

Notes

Phonix: a preliminary report on the 19th-century Danish steamer wrecked on the Snæfellsnes Peninsula, Iceland

In April 2009 a geophysical survey, carried out by members of the *Phonix* Society searching for the wreck of the Danish steamer of the same name, located three large objects and a field of debris on the sea-floor about 1000 m off the coast at Syðra-Skógarnes in Snæfellsnes, Iceland (Fig. 1). Divers verified that this was the wreck of a large steamer, about 60 × 8 m, and the artefacts that were found around the wreck suggested that it dates to the late 19th century. The only ship of this size recorded lost in this area at that date was the Danish steamer *Phonix* that foundered in January 1881.

The discovery was reported to the Icelandic Cultural Heritage Agency and shortly thereafter two archaeologists from the Agency dived on the wreck to assess its condition. The wreck is severely broken up: the superstructure and the upper part of the hull are scattered around the wreck; the stern has broken off and is lying on its side. However, the lower part of the hull is buried in sand and is assumed to be in a better state of preservation. *Phonix* subsequently became the second ship to be added to the heritage list of historic protected wrecks in Icelandic waters, the first being the French research vessel *Pourqoui Pas* that sank in 1936 (Kahn, 2006: 164).

A team of divers from the University of Iceland carried out an archaeological survey of the wreck in 2011–2013, which is reported here. The objectives of this project were threefold: first, to develop and test maritime archaeological methods suitable for the con-

ditions in Icelandic waters; second, to increase knowledge of the possible degree of preservation of submerged archaeological sites in Iceland's harsh conditions; and third, to lay the groundwork for future archaeological excavation and heritage management of the steamer *Phonix*.

Historical background

For centuries the North Atlantic has been an important trade route for European countries. Trade networks between Europe and the Norse colonies in the North Atlantic were established in the late 13th century as the demand for dried fish increased in Europe (Þorsteinsson, 1970: 23–30), and in the late 14th-century European fishing fleets began fishing in Icelandic waters (Heath, 1968: 53–60; Þorsteinsson, 1970: 26–35; Jones, 2000: 105–10; Edvardsson, 2010: 111–12). During the late Medieval and early Modern periods North Atlantic trade was dominated by German and English merchants (Baasch, 1889: 107–20). However, in the early 17th century the Danish king monopolized trade in the North Atlantic, passing a law that barred trade without a licence with Iceland, the Faroe Islands and Norway. From this period, and until Iceland gained independence in the 20th century, trade was controlled and dominated by the Danish crown (Aðils, 1971: 3–60; Gunnarsson, 1983: 73–85; Andrésón, 1988: 47–65).

The number of merchant ships sailing to Iceland in the medieval period is unknown, but in the mid 13th century the Norwegian and later Danish governments undertook to send up to six official merchant ships annually (Dip. Isl., 1876, 1913). The written sources suggest that the number of merchant ships of other nationalities, most commonly German, English and Dutch, often exceeded the number of official Danish merchant ships (Ann. Isl. I., 1847: 22). Under the Danish trade monopoly, merchants of other nationalities almost ceased and the number of official merchant ships diminished to one or two annually (Gunnarsson, 1983: 20–34). However, unofficial sources, as well as archaeological research, suggest that illegal trading may have thrived well into the 18th century (Gardiner and Mehler, 2007: 385–427; Edvardsson and Rafnsson, 2011: 145–65).

In the late 18th century regular shipping between Iceland and Denmark commenced with mail ships. To

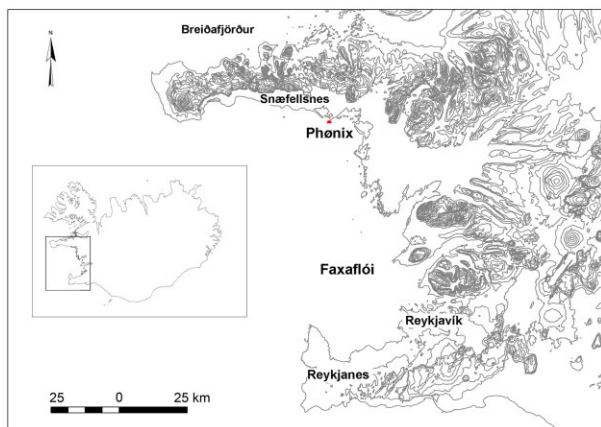


Figure 1. Location map.

