

Stranraer Marina Expansion



Archaeological Assessment of Hydrographic Data

Report for RPS

MSDS Marine



MSDS
Marine



MSDS
Heritage

Stranraer Marina Expansion

Archaeological Assessment of Hydrographic Data

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1.0 Introduction

1.1 Background

1.0.2 MSDS Marine Limited (MSDS Marine) have been commissioned by RPS to undertake the archaeological assessment of hydrographic data collected within Stranraer harbour, Scotland. The assessment is being undertaken to inform the consenting process for a proposed expansion to the marina within the harbour, including dredging the harbour area, the creation of new berths, extension of the marina facilities and the creation of car parks and pedestrian spaces.

1.0.3 The assessment of hydrographic data was undertaken using data supplied by RPS, covering the extents of the proposed development to mean high water springs (MHWS).

1.2 Location

1.2.1 Stranraer harbour lies on the west coast of Scotland, at the southern end of Loch Ryan. The site is located at 205937, 561119 (NX 05937 61119) (Figure 1).



Figure 1: Site location and Proposed Development Area

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2.0 Aims and objectives

2.1 Archaeological review of hydrographic data

2.1.1 The principle aim of the archaeological review of geophysical and hydrographic data is to establish the presence of material of potential archaeological significance on the seabed. The identification of material or archaeological interest allows for strategies to be recommended to mitigate against any negative effects that may be caused by the development process.

2.1.2 The objectives of the archaeological interpretation can be summarised as follows;

- To establish the presence of anthropogenic material of archaeological potential;
- To interpret the identified anomalies as to their potential to be of archaeological significance; and
- To recommend mitigation strategies for the anomalies appropriate to their archaeological potential.

3.0 Methodology

3.1 Hydrographic data

3.1.1 Two hydrographic datasets were supplied by RPS;

- 2023 Bathymetry data covering the proposed development area and approach channel, gridded to 2.0 m (DS230816OSGB2); and
- 2024 Bathymetry data covering the western half of the proposed development area, gridded to 0.2 m (6W240717).

3.1.2 All data were supplied relative to British National Grid (OSGB36). The coverage, in relation to the development area, is presented in Figure 2 and Figure 3.

3.1.3 In addition, the Admiralty Data Portal Seabed Mapping Service was accessed to obtain existing geophysical survey data. Two datasets were found to cover the site:

- 1998 2006-358005 Approaches to Cairnryan and Stranraer Loch Ryan; and
- 1999 2006-358396 Approaches to Cairnryan and Stranraer Loch Ryan.

3.1.4 These data were of a low resolution and hence are not suitable for use for archaeological assessment, and as such were not considered further.

3.2 Data limitations

3.2.1 The data were of good quality, a 0.2 m resolution allows for the identification of small features on the seabed, whilst a 2.0 m resolution will generally allow for the identification of material that would be considered of medium or high archaeological potential (Table 1).

3.2.2 Only hydrographic data was available for the assessment which whilst suitable for the assessment of anomalies likely to be of medium or high potential to be of archaeological interest, does not achieve the same minimum object detection (MOD) size as Sidescan Sonar (SSS). However, due to SSS being a predominantly towed technique it's use within the confines of harbours can be problematic.

3.2.3 The use of a magnetometer would have enabled the identification of ferrous material on or below the seabed. However, as with SSS it is a predominantly towed technique and would have the same limitations within the confines of a harbour. In addition, working harbours are often littered with modern detritus, and/or items such as mooring blocks, chains, anchors, etc. which would significantly impact the archaeological interpretation of such data.

