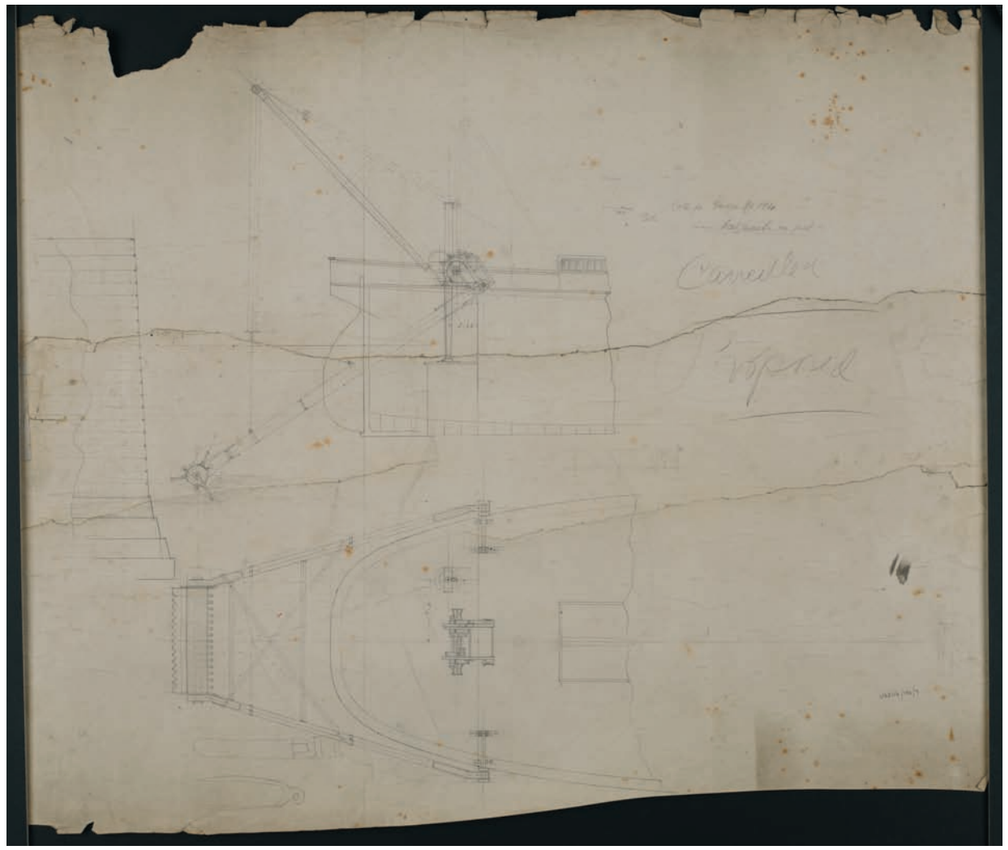
FIGURE TITLE

Wreck of the 'Greenock'

DRAWN BY	**JB**	*PROJECT NO.*	**770001**	*FIGURE NO.*
CHECKED BY	**JB**	*DATE*	**13-03-2015**	**10**
APPROVED BY	**SE**	*SCALE@A3*	**as shown**	



Plan of the dredger Caledonian



Plan of the 'Greenock's dredging equipment

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PROJECT TITLE
Clyde-built wrecks within the Clyde

FIGURE TITLE
Plans of the dredgers Caledonian and Greenock

DRAWN BY	JB	PROJECT NO.	770001	FIGURE NO.
CHECKED BY	JB	DATE	10-03-1015	11
APPROVED BY	SE	SCALE@A3	NA	