begin with one or two trips were made annually but in the later part of the 19th century they had increased to six per year. The first steamer to serve this route was *Arcturus*, launched in 1858, which was joined by *Phonix* in 1861. The steamer *Laura*, launched in 1882, also worked this route and in the period 1882–1900 a number of other steamers served the route between Iceland, the Faroe Islands, Great Britain and Denmark (Þorleifsson, 2004: 153–204).

Phonix, built in Renfrew on the Clyde, Scotland, by J. Henderson & Sons (Ritchie 1992: 111), was registered as an iron screw barque, 628 gross ton, 199.2 ft (60 m) long and 25.4 ft (7.3 m) wide. Construction began in January 1861 and the ship was launched in September of the same year, after which it was handed over to the Danish shipping company A/S Det almindelige danske Dampskibs-selskap. From 1861 to 1867 *Phonix* sailed between Denmark, Great Britain and Iceland. In 1867 it was taken over by the shipping company *Det forenede Dampskibs-selskap*, and between 1867 and 1878 it served the route between Denmark, Great Britain, the Faroe Islands and Iceland. In 1878 it was taken out of service for a refit in Copenhagen, where it was lengthened to 202.1 ft (62 m), increasing its overall gross tonnage to 721, and a new engine and a boiler were also installed. Later the same year, *Phonix* began sailing between Copenhagen and Reykjavík and continued to do so until 1881 (Lloyd's, 1861; Thorsøe *et al.*, 1991: 131).

In January 1881, *Phonix* began its scheduled mid-winter journey to Iceland, carrying mail, coal and general cargo for the stores in Reykjavík. Though the ship regularly carried passengers none were on board on this trip, leaving a complement of just 24 crew members. The trip was uneventful until it reached Iceland, but in the afternoon of January 30 1881, as the ship was passing the Reykjanes Peninsula, it sailed into a severe winter gale. The temperatures quickly dropped to -18°C as the storm, that had first blown from the west, came in from the north, and the ship became over-iced and in danger of keeling over. In the next few hours the crew fought the ice and the storm but after almost keeling over twice, the captain decided to cut down the mainmast and sail towards the shore. The captain kept the ship into the storm and ordered the crew to continue clearing ice from the deck. At about 01H00 on January 31 the ship foundered on the reefs just offshore from Syðra-Skógarnes on the Snæfellsnes Peninsula. The crew made it to the lifeboats and managed to get ashore. Five crew members walked to the nearest farm to get help, while the others waited on the shore. After much hardship the whole crew was rescued by local farmers; however, they had suffered severe frostbite and one died in the following days. The ship remained on the reef at first and attempts were made to access the cargo, but little was salvaged and a few days later, the ship slid off the reef and sank (Þjóðólfur, 1881a: 13; Ísafold, 1881: 13). Although, the national newspapers, *Þjóðólfur* and *Ísafold*, gave eye-

witness accounts of the loss and the aftermath, as well as publishing official reports on the wrecking, salvage attempts and medical reports on the conditions of the crew members, it seems that the wreck and its location were soon forgotten and the story of the steamer *Phonix* did not surface again until 2009.

The wreck-site and underwater conditions

The Snæfellsnes Peninsula is a long, narrow stretch of land in western Iceland (Fig. 1). The southern coastline is characterized by long, sandy beaches and just offshore there are many treacherous reefs. Although there are no large towns on the south side of the peninsula, a number of medieval and early modern trading posts have been recorded on the shoreline, as well as a few fishing stations dating to the 11th and 12th centuries (Edvardsson, 2000: 7–54). Historical sources suggest that a number of merchant ships have perished along this coastline (Ann. Isl. III., 1847: 648).