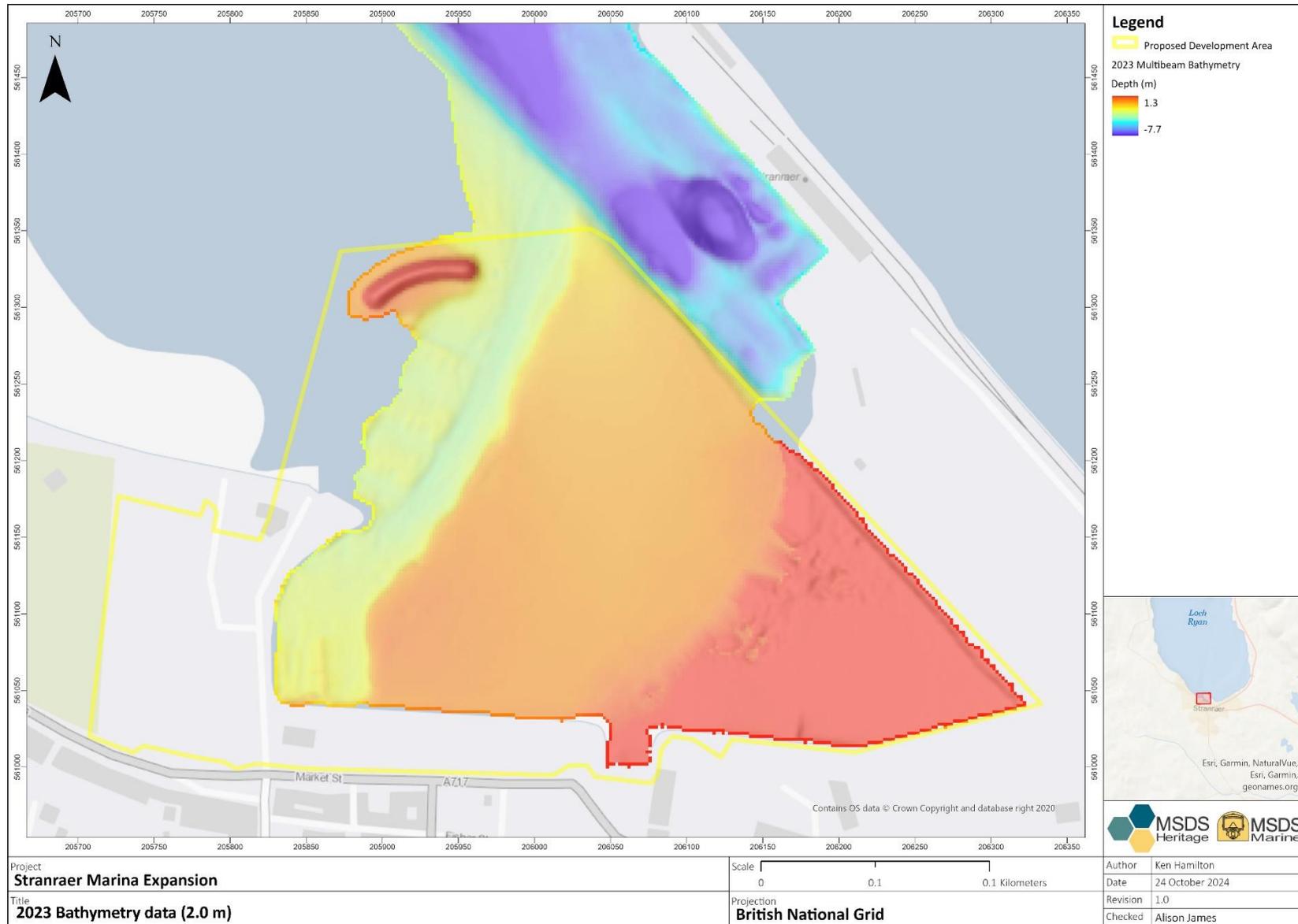


Figure 2: 2023 bathymetry data covering the proposed development area

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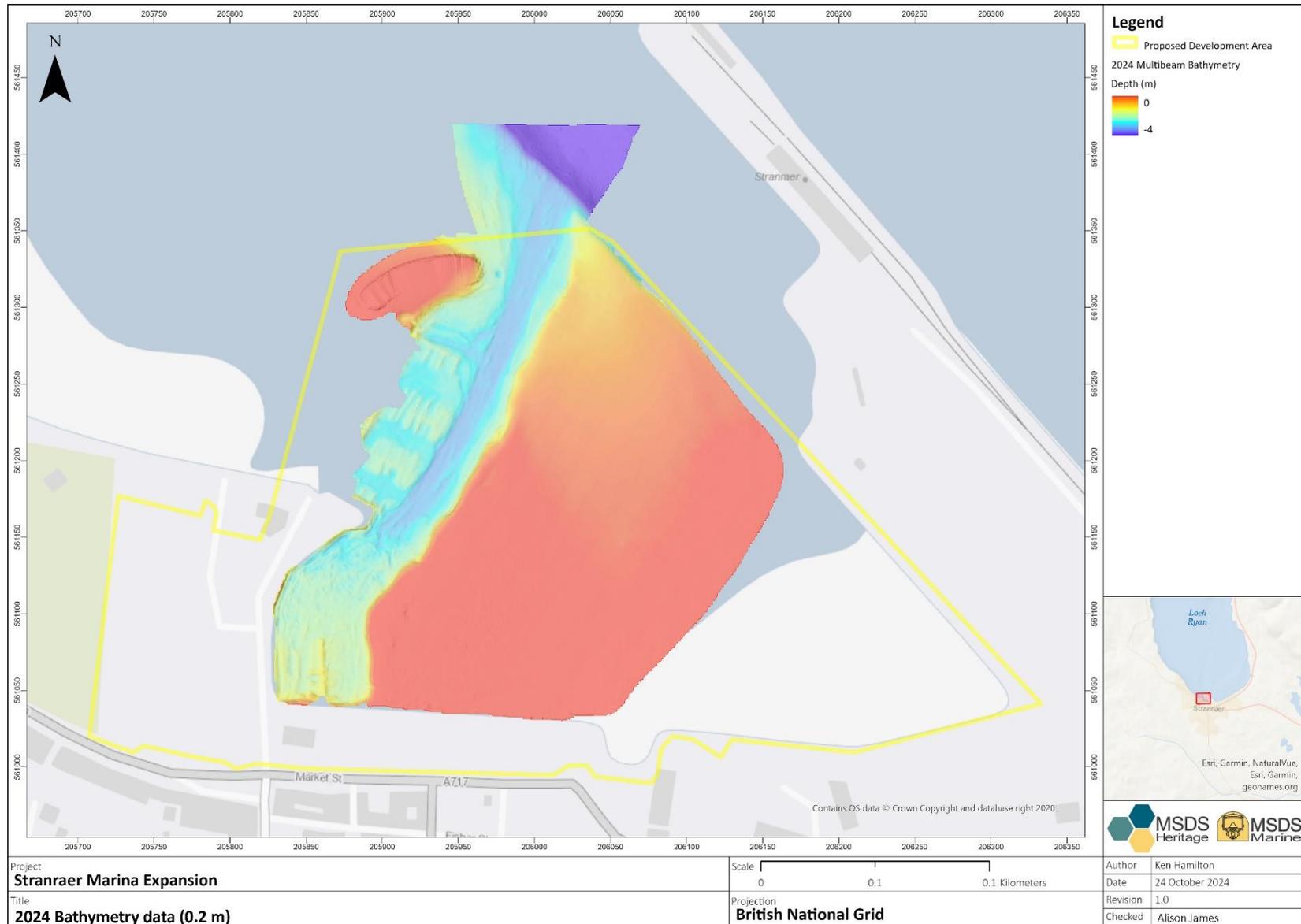


Figure 3: 2024 bathymetry data covering the proposed development area

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3.3 Archaeological Assessment

- 3.3.1 The archaeological assessment of hydrographic data was undertaken by a qualified and experienced maritime archaeologist with a background in geophysical and hydrographic data acquisition, processing, and interpretation.
- 3.3.2 Following delivery of the required datasets, an initial review was undertaken to gain an understanding of the geological and topographic make-up of the survey area. The potential for variation in the seabed within developed areas can affect the interpretation of anomalies.
- 3.3.3 The datasets were reviewed on a 10 m x 10 m grid basis and all anomalies of potential anthropogenic origin identified and recorded. Records include at a minimum (where appropriate) an image of the anomaly, dimensions, and a description. An archaeological potential was assigned to the anomaly following the criteria outlined in Table 1 below.

Potential	Criteria
Low	An anomaly potentially of anthropogenic origin but that is unlikely to be of archaeological significance – Examples may include discarded modern debris such as rope, cable, chain, or fishing gear; small, isolated anomalies with no wider context; or small boulder-like features with associated magnetometer readings.
Medium	An anomaly believed to be of anthropogenic origin but that would require further investigation to establish its archaeological significance – Examples may include larger unidentifiable debris or clusters of debris, unidentifiable structures, or significant magnetic anomalies.
High	An anomaly almost certainly of anthropogenic origin and with a high potential of being of archaeological significance – high potential anomalies tend to be the remains of wrecks, the suspected remains of wrecks, or known structures of archaeological significance.