The wreck of *Phonix* is situated on the east side of a large submerged reef. The position of the main control point installed for survey purposes (Fig. 2), is $22^{\circ}34'54.78''\text{W}, 64^{\circ}45'59.22''\text{N}$ at an absolute depth of 9 m. It is exposed to the open sea and the wreck-site is strongly affected by wave action and strong currents. The reefs may have partly sheltered the wreck and played a role in its preservation.

The survey

To meet the stated aims we surveyed the wreck to create a site map. The project used only non-intrusive methods and no excavations were carried out on the site. The field work consisted of a total of nine days in April and May of 2011–2013. The divers rarely completed more than three dives per day, primarily because of the cold. In April, sea temperature in western Iceland is usually between $4-6^{\circ}\text{C}$, but as benthic algae growth is at its minimum in April and May it is the ideal time for archaeological surveying. As experience and knowledge of archaeological surveying in Icelandic conditions was limited, it was decided to adopt methods that have been successful in the UK, especially Scotland (Robertson, 2004: 14–28; Martin, 2005: 179–210).

First, a geophysical survey, using a sidescan sonar, was carried out at the wreck-site. The sidescan sonar, working on 455–800 kHz with a range of 50 m, was towed behind a boat covering the entire wreck-site (Fig. 3). Second, for underwater surveying, an iron control point was secured in a concrete block and positioned a few metres from the stern (Fig. 2). Another iron control point was set just off the bow of the wreck, but it proved to be unstable between seasons because of currents and shifting sand and had to be repositioned every season. A primary baseline was laid out between the control points, running in a NE/SW direction, following the alignment of the wreck. A buoy was

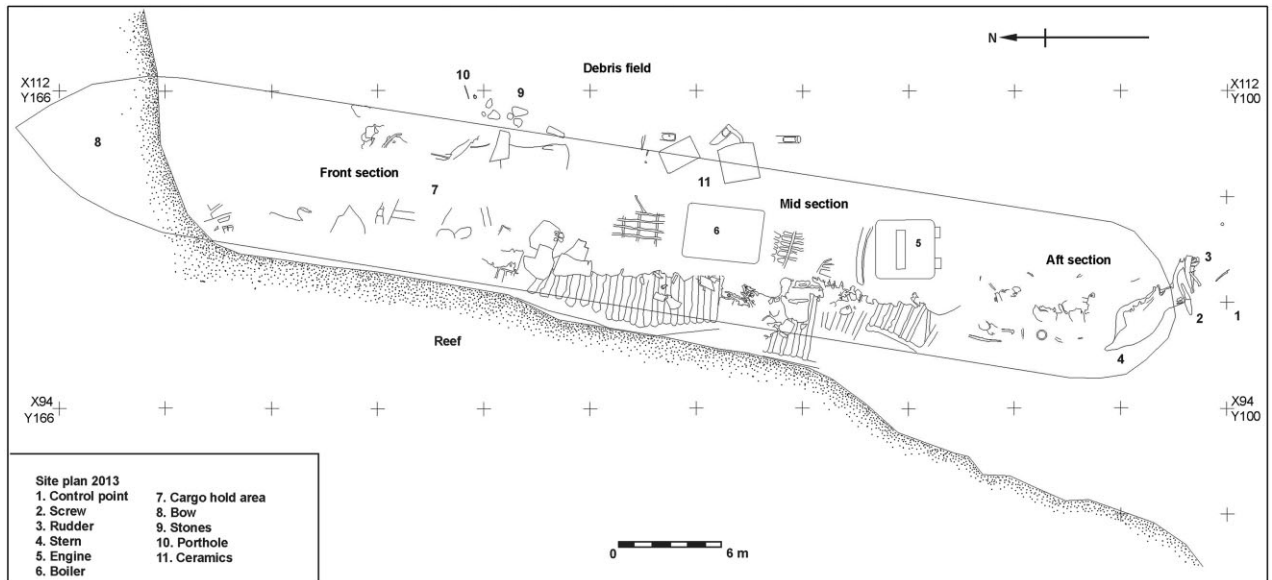


Figure 2. Site plan. (Ragnar Edvardsson)

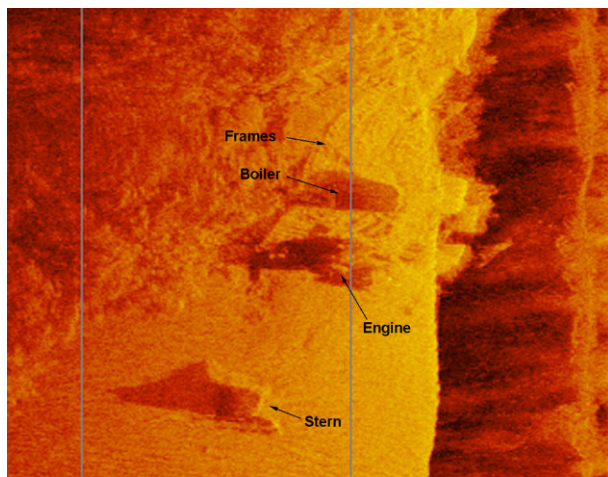


Figure 3. Sidescan sonar image of *Phoenix* and the submerged reef. (Arnar Þór Egilsson)

secured to the endpoints and then measured within a site grid with a differential GPS. A grid was laid out from the baseline and was later tied into a north/south grid. The position of structural elements and finds were fixed with off-set measurements from the baseline and all vertical measurements were recorded with a dive computer.

Finally, we took a series of vertical photographs and videotaped the wreck from the stern to the hold area. Oblique photographs were also taken from different parts of the wreck both of structural elements and finds (Fig. 4). A site map was assembled, using both the measurements and a composite image of the vertical photographs (Fig. 2).



Figure 4. Port side of the wreck. The boiler is in the background. (Arnar Þór Egilsson)

Description of the wreck

The wreck-site covers an area 12×70 m, which can be divided into four main sections: the aft-, mid-, and fore sections of the wreck, and a field of debris on the starboard side (Fig. 2). The wreck lies on the south side of a large reef, 400×50 m, the bow at a depth of *c.* 2–3 m on the reef, and the stern at *c.* 9–12 m. The wreck is orientated 30° to 210° . The superstructure of the wreck has eroded leaving only the bottom of the hull intact, much of it buried in sandy sediments.

The stern section has broken off and lies on its starboard side, buried in sand. At the beginning of the survey in 2011, the rudder, propeller and the whole portside of the stern section, from the engine to the rudder, were visible, but in 2012 and 2013 the rudder



Figure 5. A valve and other engine parts close to the engine. (Arnar Þór Egilsson)

had been buried and only a part of the propeller was exposed. A large part of the aft section of the hull had also been reburied, leaving only a part of the stern visible.

The mid section has split open and is tilted at a 20° angle towards starboard, with the port side resting against the reef. On the portside 20 frames were visible and several of the iron hull plates were still in their original position. Most of the engine (2-cylinder single stage expansion engine) lay close to its original position, but unidentified large engine parts were also scattered on its west side. The boiler (SB Scotch 3(f) GS56 HS2000 single-ended boiler) had broken loose and lay a few metres north of the engine. Two large unidentified cylindrical objects were on the west side of the boiler. Around the boiler and engine there were different engine parts, pipes, wheels, valves, handles and other unidentified parts of the engine (Fig. 5). These were all made of iron, copper or brass. Eight portholes were also recorded, some still attached to the broken hull and others lying loose in the sand, most with intact glass.

The fore section, which consists of the cargo hold and the stern of the wreck, was more deeply buried in sand and overgrown with benthic macrophytes and algae than the other sections. This section has also split open but is nearly upright. On the portside, eight frames rest against the reef. The starboard side was almost completely buried in sediments, making it difficult to identify any structural elements without excavation.

Along the starboard side of the wreck was a field of debris, extending at least 20 m from the wreck itself, containing different parts of the superstructure, davits, portholes and many other unidentified fragments.