Table 1: Criteria for the assessment of archaeological potential

- 3.3.4 Anomalies assessed as having archaeological potential were compiled into a gazetteer and a shapefile created for further assessment alongside known features such as wrecks, mooring buoys, third party assets such as cables and pipelines and other seabed structures. The data was assessed in this way to ensure that anomalies were not unnecessarily identified as having archaeological potential when the origination can be identified.
- 3.3.5 The interpretation of hydrographic data is, by its very nature, subjective; however, with experience and by analysing the form, size, and characteristics of an anomaly a reasonable degree of certainty as to the origin of an anomaly can be achieved.
- 3.3.6 Measurements can be taken in hydrographic processing software, and whilst largely accurate, discrepancies can be noted due to a number of factors. Where there is uncertainty as to the potential of an anomaly, or its origin, a precautionary approach is always taken to ensure the most appropriate and robust mitigation for the historic environment.

3.3.7 It should be noted that there may be instances where an anomaly may exist on the seabed but not be visible in the geophysical data. This may be due to being covered by sediment, being obscured from the line of sight of the sonar, or outwith the capabilities or specification of the survey.

3.4 Desk-based assessment

3.4.1 A Desk-based Assessment (DBA) was undertaken to identify the locations of potential material of archaeological interest, for assessment alongside the hydrographic data. Records consulted included;

- Dumfries and Galloway Historic Environment Record (HER)
- Historic Environment Scotland National Record of the Historic Environment (NRHE);
- Historic Environment Scotland Canmore Maritime;
- United Kingdom Hydrographic Office (UKHO) wrecks, obstructions, and foulds record;

3.5 Desk-based Assessment data audit

HER data

3.5.1 Dumfries and Galloway Council HER data were provided by RPS. The data included;

- Monuments (points and polygons)
- Monument descriptions
- Archaeological events (none within the proposed development area)
- Conservation areas and Areas of Archaeological Interest

3.5.2 The data contained records of fifteen vessels. All but two of these vessels have the same grid reference, indicating that they are listed under a named location (standardised locations to which casualties or documented wreck records without corresponding known sites), rather than a true position.

NRHE data

3.5.3 NRHE data were provided by RPS. The NRHE data all relate to existing harbour infrastructure and are not covered by this assessment.

Canmore maritime data

3.5.4 Canmore maritime data were obtained from Historic Environment Scotland.

3.5.5 The data contained records of fifteen vessels. All but two of these vessels have the same grid reference, indicating that they are listed under a named location, rather than a true position.

UKHO data

3.5.6 UKHO data were downloaded from the UKHO website, but returned no records within the proposed development area.

4.0 Results

4.1 Archaeological assessment of hydrographic data

- 4.1.1 The archaeological assessment of hydrographic data identified no anomalies of archaeological interest within the proposed development area. All visible features of likely anthropogenic origin were interpreted as being related to the current marina and its infrastructure and thus are not included within this assessment.
- 4.1.2 The eastern half of the proposed development area was heavily silted. As only hydrographic data were supplied, it was possible to assess the archaeological potential below or within the sediment.

4.2 Desk-based Assessment

- 4.2.1 The DBA was undertaken to inform the archaeological assessment of hydrographic data, the results are summarised below, the spatial distribution presented in Figure 4, and the records summarised within Annex A: *Gazetteer of documented losses*.
- 4.2.2 No records from the UKHO were present within the proposed development area.
- 4.2.3 Records from the NRHE all related to existing harbour infrastructure.
- 4.2.4 There are fifteen documented losses in both the HER and Canmore datasets, fourteen of which are named. Two of the vessels have the same name and loss date, but appear to be different vessels, as they had different captains. As these vessels sank within a working harbour, most, if not all, will have been recovered.
- 4.2.5 One wreck, *Mary's Packet*, actually sank in Loch Ryan and was recovered to Stranraer harbour, reportedly with 'minimal damage', so may not have been a wreck at all.
- 4.2.6 The wrecks range in date from 1839 to 1928 and are predominantly small luggers, although there are three schooners listed and two fishing smacks. The smacks may have been lug rigged and some or all of the luggers may have been fishing boats. The majority of the craft were local, with occasional traffic to Belfast represented.
- 4.2.7 No evidence of anthropogenic material of archaeological interest was identified at the locations of any of the records.