Pottery

On the east side of the boiler, five ceramic vessels were observed, two whole soup bowls, two whole dishes and broken fragments of the same types. They were por-



Figure 6. Ironstone ceramic dishes and bowls *in situ*; inset detail of the Bodley & Co. stamp. (Arnar Þór Egilsson)

truding from the sand and closer inspection revealed more ceramic vessels buried in the sand in the same area. The dishes were lying in a position that allowed closer inspection of shape, decoration and potters stamp, without removing them (Fig. 6).

The outer rim of the dishes was decorated with a rope pattern and the inner with a chain pattern. On one soup bowl a circular potter's stamp was clearly visible showing a 'Staffordshire knot', with the words 'Bodley & Co., Burslem' printed around the knot, and on the outer rim of the stamp the words 'Genuine Ironstone China'. Ceramic vessels of this type were first patented in 1813 by Charles Manson but once his patent expired in 1827 potters in Staffordshire and elsewhere also began producing ironstone pottery. Ironstone was mass produced and because of its sturdiness it was ideal for use at sea. The company Bodley & Co was established in 1862, but in 1883 it became Bodley & Son and operated as such until 1896. The company operated three factories: Scotia, New Bridge and Hill Top in Staffordshire (Henrywood, 1999: 35–50). The stamp provides a *terminus post quem* of 1862 for the wreck.

Discussion

The survey provided the general plan (Fig. 2) of the wreck, but also enough information to reconstruct, with reference to historical sources including newspaper articles, existing paintings (Thorsøe *et al.* 1991: 131) and a drawing (Þorleifsson, 2004:), the layout of the ship (Fig. 7).

The old trading route between South West Iceland and the rich fishing grounds of the north-west lay along the coast of south *Snæfellsnes* and many ships, throughout the centuries, perished on this coast (Ný félagsrit, 1858: 189–91). Some ran into severe storms and were driven on to the reefs of the *Snæfellsnes* Peninsula, as was *Phoenix*. Such high-maritime-activity sites represent an under-explored, but important

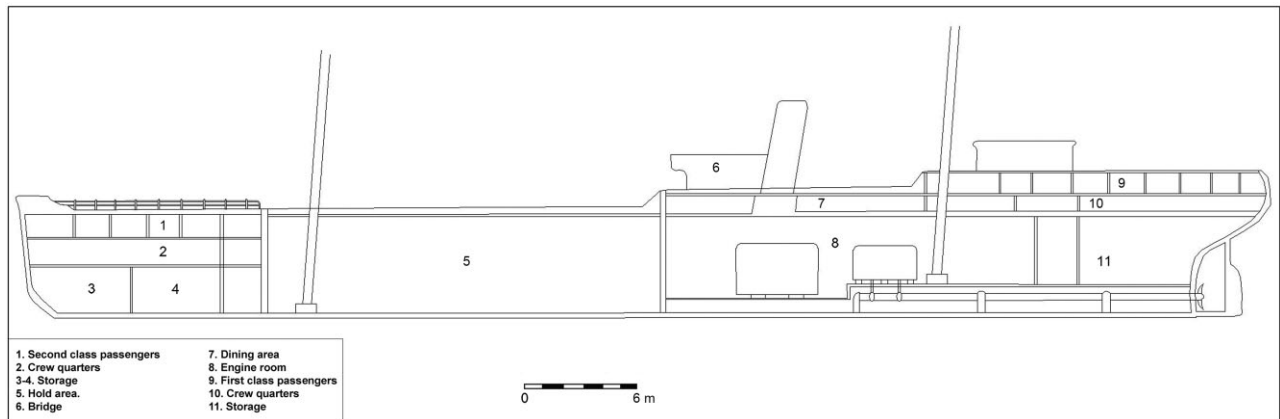


Figure 7. Reconstruction of *Phoenix* based on a painting and written sources. (Ragnar Edvardsson)

archaeological and historical resource that could potentially increase our knowledge of maritime activity in Iceland in particular, and North European trading in general.

The Danish steamers, including *Phoenix*, mark a transition period in the Icelandic history of maritime transportation, and social and economic change (Gunnlaugsson, 1988: 4–10). The appearance of steamers in the mid 19th century re-established regular trade routes, as well as social and cultural connections, between Iceland and the rest of Europe (Þorleifsson, 2004: 167–82). In addition to the general cargo, *Phoenix* was carrying on this voyage items of national historical significance, such as the tombstone of the national poet Kristján Jónsson (1842–1869) and personal items belonging to Jón Sigurðsson (1811–1879), one of the leaders of the Icelandic struggle for independence (Þjóðólfur, 1889). *Phoenix* played an important role in the economic history of the North Atlantic and would serve as an excellent point of departure for studies of 19th-century trade in the North Atlantic. Further archaeological work on the site could, in addition to its value for national heritage, give a deeper insight into the economy of late 19th-century Iceland, through, for example, the trade goods that were being imported.

Even though the project was limited to surveying the wreck, it is possible, with the help of newspaper articles and official reports, to remark briefly on the wrecking of *Phoenix*. The position of the wreck suggests that the ship was sailing in a NNE direction when it hit the reef. This corresponds with the written sources (Ísafold, 4.1881; 13) which state that after the mainmast had been cut the captain maintained a heading into the storm. The captain's intention may have been to beach the ship on the shore at Syðra-Skógarnes but, unaware of the submerged reef, the ship foundered about 1 km offshore. This may have been a blessing in disguise as a large reef immediately to the south-west gave some shelter from the waves, allowing the lifeboats to be launched. Often, where ships have foundered on Icelandic shores during storms, entire crews have been lost in the swells because lifeboats became unusable and the

crew unable to get ashore (Lúðvíksson, 1969: 58–9). The newspaper reports suggest that immediately after the ship foundered the crew quarters and the 2nd-class-passengers cabins in the bow flooded. Just before the crew abandoned the ship, the hold and the engine room also flooded. The next day, once the storm had subsided, it was noted that the ship had broken its keel, the hold was full of water and that the ship resembled an iceberg, which made it almost impossible to salvage any of the cargo. A few days later it was reported that the ship had slid off the reef and sunk, with only the aft mast sticking out of the water (Þjóðólfur, 1881b: 17–18). The survey suggests that the ship may have broken up when it sank as the stern is lying on its starboard side but the mid- and fore sections are upright on the sea-floor.

Prior to the *Phoenix* survey three underwater research projects had been carried out in Icelandic waters. The first was a small survey of the 17th-century Dutch Fluyt *Melckmeyt*, which sank in the harbour in Flatey, Breiðafjörður in 1658 (Einarsson, 1994; 138), the second was a survey in the medieval harbour Kolkuós in Skagafjörður (Traustadóttir, pers.com), and finally a geophysical survey of trading and whaling sites in Vestfirðir (Edvardsson and Egilsson, 2012: 15–28). The experience and knowledge of archaeological survey on submerged sites was therefore limited in Iceland. The discovery of *Phoenix* provided an excellent opportunity to develop this field by testing archaeological survey methods under Icelandic maritime conditions. The survey showed that, even in harsh, shallow conditions, substantial remains of the wreck have survived 133 years, even though wrecks in shallow waters are more exposed and erode more quickly than those in deeper waters, old harbours and other sheltered conditions (Einarsson, 1994; 135–6; Edvardsson and Egilsson, 2012: 15–17). The lowest part of the wreck is still preserved under sand and excavations into the hold area and on the starboard side would undoubtedly reveal more archaeological material.

Cold, strong currents and low visibility were the main issues affecting the underwater work, along with

a short 'season' when survey was practicable. The survey work progressed slowly, because of visibility and currents. Divers had to be careful not to stir up sediments during the survey work. The shifting sand was also a constant problem as it caused survey points to be lost between seasons. However, in spite of these difficulties, the divers mapped the main structural elements, visible finds and most of the wreckage visible on the sea-floor. Weather in Iceland is unpredictable and unstable weather conditions were the main hindrance during the survey work. Future underwater archaeological projects in Iceland need to adopt a flexible strategy to avoid closing down the fieldwork for a whole season. It became apparent during the work on the wreck that surface conditions were the main factor determining the progress of the survey. It became impossible to work on site if the wind blew from a southerly direction—towards land—and was more than 9–11 knots.