Figure 4: HER and Canmore remains within the Study Area

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5.0 Discussion

- 5.0.1 The marina and its proposed extension sit within the historic harbour of Stranraer, built in 1820 and extended with the construction of the East Pier and rail terminal in 1862¹. Despite Stranraer being a relatively busy harbour, the water enclosed by the piers seems to have silted relatively quickly, as it is marked as 'Sand' on a number of maps dating to the turn of the 20th century².
- 5.0.2 In such restricted waters, it is unsurprising that a number of vessels were lost to collisions and groundings. The majority of these vessels were small (six tons or under), and all are likely to have been recovered or cleared immediately afterwards, to maintain the functionality of the harbour area.
- 5.0.3 No remains of anthropogenic origin were identified in the hydrographic dataset. It is possible that the remains of vessels which ran aground in the eastern half of the harbour survive within the sediments there. As buried remains they would not be detectable by hydrographic survey but may be uncovered during dredging operations.

¹ <https://www.visitscotland.com/info/see-do/stranraer-19th-century-harbour-p254431>, accessed 24/10/2024

² <https://maps.nls.uk/geo/explore/#zoom=16.3&lat=54.90717&lon=-5.02801&layers=168&b=ESRIWorld&o=100>, OS 25" 1892-1914, OS 6" 1888-1915 Editions accessed 24/10/2024

6.0 Mitigation

- 6.0.1 No mitigation in the form of Archaeological Exclusion Zones (AEZs) is recommended within the proposed development area.
- 6.0.2 Should material of potential archaeological significance be identified during the course of pre-development and development works it should be reported under an appropriate Protocol for Archaeological Discoveries (PAD). The protocol could take the form of the Crown Estates *Protocol for Archaeological Discoveries: Offshore Renewables Projects*³ or a project specific protocol that considers the individual requirements of the Project. The protocol should be agreed with the curator and the regulator prior to any impact on the seabed

³ The Crown Estate, 2014. *Protocol for Archaeological Discoveries: Offshore Renewables Projects*. Wessex Archaeology on behalf of the Crown Estate.

7.0 Annex A: Gazetteer of documented losses

Name	Details	Type	Tonnage	Cargo	Date of Loss	HER	Canmore
<i>Mary's Packet</i>	Sunk in Loch Ryan, but recovered to Stranraer 25/1/1839.				07/01/1839	MDG22438	205584
<i>Thornaby</i>	Collided with <i>Volusia</i>	Schooner	58	Coal	22/12/1894	MDG22580	251508
<i>Volusia</i>	Collided with <i>Thornaby</i>	Schooner	57	Coal	22/12/1894	MDG22581	251509
<i>Briton</i>	Sunk in gale, possibly recovered				09/01/1852	MDG22910	282892
<i>Charming Peggy</i>	Destroyed by cargo fire and subsequent explosion	Smack	38		11/4/1867	MDG22980	285454
<i>Cygnat</i>	Driven from moorings and collided with <i>Briton</i> and East Pier	Schooner			28/10/1862	MDG22996	286682
<i>Agnes</i>	Foundered in harbour	Lugger	2	In ballast	1901	MDG23004	290274
<i>Grace</i>	Sunk in collision	Lugger	3	In ballast	30/12/1904	MDG25257	299348
<i>Robina</i>	Foundered	Lugger	3	In ballast	12/11/1901	MDG25258	299349
<i>Radical</i>	Foundered	Lugger	1	In ballast	12/11/1901	MDG25259	299350
<i>Jeanie</i>	Foundered	Lugger	2	In ballast	12/11/1901	MDG25271	299351
<i>Jeanie</i>	Foundered	Lugger	1	In ballast	12/11/1901	MDG25272	299352
<i>Sweetheart</i>	Collided with <i>Chase</i>	Lugger	6	In ballast	26/12/1906	MDG25275	299355
<i>Chase</i>	Collided with <i>Sweetheart</i>	Lugger	6	In ballast	26/12/1906	MDG25276	299356
Unknown	Driven ashore	Smack			23/11/1928	MDG25277	299357