The conclusions of this survey raise important considerations. The rich maritime history of Iceland suggests the potential for discovery of further shipwrecks and underwater archaeological sites. Based on the current results, many of these sites can be expected to be

well enough preserved and accessible to make archaeological research both feasible and rewarding. Research on shipwrecks around Iceland could elucidate little-known aspects of European trading history, not the least during periods that are less well documented, especially the period 1250–1700. This in turn highlights the need for further consideration of the submerged heritage in Iceland. Although, the laws protecting the underwater heritage are already in place (*Lög um menningarminjar* 80/2012), they are poorly implemented as experience, documentation and surveying of submerged heritage in Iceland is still limited. Conversely, the threat to the underwater heritage is increasing, for example, from inshore fisheries and aquaculture, industrial demand for harbours and shipping and maritime tourism, and Iceland has not ratified the UNESCO Convention of 2001 (Heiðarsson, 2013: 30).

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Discovery and Survey and of a 17th–18th Century Shipwreck near Drumbeg, NW Scotland: an initial report

In December 2011 a possible wreck-site was reported to Historic Scotland at a location on the sea-bed c. 500 m from Drumbeg, a small village on the southern shore of Eddrachillis Bay on the west coast of Sutherland (Fig. 1). The wreck had been discovered in 1994 by one of the authors (EM). Subsequent survey by Wessex Archaeology was commissioned by Historic Scotland. The site consists of two anchors, and three cannon in close proximity overlying a well-preserved section of hull, in mobile sediments at a depth of 9–12 m. The Scottish government designated the site in 2013 as Scotland's first Historic Marine Protected Area under the Marine (Scotland) Act 2010. Further research by the discoverers of the site and Wessex Archaeology has been funded by Historic Scotland and is currently underway.

Discovery

In 1994, Ewen Mackay found a large anchor on the sea-bed while diving for scallops near his home. The main part of the wreck-site was later discovered nearby by Michael Errington, a friend of Mackay and both divers visited the site together in 1999.

Initially Mackay and Errington wished to identify the wreck before making the discovery public. Between 1999 and 2011 they undertook sporadic investigations of the site, including searches of the wider area, metal detection around the cannon and small-scale excavation and recovery of a small number of artefacts, including round shot and a deadeye. The divers were unable to discover much more about the wreck, partly because the level of mobile sediment often increased. An anchor found lying a short distance to the NW of

two of the cannon was moved during this period to a location on the sea-bed at c. 200 m distance in order to facilitate the metal-detecting survey.

In December 2011 the divers decided they could not progress the investigations further without professional assistance. Mackay made contact through a local historian with Historic Scotland, the executive agency of the Scottish Government charged with safeguarding Scotland's historic environment. Historic Scotland then commissioned Wessex Archaeology to survey the site. The Wessex team were to undertake a visual inspection and photographic survey of the wreckage in order to enable Historic Scotland to assess the significance of the site, in liaison with the divers who had discovered and reported it. This was carried out in September 2012 from the local dive charter vessel *Nimrod*. Further tasks were carried out including shallow test pitting and recovery of a small number of diagnostic artefacts. A technical report (McCarthy, 2012) describing the initial results of the survey is available online, and is summarized and updated here. In addition to carrying out a measured survey, the excellent levels of visibility experienced facilitated experimental use of multi-image photogrammetric techniques. The resulting 3D-survey data was used to generate plans of the site as well as fly-through videos and digital reconstructions (McCarthy and Benjamin, 2014).

The Drumbeg wreck-site

The Drumbeg wreck-site lies on a gradually sloping sandy sea-bed on the northern side of a narrow channel 'Dornaidh an Fheoir' between the shore of the mainland parish of Assynt and a cluster of small unoccupied